

Final Draft for Approval



Government of the People's Republic of Bangladesh

**National Plan for Disaster Management
2008-2015**

**Disaster Management Bureau
Ministry of Food and Disaster Management
May 2008**

Foreward

National Plan for Disaster Management 2008-2015 is an outcome of the national and international commitments of the Government of Bangladesh (GoB) and the Ministry of Food and Disaster Management (MoFDM) for addressing the disaster risks comprehensively. The plan has been developed on the basis of the GoB Vision and MoFDM mission to reduce the vulnerability of the poor to the effects of natural, environmental and human induced hazards to a manageable and acceptable humanitarian level by a) bringing a paradigm shift in disaster management from conventional response and relief practice to a more comprehensive risk reduction culture and b) strengthening the capacity of the Bangladesh disaster management system in improving the response and recovery management at all levels.

Bangladesh has taken a holistic approach for disaster management where emphasis has been given to work together with all the stakeholders and build strategic, scientific and implementation partnerships with all the relevant government departments and agencies, other key non-government players including NGOs, academic and technical institutions, the private sector and the donors. The role of Government is mainly to ensure that risk reduction and comprehensive disaster management is a focus of national policy and programmes.

The National Plan for Disaster Management is indicative to what the relevant regional and sectoral plans would consider to address the key issues like risk reduction, capacity building, climate change adaptation, livelihood security, gender mainstreaming, community empowerment and response and recovery management. The plan also will act as basic guideline for all relevant agencies in strengthening better working relations and enhancing mutual cooperation.

The plan reflects the country initiatives since creation of Disaster management Bureau in 1993 in line with the paradigm shift in disaster management from conventional response and relief to a more comprehensive risk reduction culture having the development linkages. Inclusion of Policy Matrix on Comprehensive Disaster Management towards poverty reduction and growth in Poverty Reduction Strategy (PRS) is an indicator of mainstreaming risk reduction and consideration of disaster-development linkages.

The Government of Bangladesh is committed to the implementation of its global and national commitment for establishing risk reduction framework. Execution of Standing Orders on Disaster, drafting of Disaster Management Act, developing of National Disaster Management Policy, launching of MoFDM Corporate Plan, developing Bangladesh Disaster Management Model, establishing Disaster Management Information Centre (DMIC) and developing the National Plan for Disaster Management are the major milestones in the long run of our achievement.

The strategic goals of the Plan are drawn from the SAARC Disaster Management Framework. These goals are well linked to the international and national drivers, so that the plan can articulate the long term strategic focus of disaster management in Bangladesh.

We hope that the plan will contribute towards the formulation of a road map for the development of strategic and operational plan by various entities.

I would like to congratulate the MoFDM and DMB officials, and CDMP Professionals for developing this National Plan for Disaster Management, which will contribute to achieving Millennium Development Goals (MDGs) and sustainable development of the country.

(Dr. A M M Shawkat Ali)
Advisor
Ministry of Food and Disaster Management

Acknowledgement

Ministry of Food and Disaster Management is very much pleased for launching the National Plan for Disaster Management to be implemented during 2008-2015. The Plan is the reflection of the commitments of the Government of Bangladesh for addressing disasters in a comprehensive way. The Plan will be helpful for effective intervention by the MoFDM to fulfil its mandatory role of coordinating all disaster management activities within the country. We hope that the plan will contribute towards a cohesive and well coordinated programming framework incorporating GoB, Non-Government and the private sector.

Special thanks are extended to Dr. Selina Ahsan, former Director General (Additional Secretary), FPMU and her team for overseeing and guiding the development of this National Plan. I offer special thanks to the officials of relevant ministries and their agencies, NGOs, members of disaster management committees and other stakeholders for offering their views, comments and recommendations in developing the plan. I particularly offer special thanks to officials of Disaster Management Bureau (DMB) for their valuable contribution to finalising the draft of this document.

A team of highly dedicated and experienced professionals working with the Ministry of Food and Disaster Management and its Comprehensive Disaster Management Programme (CDMP) has worked hard to prepare this important document. I am pleased to express my appreciation for their diligence. Sincere thanks are extended to CDMP professionals Dr. Aslam Alam and Dr. Shantana Halder for their special efforts in preparing the plan.

We are most grateful to our honourable Advisor for his kind guidance provided to us for developing this plan. We also take this opportunity to put on record our deep appreciation for the excellent cooperation from our development partners and well wishers for their support in preparing the document.

(Molla Waheduzzaman)
Secretary In-Charge
Ministry of Food and Disaster Management

Preface

The National Plan for Disaster Management for the period of 2008-2015 is a long desired document based on the global and regional commitment of the Government of Bangladesh and its vision on disaster management. The plan reflects the basic principles of the SAARC Framework on Disaster Management.

We all are aware about the specific programmes of Disaster Management Bureau to minimise the Disaster risk at the community level and country as well. The DMB with the proper guideline of the Ministry of Food & Disaster Management already introduced Standing Orders on Disaster in 1997, which is now active as a main instrument of comprehensive Disaster Management of the country. The Bureau now also engaged in a process to finalise National Disaster Management Act, Improvement of Cyclone Signalling System, Revision of Standing Orders on Disaster. Procuring modern and sophisticated Search and Rescue Equipments, Needs and Damage Assessment Report on flood 2007 and Cyclone SIDR 2007 and other related workshops and its proper execution to face the challenges of the disaster. It is our matter of great prides that before introduction of Hugo Framework for action, Millennium Development Goals, United Nations Framework convention on Climate change Bangladesh has introduced its own Comprehensive Disaster Management Programme for mainstreaming disaster management in development plan and programmes. The CPP activities and disaster management programme activities, acclaimed by world communities and since it is incepted as a pioneer one. It indicates the commitment of Bangladesh Government to introduce all hazards, all risks mitigation approaching a well planned and under a well established institutional framework.

The key focus of the National Plan for Disaster Management is to establish institutional accountability in preparing and implementing disaster management plans at different levels of the country. Development Plans incorporating Disaster Risk Reduction and Hazard Specific Multi-Sectoral Plans have made this plan an exclusive tool for reducing risk and achieving sustainable development.

Traditionally we are used to manage the natural hazards but the need for addressing the emerging issues like climate change adaptation, drought, desertification and human induced hazards in national policy and plans was very much required. For the first time, a national document on disaster management has included both natural and human induced hazards in its action plan involving government and non-government organizations, and private sector in a comprehensive way.

The plan has been prepared in a participatory way having several consultations with stakeholders and established a road map of effective partnership with the organizations working in local, national and regional levels. It is expected that this plan will contribute towards developing and strengthening regional and national networks.

I would like to acknowledge the guidance and suggestions from the Secretary of the Ministry of Food and Disaster Management in improving this national plan. We are also grateful to the Honourable Members of Inter Ministerial Disaster Management Coordination Committee for their views and recommendations on the plan.

I would like to express my sincere gratitude to my colleagues in MoFDM, DMB and CDMP who have contributed a lot for developing and finalising the plan. I also extend my thanks to our development partners including the NGOs for their cordial support in enriching this document.

