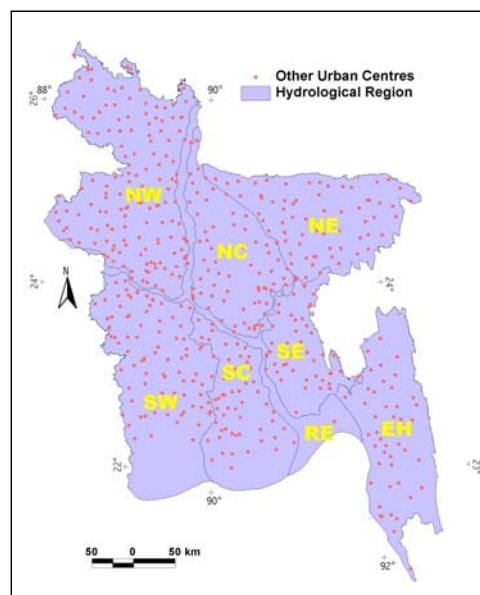


**Large and Small Town Flood Protection**Ref: **TR 007****Basic Data**NWMP Sub-sector **Towns and Rural Areas**Region(s) **Nationwide****Relevance to NWPo**

The programme is aimed at progressive development of appropriate flood protection works for selected Large and Small Towns. With regard to these urban centres, the NWPo states that “Other critical areas such as district and Upazila towns, important commercial centres, places of historical importance will be gradually provided reasonable degree of protection against flood.” The fulfilment of this objective will provide appropriate levels of protection for life, property, normal economic activity and public infrastructure. The Policy also states that all public buildings and infrastructure will be constructed above the highest ever-recorded flood level.

**Purpose of Programme**

There are 522 towns (1991 Census) throughout the country: 44 large towns (more than 50,000 people) with a total population of 9.8 million in 2000; and 478 small towns (less than 50,000 people) with a combined population of 4.2 million. The total population of all towns (large and small) is expected to increase five-fold in the next 50 years, from nearly 14 million in 2000 to 36 million in 2025 and 67 million by 2050. Current estimates indicate that 35% of town populations are classified as living in poverty. At present, NWMP data indicate that 140 towns (27% of the total) already have some form of flood or river bank erosion protection. Many of these structures are in fair to poor condition and will need upgrading. Other towns, which are currently unprotected, will need new flood protection facilities if NWPo objectives are to be achieved during the Plan period.

The programme for large and small towns will consist of two components:

- (a) upgrading existing flood protection facilities in 138 town (26% of the total); and
- (b) new flood protection works for 115 towns (22%) which are currently unprotected.

The general standard will be to protect urban areas against an acceptable flood return period. Many towns are expected to grow significantly over the next 25 years, so increased levels of security will be required to protect life, property and infrastructure, and limit the adverse impact on normal commercial activity. The poor will also benefit, but it is important that they are consulted during the planning and implementation process. Final decisions on the actual work required will depend on individual investigations for each town. In addition, the option of land

raising should be examined and encouraged wherever feasible in both existing and new urban areas.

## Programme Outline

The programme provides for a combination of upgrading and rehabilitation works in 138 towns and new works in a further 115 towns. The indicative breakdown by region is as follows:

Region	No of Towns	Towns with Flood Protection		Towns Requiring works			
		No	%	Upgrading		New Works	
		No	%	No	%	No	%
North East	66	15	23	16	24	23	35
North Central	67	17	25	17	25	19	28
North West	151	39	26	37	25	23	15
South West	86	21	24	20	23	13	15
South Central	53	22	42	22	42	17	32
South East	48	11	23	11	23	10	21
Eastern Hills	46	13	24	13	28	9	20
Rivers and Estuary	5	2	40	2	40	1	20
Total	522	140	27	138	26	115	22

For planning purposes, the NWMP assumes the following targets for the completion of the flood protection programme for Large and Small Towns: 50% by 2005; 75% by 2010; and 100% by 2025.

## Financing Arrangements

The investment requirements will be funded by GoB, possibly with international donor assistance.

Bangladesh Water Development Board (BWDB) is responsible for the repair and maintenance of flood protection facilities in the large and small towns. It is essential that this function is carried out diligently and with adequate funding support from GoB and the local municipal governments. In the past, many investments in urban flood protection have been jeopardised by inadequate funds for operation and maintenance.

## Objectives and Indicators

Objective	Suffix	Indicators/Mean of Verification	Due
• Flood protection programmes prepared and agreed	I1	• Signed programme/project documents	2007
• Flood protection programmes implemented	I2	• Programme/project completion reports	2027
• All large and small towns protected from 1: 100 year floods	K	• Physical evidence and hydrological data	2027
• Large and small towns protected from flooding and stormwater run-off	D	• Duration of inundation	2027

## Institutional Arrangements

Under existing institutional arrangements, the Bangladesh Water Development Board (BWDB) will be responsible for the planning, construction and maintenance of flood protection works in large and small towns. In the planning and implementation stages, it is important that local

communities and other stakeholders are consulted; and that any population resettlement is properly planned and carried out in a fair and appropriate manner.

In future, it is essential that BWDB carry out effective and appropriate maintenance on all flood protection works in order to ensure the integrity and security of the individual facilities. GoB and the local municipal governments will need to guarantee that BWDB has adequate annual financial resources to carry out this task. There is an opportunity for community-based organisations in the vicinity of the main flood defences to participate in these activities, providing BWDB provides expert supervision.