(K H Masud Siddiqui)
Director General
Disaster Management Bureau

LIST OF ABBREVIATION

ADB	Asian Development Bank
ADPC	Asian Disaster Preparedness Centre
ADRC	Asian Disaster Reduction Centre
AFD	Armed Forces Division
APD	Academy for Planning and Development
ASEAN	Association of South East Asian Nations
BARD	Bangladesh Academy for Rural Development
BBS	Bangladesh Bureau of Statistics
BCAS	Bangladesh Centre for Advanced Studies
BCS	Bangladesh Civil Service
BDRCS	Bangladesh Red Crescent Society
BFS&CD	Bangladesh Fire Service and Civil Defence
BGD	Bangladesh
BGS	British Geological Survey
BMD	Bangladesh Meteorological Department
BNBC	Bangladesh National Building Code
BNDV	Bangladesh National Disaster Volunteers
BPATC	Bangladesh Public Administration Training Centre
BS	Bangladesh Scouts
BUET	Bangladesh University of Engineering and Technology
BWDB	Bangladesh Water Development Board
CBO	Community Based Organization
CCC	Climate Change Cell
CCDMC	City Corporation Disaster Management Committee
CDMP	Comprehensive Disaster Management Programme
CEGIS	Centre for Environmental and Geographical Information Services
CPP	Cyclone Preparedness Program
CPPIB	Cyclone Preparedness Program Implementation Board
CRA	Community Risk Assessment
CSDDWS	Committee for Speedy Dissemination of Disaster Related Warning/ Signals
DAE	Directorate of Agricultural Extension
DC	Deputy Commissioner
DDMC	District Disaster Management Committee
DDMP	District Disaster Management Plan
DESA	Dhaka Electric Supply Authority
DFID	Department for International Development
DGOF	Director General of Food
DIRA	Disaster Impact and Risk Assessment
DMB	Disaster Management Bureau
DMC	Disaster Management Committee
DMIC	Disaster Management Information Centre
DMTATF	Disaster Management Training and Public Awareness Building Taskforce
DoE	Department of Environment
DPHE	Department of Public Health Engineering
DRR	Directorate of Relief and Rehabilitation

DRRO	District Relief and Rehabilitation Officer
ECNEC	Executive Committee of the National Economic Council
EIA	Environmental Impact Assessment
EOC	Emergency Operation Centre
FBCCI	Federation of Bangladesh Chamber of Commerce and Industries
FFE	Food for Education
FFW	Food for Works
FFWC	Flood Forecasting and Warning Centre
FPMU	Food Planning and Monitoring Unit
FPOCG	Focal Point Operation Coordination Group
GDACS	Global Disaster Alert and Coordination System
GDP	Gross Domestic Product
GIS	Geographical Information System
GOB	Government of Bangladesh
GSB	Geological Survey of Bangladesh
HFA	Hyogo Framework for Action
HIPC	Heavily Indebted Poor Countries
HIV/AIDS	Human Immune Virus/Acquired Immune Deficiency Syndrome
ICT	Information Communication Technology
IFRC	International Federation of Red Cross
IMDMCC	Inter-Ministerial Disaster Management Co-ordination Committee
IMF	International Monetary Fund
INSARAG	International Search and Rescue Advisory Group
ISDR	International Strategy for Disaster Reduction
IWM	Institute of Water Management
JPOI	Johannesburg plan of Implementation
LGD	Local Government Division
LGED	Local Government Engineering Department
LGRD	Local Government and Rural Development
LRP	Land Reclamation Programme
MDGs	Millennium Development Goals
MES	Meghna Estuary Study
MoD	Ministry of Defence
MoEd	Ministry of Education
MoEF	Ministry of Environment and Forest
MoFA	Ministry of Foreign Affairs
MoFDM	Ministry of Food and Disaster Management
MoF&L	Ministry of Fisheries and Livestock
MoH&FP	Ministry of Health and Family Planning
MoHA	Ministry of Home affairs
MoP&T	Ministry of Post and Tele-communication
MoPME	Ministry of Primary and Mass Education
MoRA	Ministry of Religious Affairs
MoS&T	Ministry of Science and Technology
MoSW	Ministry of Social Welfare
MoW&CA	Ministry of Women and Children Affairs
MoWR	Ministry of Water Resources
MPO	Master Plan Organisation
MSL	Mean Sea Level

NAEM	National Academy for Educational Management
NDMAC	National Disaster Management Advisory Committee
NDMC	National Disaster Management Council
NDMTI	National Disaster Management Training Institute
NEC	National Economic Council
NGO	Non Governmental Organization
NGOCC	NGO Coordination Committee on Disaster Management
NWMP	National Water Management Plan
NWRD	National Water Resources Database
PCP	Project Concept Paper
PDMC	Pourashava Disaster Management Committee
PDMP	Pourashava Disaster Management Plan
PIO	Project Implementation Officer
POA	Plan of Action
PP	Project Proforma
PPRR	Prevention, Preparedness, Response and Recovery
PRSP	Poverty Reduction Strategy Paper
PWD	Public Works Department
RAJUK	Rajdhani Unnayan Katripakhaya
RCC	Regional Consultative Committee
RDA	Rural Development Academy
RRAP	Risk Reduction Action Plan
SAARC	South Asian Association for Regional Cooperation
SARDI	Soil and Agricultural Research and Development Institute
SDMC	SAARC Disaster Management Centre
SFA	SAARC Framework for Action
SMRC	SAARC Meteorological Research Centre
SOD	Standing Orders on Disaster
SPARRSO	Space Research and Remote Sensing Organisation
TAP	Technical Assistance Project
TAPP	Technical Assistance Project Proforma
TOT	Training of Trainers
TR	Test Relief
UDMC	Union Disaster Management Committee
UDMP	Union Disaster Management Plan
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNISDR	United Nations International Strategy for Disaster Reduction
UNO	Upazila Nirbahi Officer
UZDMC	Upazila Disaster Management Committee
UZDMP	Upazila Disaster Management Plan
VDP	Village Defence Police
VGD	Vulnerable Group Development
WARPO	Water Resources Planning Organization
WASA	Water and Sewerage Authority
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization
WSSD	World Summit on Sustainable Development

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I.		

II. INTRODUCTION

Bangladesh is a low-lying deltaic country in South Asia formed by the Ganges, the Brahmaputra and the Meghna rivers. It is a land of about 144 million people within its 147,570 sq. km territory. More than 310 rivers and tributaries have made this country a land of rivers.

Diversified cultural heritage, archaeological sites and natural beauty of the country have made this land attractive. The country has the world's longest unbroken sandy beach of 120km, sloping gently down to the blue water of the Bay of Bengal.

Around 52% percent of the civilian labour force of the country is engaged in agriculture and 14% is engaged in industry. Per capita GDP for 2002-2003 was US \$ 418 (BBS, 2006).

Since independence in 1971, Bangladesh has achieved substantial improvements in some social indicators like decrease in infant and maternal mortality, and illiteracy, increase in life expectancy, access to safe water and sanitation. However, approximately 40% of the population still continue to live below the poverty line (BBS, 2005). Economic performance of the country has been relatively strong since 1990, with an annual 5% average GDP growth rate. Although half of the GDP is generated through the service sector, nearly two thirds of Bangladeshis are employed in the agriculture sector with paddy as the single most important product.

The geographical location, land characteristics, multiplicity of rivers and the monsoon climate render Bangladesh highly vulnerable to natural hazards. The coastal morphology of Bangladesh influences the impact of natural hazards on the area. Especially in the south western area, natural hazards increase the vulnerability of the coastal dwellers and slow down the process of social and economic development. Significant country features include:

- A vast network of rivers and channels
- An enormous discharge of water heavily laden with sediments
- A large number of islands in between the channels
- A shallow northern Bay of Bengal and funnelling to the coastal area of Bangladesh
- Strong tidal and wind action

Natural and human induced hazards such as floods, cyclones, droughts, tidal surges, tornadoes, earthquakes, river erosion, fire, infrastructure collapse the high arsenic contents of ground water, water logging, water and soil salinity, epidemic, and various forms of pollution are frequent occurrences.

Climate change adds a new dimension to community risk and vulnerability. Although the magnitude of these changes may appear to be small, they could substantially increase the frequency and intensity of existing climatic events (floods, droughts, cyclones etc). Current indications are that not only will floods and cyclones become more severe, they will also start to occur outside of their "established seasons". Events, such as drought, may not have previously occurred in some areas and may now be experienced.

Key Strategies and Activities of the Government:

Disaster Management in Bangladesh had gone through a process of significant reforms. Since independence the focus was limited in relief and rehabilitation activities. Following the devastating floods of 1988 and the cyclone of 1991, which has created a massive destruction in the economy; the focus has been shifted towards adaptation of a holistic approach that embraces processes of hazard identification and mitigation, community preparedness and integrated response efforts. As a result, a short-term project titled Assistance to Ministry of Relief in Coordination of Cyclone Rehabilitation: BGD/91/021 was taken up after the killer cyclone of 29 April 1991. While implementing the project, the Project Steering Committee (PSC) chaired by the Member (Programming and SEI), Planning Commission at one of its meetings on 28 January, 1993 endorsed the concept of the specialist disaster management unit as one of the outcomes of the project. In conformity with this endorsement, the Government of Bangladesh (GoB) established the Disaster Management Bureau (DMB) in April, 1993 as the successor of the Disaster Coordination and Monitoring Unit and renaming of the Ministry of Relief and Rehabilitation as the Ministry of Disaster Management & Relief (MDMR) in 1993. The Government has established Disaster Management Council and Committees from National down to field level in 1993. As part of the paradigm shift earlier, DMB was assigned to perform specialist support functions working in close collaboration with District and Upazila level authorities and the concerned line ministries under the overall authority of high-level Inter-Ministerial Disaster Management Co-ordination Committee (IMDMCC). The DMB also has the responsibility to create public awareness on the severity and risks associated with natural and human-induced hazards and to formulate programs and projects that will better prepare at-risk communities and public officials to mitigate their consequences. As a technical arm to the Ministry of Food and Disaster management, DMB overview and coordinate all activities related to disaster management from national to the grass-root level. It is also entrusted to maintain an effective liaison with government agencies, donors and NGOs to ensure maximum cooperation and coordination in all aspects of disaster management.

The main mission of the Government is to bring a paradigm shift in disaster management approach from conventional response and relief to a more comprehensive risk reduction culture and to promote food security as an important factor in ensuring the resilience of the communities to hazards. Again renaming the name of the Ministry of Relief and Rehabilitation as the Ministry of Food & Disaster Management in May 2004. Now Ministry of Food and Disaster Management is working hard to ensure socio-economic development of the country through food security, relief and disaster management programmes. The Ministry has taken a number of programmes for, (a) overall food management of the country and establishment of dependable national food security, (b) implementation of national food policy and strategy with overseeing and monitoring of overall food supply situation of the country, (c) monitoring and coordination of all matters relating to procurement, storage and distribution of food grains and ensuring fair price, (d) formulation and implementation of policies and planning relating to disaster management, relief and rehabilitation, (e) poverty reduction through formulation, implementation and evaluation of programmes like Food for Work, Test Relief, KABITA etc., (f) planning, coordination, monitoring and evaluation of matters relating to relief activities and disaster management, (g) co-ordination among the different organizations for pre-disaster, during-disaster and post-disaster activities including preparation of disaster management guidelines, (h) provision of assistance to

disaster related ministries and organizations in preparing the action plan on matters related to disaster management, (i) formulation of policy and its' implementation on matters relating to the preparation, monitoring and evaluation of food assisted projects and programmes, (j) coordinating matters relating to the distribution of external food aid and other relief assistance, and (k) other concerned matters relating to food, relief and disaster management.

The GOB has, therefore, total commitment towards the reduction of human, economic and environmental costs of disasters by enhancing overall disaster management capacity. Further, efforts have been continuing for optimum coordination and best utilization of resources along with ensuring community involvement so that they are aware of what they can do for protecting their lives and properties against disasters. The planning and disaster management activities, however, conducted by the GOB agencies involve preparedness, response, recovery and mitigation as keynotes for building up self-reliance of the community people.

The GOB objectives for proper handling of disasters, is to coordinate the efforts taken at different stages in disaster management cycle like disaster management practice, disaster mitigation, emergency preparedness, emergency response, disaster management mechanism, early recovery and immediate rehabilitation, space technology and disaster management, space technology in disaster prediction, warning and mitigation, flood monitoring mapping and use of internet facilities for disaster monitoring, predictions and information dissemination, etc.

As a continuation of the paradigm shift process, the Comprehensive Disaster Management Programme (CDMP) has been designed as a long-term programme of the Ministry of Food and Disaster Management with multi-agency involvement was launched in November, 2003 to optimize the reduction of long-term risk and to strengthen the operational capacities for responding to emergencies and disaster situations including actions to improve recovery from these events.

MoFDM, in close association of the Bangladesh Red Crescent Society (BDRCS), is implementing Cyclone Preparedness programmes (CPP) in the 12 coastal districts of the country to minimize loss of lives and properties in cyclone disaster by strengthening the disaster management capacity of coastal people of Bangladesh. The main activities of Cyclone Preparedness Programme (CPP) are to (a) disseminate cyclone-warning signal to local residents; (b) assist people in taking shelter (c) rescue victim affected by a cyclone, and (d) provide first aid to people injured by cyclone. Cyclone Preparedness Programme (CPP) is now acclaimed worldwide for its dedicated volunteers and effectiveness in emergency response during disaster especially in cyclone. It may be mentioned that the International League of Red Cross introduced the Cyclone Preparedness Programme (CPP) in the country in mid-sixties. After independence, they handed over its main responsibilities to the Government. However, Bangladesh Red Crescent Society (BDRCS) is providing substantial supports to the programme. In its long journey, the CPP and its more than 42,000 volunteers have achieved tremendous success in cyclone preparedness and mitigation programmes by saving lives and properties of coastal people, which set a unique example in the world.

It is a matter of great pride that before adaptation of MDGs, Hyogo Frame Work of Action, United Nations Framework Convention on Climate Change (UNFCCC), SAARC Framework for Action (SFA) and Agenda 21, Bangladesh Government introduced

specific programmes to institutionalize disaster management system by involving all concerned from national level to grass-root level. The emergency response programme, rehabilitation activities and cyclone preparedness programme of Bangladesh Government widely recognised by the world communities. Now, Bangladesh is the signatory of the MDGs, Hyogo Frame Work of Action, United Nations Framework Convention on Climate Change (UNFCCC), SAARC Framework for Action (SFA) and Agenda 21, and committed to implement the recommendations for comprehensive disaster management in light of the guidelines prescribed in the international and regional forums.