## **References and Documentation**

- (a) Chapter 7, Development Strategy Report, March 2001
- (b) National Water Resources Database in WARPO

## **Linkages**

The continuing development of flood protection facilities in the Large and Small Towns should be linked and co-ordinated with other NWMP programmes, namely:

- (a) BWDB Capacity Building (ID 010);
- (b) Disaster Management Bureau Capacity Building (ID 008);
- (c) Capacity Building for Other Organisations (ID 009);
- (d) Support to the Preparation of New Legislation (EE 001);
- (e) Water Resources Legislation - Preparation of Supporting Ordinances (EE 003);
- (f) Field Testing & Finalisation of Guidelines for Participatory Water Management (EE 006);
- (g) Raising Public Awareness in the Wise Use and Management of Water (EE 010);
- (h) Large and Small Towns Water Supply and Distribution Systems (TR 003);
- (i) Large and Small Towns Sanitation and Sewerage Systems (TR 005);
- (j) Large and Small Towns Stormwater Drainage (TR 008);
- (k) National Clean-up of Existing Industrial Pollution (EA 002);
- (l) National Pollution Control Plan (EA 001);
- (m) National Water Quality Monitoring (EA 003); and
- (n) Public Awareness Raising and Empowerment in respect of Environmental Issues (EA 010).

In addition, planning and implementation should be co-ordinated with the respective Local Government authorities (District towns, Paurashavas (municipalities), Upazila headquarters and urban growth centres), Ministry of Local Government, Rural Development and Co-operatives (MoLGRDC), Bangladesh Water Development Board (BWDB), Public Health Engineering Department (DPHE), Local Government Engineering Department (LGED), Urban Development Directorate (UDD), Ministry of Health (MoH), Ministry of Industry (MoI), Department of Environment (DoE), WARPO, NGOs and other interested parties.

## **Risks and Assumptions**

The main risks associated with the flood protection programme for the Large and Small Towns are institutional, financial and economic.

The institutional risks concern the ability of local government to ensure that flood protection facilities are regularly inspected and properly maintained. These issues can be addressed adequately if BWDB provide the technical support and carry out regular inspections; and local governments assign adequate funds to carry out annual maintenance work.

The financial risks are twofold: firstly, GoB and international donors will not support an extended flood protection programme for the Large and Small Towns; and secondly, local government will gradually ignore the funding requirements for regular maintenance. The first point can be dealt with if the Government prepares a well documented programme which integrates a broad range of municipal issues, including flood protection, in appropriate investment packages which will attract international support. The second point will require a legal obligation to be placed on all responsible local government agencies, plus appropriate training in infrastructure maintenance.

The economic risks relate to the damage which would occur in the short and medium term if the programme is not completed. The economic impact would be felt not only in the individual towns themselves, but also in the immediate hinterland with the subsequent disruption to normal administrative and commercial activities.

Assumptions:

- That support for maintenance is made available.(funds, staff and training)
- That enacted legislation will be implemented and followed through

**Large and Small Town Flood Protection**Ref : **TR 007**

Cluster :	<b>Towns and Rural Areas</b>	Region(s) :	<b>All</b>
Focus/Foci :	<b>Flood Protection</b>	Location :	<b>Large and Small towns throughout the country</b>
Start Year <sup>1</sup> :	<b>2003</b>	Duration <sup>2</sup> :	<b>25 year(s)</b>
		Agency(s) Responsible :	<b>BWDB</b> (Lead) <b>None</b> (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.		

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

<b>Finance</b>	Costs	Private	Funding (%) GoB	Beneficiaries	Expected by ProgrammeYear
Total Capital <sup>3</sup>	<b>14,460.00</b> MTk	<b>0%</b>	<b>100%</b>	<b>0%</b>	<b>25</b>
Ultimate Recurring	<b>1,301.40</b> MTk/yr	<b>n/a</b>	<b>50%</b>	<b>50%</b>	<b>26</b>
Date of Data :	<b>31 07 01</b> (dd) (mm) (yy)	<b>Stacked Cumulative Cash Flow Chart</b>			
Status :	<b>Identified</b>				
Financial Base Year:	<b>mid-2000</b>				
Planned Expenditure (to date) :	<b>0</b> MTk				
Actual Expenditure <sup>4</sup> (to date) :	<b>0</b> MTk				

**Monitoring**

<b>Objective</b>	<b>Indicator</b>	<b>Present Status<sup>5</sup></b>
• 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

**National Water Management Plan**  
**Programme Costing Sheet**

Programme Ref	TR 007
Title	Large and Small Town Flood Protection

*Assumptions:*

Taka/US\$	51.000	TA duration	0.0	years	All prices in mid-2000 values
		Investment duration	25.0	years	

Item	Unit	Quantity	Rate		Amount TkM	O&M %	O&M/yr TkM
			US\$	Tk'000			

**Technical Assistance**

Expatriate consultants (all-in rate)  
 Senior National consultants (all-in rate)  
 Mid-level National consultants (all-in rate)  
 Sub-totals  
 Other general TA programme costs  
 Specific other TA programme costs  
**Total TA Costs**

TA costs for this programme are included in the capital costs

Lump Sum Costs

Investment items - short term	Large towns	Small towns			
Flood protection embankments	3,620.0	2,911.0	4,820.0	9.0%	433.8

**Investment items - term**

Flood protection embankments	3,620.0	2,911.0	4,820.0	9.0%	433.8
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**Investment items - short term**

Flood protection embankments	4,525.0	2,911.0	4,820.0	9.0%	433.8
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<b>Total Investment Items</b>			<b>14,460.0</b>	<b>9.0%</b>	<b>1,301.4</b>
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<b>Overall Programme Costs</b>			<b>14,460.0</b>		<b>1,301.4</b>
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