Necessity of the Plan:

Now, the government acknowledges the need for pre-disaster mitigation and preparedness of the people. Thus priority has been accorded to focus on community level preparedness, response, recovery and rehabilitation. Programme to educate people living in disaster prone areas improving their capability to cope with natural disaster is highlighted in the Disaster Management strategies:

First: Disaster management would involve the management of both risks and consequences of disasters that would include prevention emergency response and post-disaster recovery.

Second: Community involvement for preparedness programmes for protecting lives and properties would be a major focus. Involvement of local government bodies would be an essential part of the strategy. Self-reliance should be the key for preparedness, response and recovery.

Third: Non-structural mitigation measures such as community disaster preparedness training advocacy and public awareness must be given a high priority; this would require an integration of structural mitigation with non-structural measures.

Scope of the Plan:

The Plan has envisaged to cover up the following crucial aspects for Disaster Management:

- (a) Analyse the natural and man-made disaster threats to their people and society, economy and infrastructure, with a view to identifying where and when these threats are likely to occur and in what frequency.
- (b) Identify by further detailed analysis who and what are vulnerable to the occurrence of these threats and how these are likely to be affected by them.
- (c) Investigate what measures are possible to prevent occurrence of the disaster events, (unlikely to be possible in the case of the natural phenomenon but possible in the case of man-made disasters and environmental degradation), what can be done to mitigate the affects of disaster events and what disaster preparedness measures can be put in place in anticipation of these.

(d) Determine where responsibilities for prevention, mitigation and preparedness planning and action should lie in Government, in the non-government organisations (NGOs) and in the private sector.

(e) Make provision in the national budget for funding of activities related to Disaster Reduction and a contingency fund to meet the immediate needs of disaster relief, at all administrative levels of the Administration.

(f) Ensure that the costs of disaster relief and post-disaster recovery are managed and co-ordinated by a high level committee to avoid duplication or waste across the spectrum of donor agencies, including government, national and international NGOs and the private sector.

(g) Ensure an effective system within Government to link and co-ordinate the processes of planning and the management of sustainable development, environmental management and disaster reduction.

II. HAZARDS IN BANGLADESH¹

Bangladesh is exposed to natural hazards, such as, floods, river erosion, cyclones, droughts, tornadoes, cold waves, earthquakes, drainage congestion/ water logging, arsenic contamination, salinity intrusion etc. But the nature of occurrence, season and extent of effect of the hazards are not the same in all places. Figure 1 presents Bangladesh Topography.

2.1 Flood

Floods are annual phenomena with the most severe occurring during the months of July and August. Regular river floods affect 20% of the country increasing up to 68% in extreme years. The floods of 1988, 1998, 2004 and 2007 were particularly catastrophic, resulting in large-scale destruction and loss of lives.

Approximately 37%, 43%, 52% and 68% of the country is inundated with floods of return periods of 10, 20, 50 and 100 years respectively (MPO, 1986). Four types of flooding occur in Bangladesh (Figure 2).

- Flash floods caused by overflowing of hilly rivers of eastern and northern Bangladesh (in April-May and September-November).
- Rain floods caused by drainage congestion and heavy rains.
- Monsoon floods caused by major rivers usually in the monsoon (during June-September).
- Coastal floods caused by storm surges and tied.

¹ Prepared by CEGIS for CDMP under the study on “Inventory of Community Risk Reduction Programme” November 2006

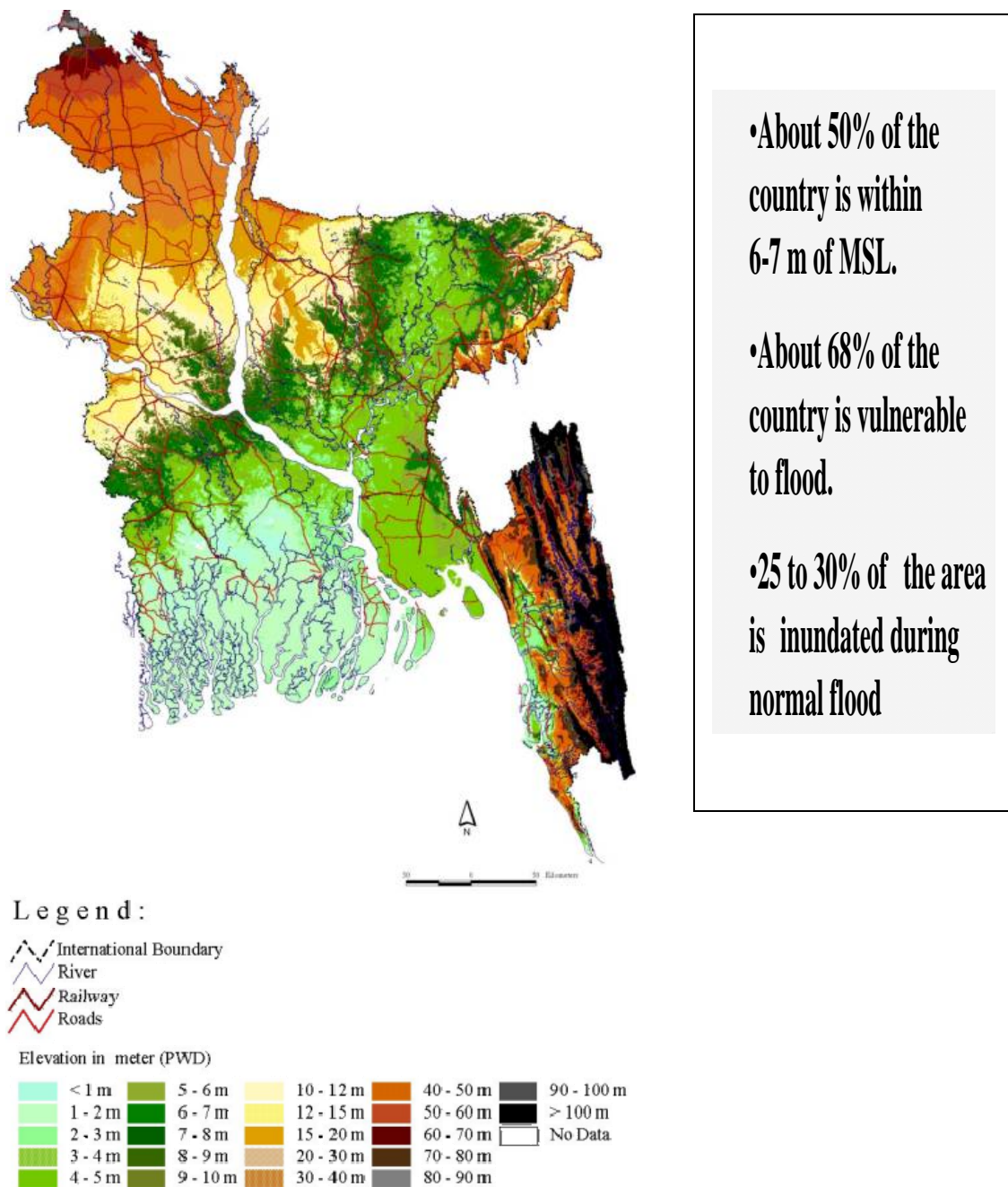


Figure 1: Topography of Bangladesh

Figures 3 and 4 show the percentage of total flood affected areas of the country for some selected years. The 1988 flood affected about two-third area of the country. The 1998 flood alone caused 1,100 deaths, rendered 30 million people homeless, damaged 500,000 homes and caused heavy loss to infrastructure. The 1998 flood lasted for 65 days from July 12 to September 14 and affected about 67% area of the country. This devastating flood had an enormous impact on the national economy, in addition to causing hardships for people, and disrupting livelihood systems in urban and rural areas.

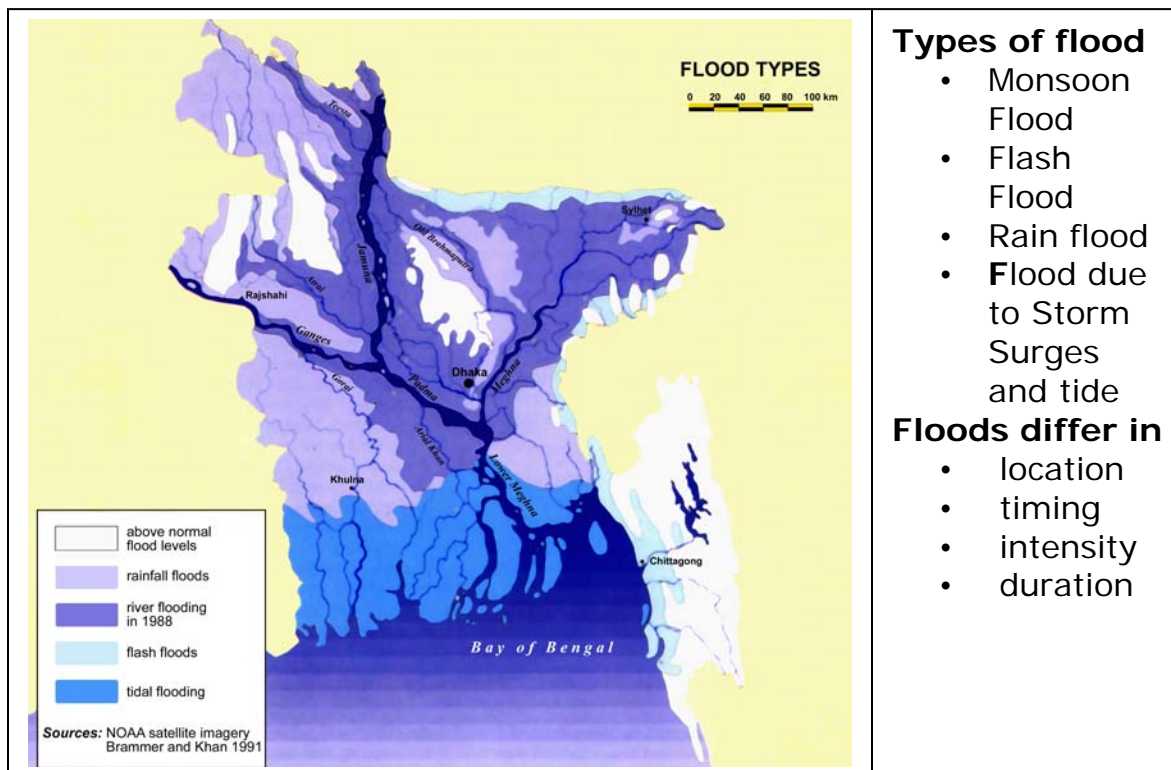


Figure 2: Flood Types in Bangladesh

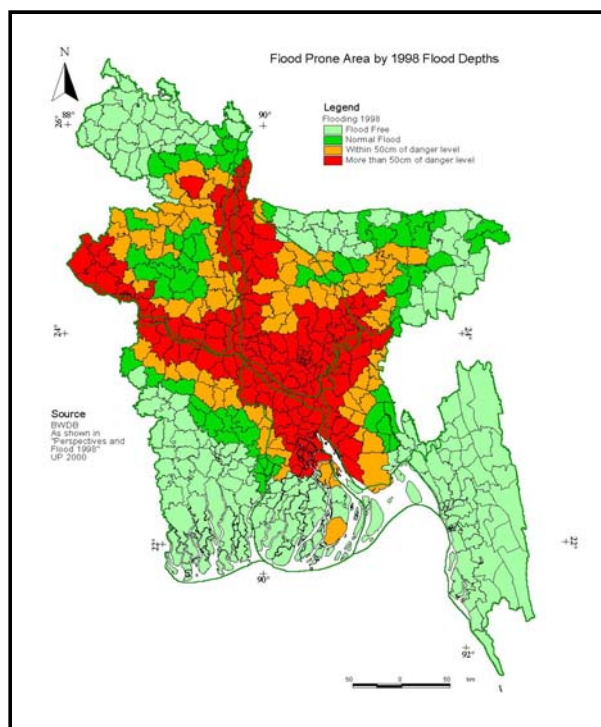


Figure 3: Flood prone areas by 1998 flood depth (Source: BWDB, 2000)

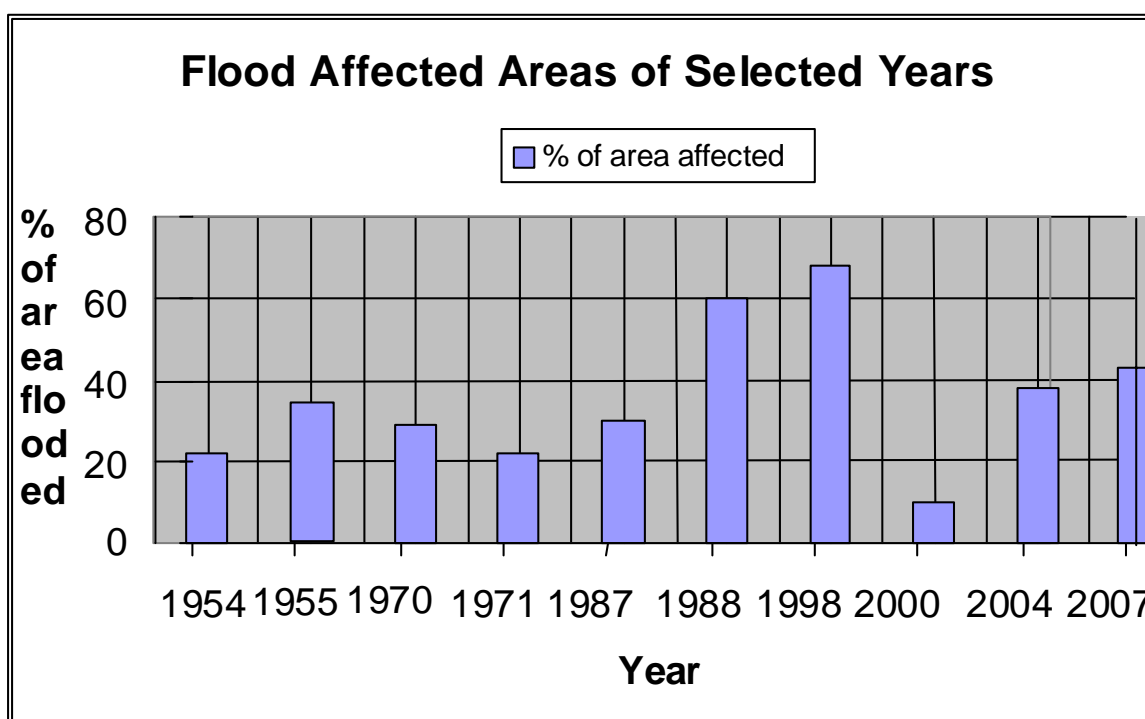


Figure 4: Flood affected area in different years [Source: State of Environment 2001(modified)]

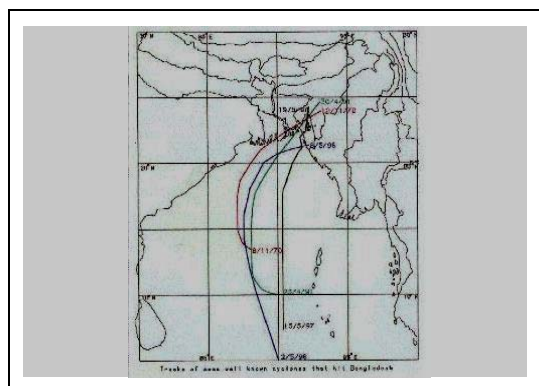
Flood 2007

Affected District	39
Affected Upazila	254
Affected Union,	1,965
Affected Pourashava	67
Families affected at present	22,64,933
Affected People	1,05,72,145
Death (drowning, snake bite etc)	554 (Source:MHFP)
Households (Full)	62,956
Households (Partial)	8,81,922

In the year 2000, Bangladesh faced an unusual flood over its usually flood-free south western plain, which also caused loss of life and massive damage to property. In 2004, floods inundated about 38% of the country (WARPO, 2005). About 747 people lost their lives. About 2500 kilometres of embankment were damaged. About 74 primary school buildings were washed away. This flood caused economic loss of about US\$ 2200 Million. In 2007, the flood inundated about 32000 Sq Km including the char areas of 6000 sq km affecting almost 16 million people in around 3 million households. 649 persons lost their lives. Floods continue to be major hazards in Bangladesh. To mitigate the impacts of floods, the government has been developing and implementing various measures to better equip the country to deal with floods. The Ministry of Water Resources (MoWR) is leading the country on flood mitigation initiatives. Important initiatives include Flood Action Plan, Flood Hydrology Study, Flood Management Model Study, National Water Management Plan, National Water Policy, Flood Early Warning System Study, etc.

2.2 Cyclones and Storm Surges

Tropical cyclones from the Bay of Bengal accompanied by storm surges are one of the major disasters in Bangladesh. The country is one of the worst sufferers of all cyclonic casualties in the world. The high number of casualties is due to the fact that cyclones are always associated with storm surges. Storm surge height in excess of 9m is not uncommon in this region.

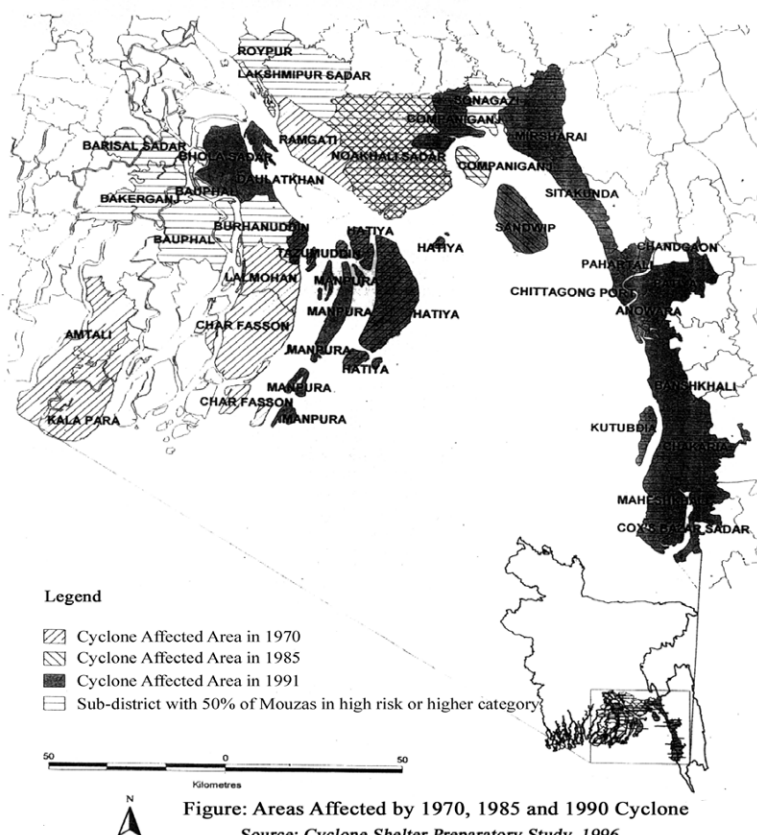


For example, the 1876 cyclone had a surge height of 13.6 m and in 1970 the height was 9.11 m (WARPO, 2005). In fact, the 1970 Cyclone is the deadliest Cyclone that has hit Bangladesh coastline. With a wind-speed of about 224 km per hour and associated storm surge of 6.1 to 9.11 Metres, it was responsible for death of about 300,000 people. A list of devastating cyclones is given in Table 1.

Table 1: Major Cyclones that hit the Bangladesh coast

Date and Year		Maximum Wind speed (km/hr)	Storm Surge height (Meter)	Death Toll
11 May	1965	161	3.7-7.6	19,279
15 December	1965	217	2.4-3.6	873
01 October	1966	139	6.0-6.7	850
12 November	1970	224	6.0-10.0	300,000
25 May	1985	154	3.0-4.6	11,069
29 April	1991	225	6.0-7.6	138,882
19 May	1997	232	3.1-4.6	155
15 November	2007	223	6.1-9.1	3363

Source: Bangladesh Meteorological Department 2007



The Super Cyclone Sidr-2007

The cyclone Sidr-2007 erupted from the Bay of Bengal packing winds of 240 kilometres per hour, swept through the south-western coastal areas within 155-miles radius of its eye with heavy rain and storm surges reached up to 15-20 feet high in some places on 15th November'07. According to Bangladesh Metrological Department, the Sidr's eye crossed the Khulna-Barisal coast near the Sunderbans mangrove forests around 9:30 pm, while it crossed over the Baleshwar River in Barguna district at mid night. The coastal districts of Barisal Patuakhali, Borguna, Pirojpur, Jhalkathi, Bhola, Bagerhat, Khulna, Satkhira, Shariatpur, Chittagong and Cox'sbazar and their offshore islands and chars received the major destructions by the Sidr. Out of 12 severely affected districts 4 are the worst affected, these are Bagerhat, Barguna, Perojpur and Patuakhali.



As on the reporting period it was observed that 3,363 peoples are dead, 55,282 are injured. Approximately 5,64,967 houses are totally destroyed and 9,57,110 houses are partly damaged. It is also reported that 7,43,321 acres of crop areas are fully and 17,30,316 acres area partly damaged by the Sidr'2007

Damage & Loss at a glance by the Sidr:

Description	Nos./Currency
Affected Districts	30
Most Affected Districts	12
Affected Upazila	200
Affected Union/Municipality	1,810
Affected Family	1,572,695
Affected People	6,770,456
Fully Damaged Crop Field	186,883 hectare
Partially Damaged Crop Field	498,645 hectare

Description	Nos./Currency
Fully Damaged House	3,63,346
Partially Damaged House	8,15,628
Death Toll	3363
Injured Persons	34,508
Missing Persons	1,828
Dead Cattle & Poultry	4,62,815
Fully Damaged Educational Institution	1,355
Partially Damaged Educational Institution	7,847
Fully Damaged Road	648 km
Partially Damaged Road	88,550 km
Damaged Bridge/Culvert	1,654
Affected Dam	581 km
Damaged Tree	3,369,336
Ferries:	28 (out of 44) (13 restored)
Electricity:	33kv line- 416 km, 11 kv line 287 km
Affected tube wells –	901 in 3 districts
Affected PSF (Pond sand filter) –	419 nos.
Affected SST(shallow shouted tubewell)/VST (very shouted tubewell) -	55
Forest:	US\$ 5.6 Million
Death of wild life (deer):	24 nos.
Roads and Highways:	US\$2.6 million
BWDB- embankments, sluice gates, riverbank protection structure:	US\$27.0 million

Government's Immediate Response:

The government in coordination with NGOs and International Organizations has done a commendable job in responding to the cyclone emergency situation and assisting the affected population. The MoFDM activated emergency response committees at the District, Upzilla, and Union levels and established an Emergency Operation Center in Dhaka to coordinate relief activities. Military personnel were deployed to assist with rescue operations and to distribute food and relief services.

Cyclone Shelter and Killas:

To ensure the safer shelter of the coastal people and people living in the vulnerable flood prone areas, the Government has already constructed 2033 numbers of cyclone and flood shelters. But, it may pointed out that due to increase the number of population and the cattle heads, it has become essential to construct more 2000 numbers of disaster shelters in the coastal areas. Ministry of Primary & Mass Education has taken-up a programme under the project titled "Primary Education Development Programme-2 (PEDP-2) " to construct 507 numbers of school-cum-shelter in the coastal areas. The others Ministries, Divisions, Organizations and NGOs will also construct about 300 shelters. Considering this the MoFDM has decided to construct the remaining 1200 numbers of disaster shelters and killas as per recommendations of the reports of the technical committee.

The Cyclone prone areas of Bangladesh are shown in Figure 5.

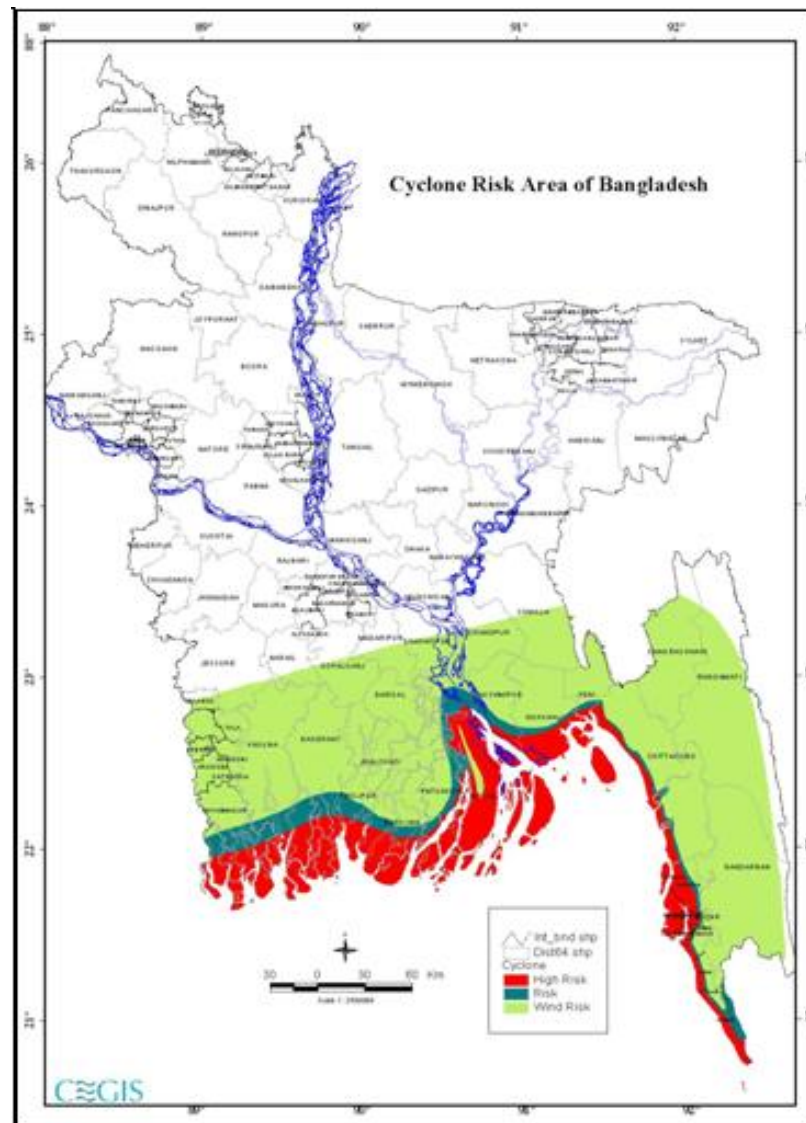


Figure 5: Cyclone prone areas of Bangladesh
(Source: WARPO, 2005)

2.3 Tornadoe

The two transitional periods between southwest and northeast monsoons over the Indian sub-continent are characterized by local severe storms. The transitional periods are usually referred to as pre-monsoon (March-May), and post-monsoon (October-November). It is the pre-monsoon period when most of the abnormal rainfall or drought conditions frequently occur in different parts of Bangladesh. Also there are severe local seasonal storms, popularly known as nor'westers (*kalbaishakhi*). Severe nor'westers are generally associated with tornadoes. Tornadoes are embedded within a mother thunder cloud, and moves along the direction of the squall of the mother storm. The frequency of devastating nor'westers usually reaches the maximum in April, while a few occur in May, and the minimum in March. Nor'westers and tornadoes are more frequent in the afternoon. Table 2 shows some of the devastating nor'westers and tornadoes that hit Bangladesh. Nor'westers may occur in late February due to early withdrawal of winter from Bangladesh, Bihar, West Bengal, Assam, and adjoining areas. The occasional occurrence of nor'westers in early June is due to delay in the onset of the southwest monsoon over the region (Karmakar, 1989).

Table 2: Some of the devastating nor'westers and tornadoes

14 April 1969	Demra (Dhaka)
17 April 1973	Manikganj (Dhaka)
10 April 1974	Faridpur
11 April 1974	Bogra
09 May 1976	Narayanganj
01 April 1977	Faridpur
26 April 1989	Saturia (Manikganj)
14 May 1993	Southern Bangladesh
13 May 1996	Tangail
04 May 2003	Brahmanbaria
21 March 2005	Gaibandha

Source: *Bangladesh: State of the Environment 2001* and web sources

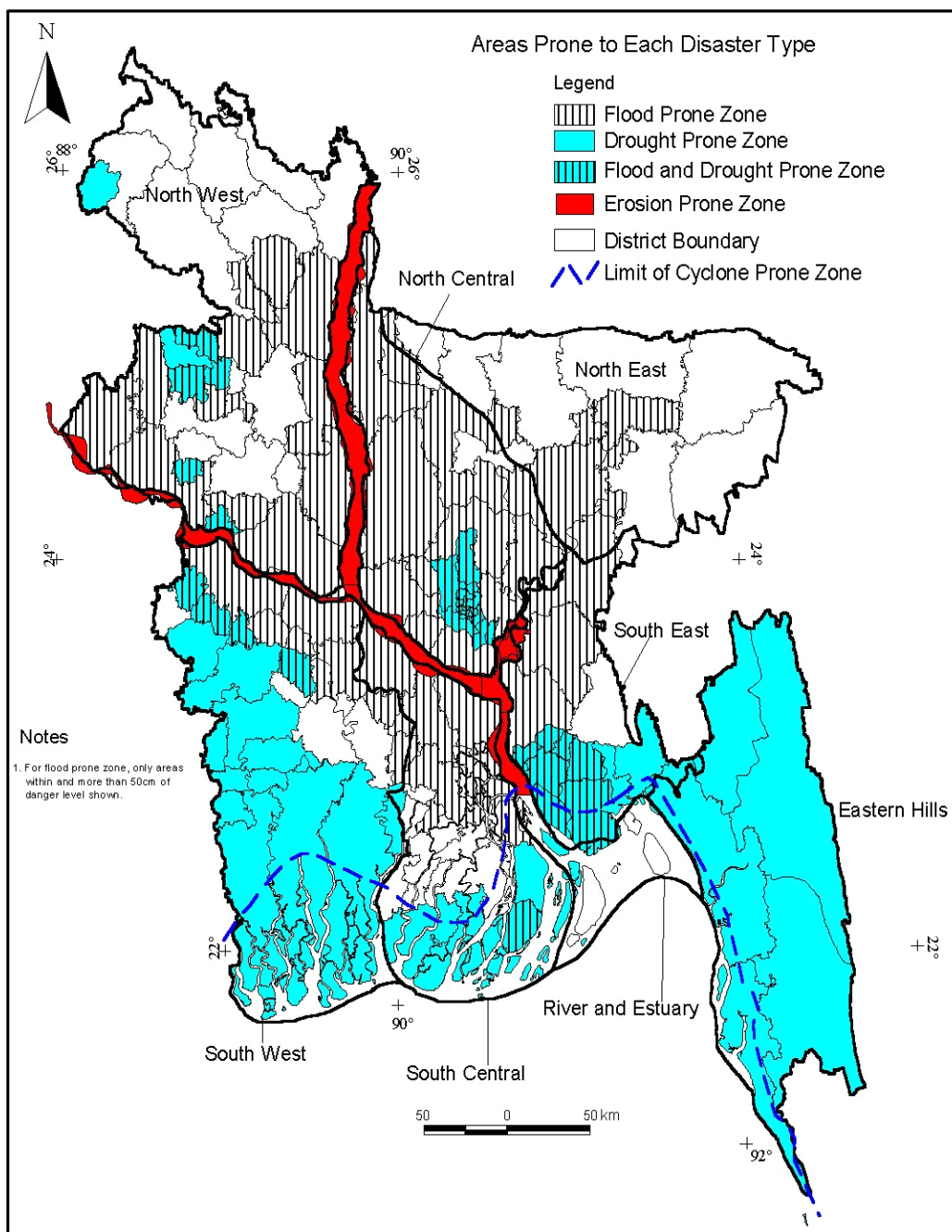
Wind-speeds in nor'westers usually do not exceed 113-130 km/hr (70-80 miles/hr), though often their speeds exceed 162 km/hr (100 miles/hr). When the winds become whirling with funnel shaped clouds having a speed of several hundred kilometers or miles per hour, they are called tornados. Nor'westers bring the much needed pre-monsoon rain. They can also cause a lot of havoc and destruction. Tornados are suddenly formed and are extremely localized in nature and of brief duration. Thus, it is very difficult to locate them or forecast their occurrence with the techniques available at present. However, high-resolution satellite pictures, suitable radar, and a network of densely spaced meteorological observatories could be useful for the prediction or for issuing warnings of nor'westers and tornados.

2.4 River Bank Erosion

It is an ongoing disaster and there is no specific indicator to measure the extent of damage. So the extent of damage caused by river erosion in most cases is based on various reports/information. Needless to say whatever the difference in ascertaining the extent of damage river erosion causes huge loss of property throughout the year. According to "World Disaster Report 2001" published by IFRC every year about 10,00,000 people are affected by river erosion and 9,000 hectare cultivable lands are banished in river. Among these only a few affected people are able to find new shelters while others become homeless for uncertain period.

River erosion in Bangladesh is no less dangerous than other sudden and devastating calamities. Losses due to river erosion occur slowly and gradually. Though losses are slow and gradual, they are more destructive and far-reaching than other sudden and devastating calamities. The effects of river erosion are long term. It takes a few decades to make up the losses, which a family has incurred by river erosion. There has been little progress, however, for improving the lot of erosion-affected people due to resource constraint.

Rivers in Bangladesh are morphologically highly dynamic. The main rivers are braided, and form islands or chars between the braiding channels. These chars, of which many are inhabited, "move with the flow" and are extremely sensitive to changes in the river conditions. Erosion processes are highly unpredictable, and not compensated by accretion. These processes also have dramatic consequences in the lives of people living in those areas. A study concluded in 1991 reported that: out of the 462 administrative units in the country, 100 were subject to some form of riverbank erosion, of which 35 were serious, and affected about 1 million people on a yearly basis. Around 10,000 hectares land is eroded by river per year in Bangladesh (NWMP, 2001). The erosion prone zones of Bangladesh are shown in the Figure 6. Kurigram, Gaibandha, Jamalpur, Bogra, Sirajganj, Tangail, Pabna and Manikganj districts lie in the erosion prone area along Jamuna River. Erosion of total area and settlement is higher along the left bank than that of the right bank. Along Padma River, there are the districts of Rajbari, Faridpur, Manikganj, Dhaka, Munshiganj, Shariatpur and Chandpur. A recent study of CEGIS (2005) shows that bank erosion along Padma River during 1973 – 2004 was 29,390 hectares and along Jamuna River during 1973 – 2004, it was 87,790 hectares. As relevant to this study, loss of land, settlements, roads and embankments due to erosion in 2004 in Sirajganj and Faridpur districts is shown in Table 3.



*Figure 6: Areas Prone to Various Disasters including River Erosion
(Source: NWRD 2001)*

Table 3: Erosion of agricultural land, roads, embankments and settlements along the banks of the Jamuna and Padma in 2004 in Sirajganj and Faridpur districts

District	Upazila	Total Land (ha)	Eroded Infrastructures				
			Settlement (ha)	District Road (m)	Upazila Road (m)	Rural Road (m)	Embankment (m)
Sirajganj	Kazipur	177	50		176	84	1617
	Sirajganj Sadar	170	13	1		164	2107
	Belkuchi	0	0				
	Chauhali	207	45		395		
	Shahjadpur	148	31	159			
	Total	702	139	160	571	248	3724
Faridpur	Faridpur Sadar	200	57		1175	370	
	Char Bhadrasan	78	17	320			
	Sadarpur	3	1				
	Total	281	75	320	1175	370	

Source: CEGIS, 2005

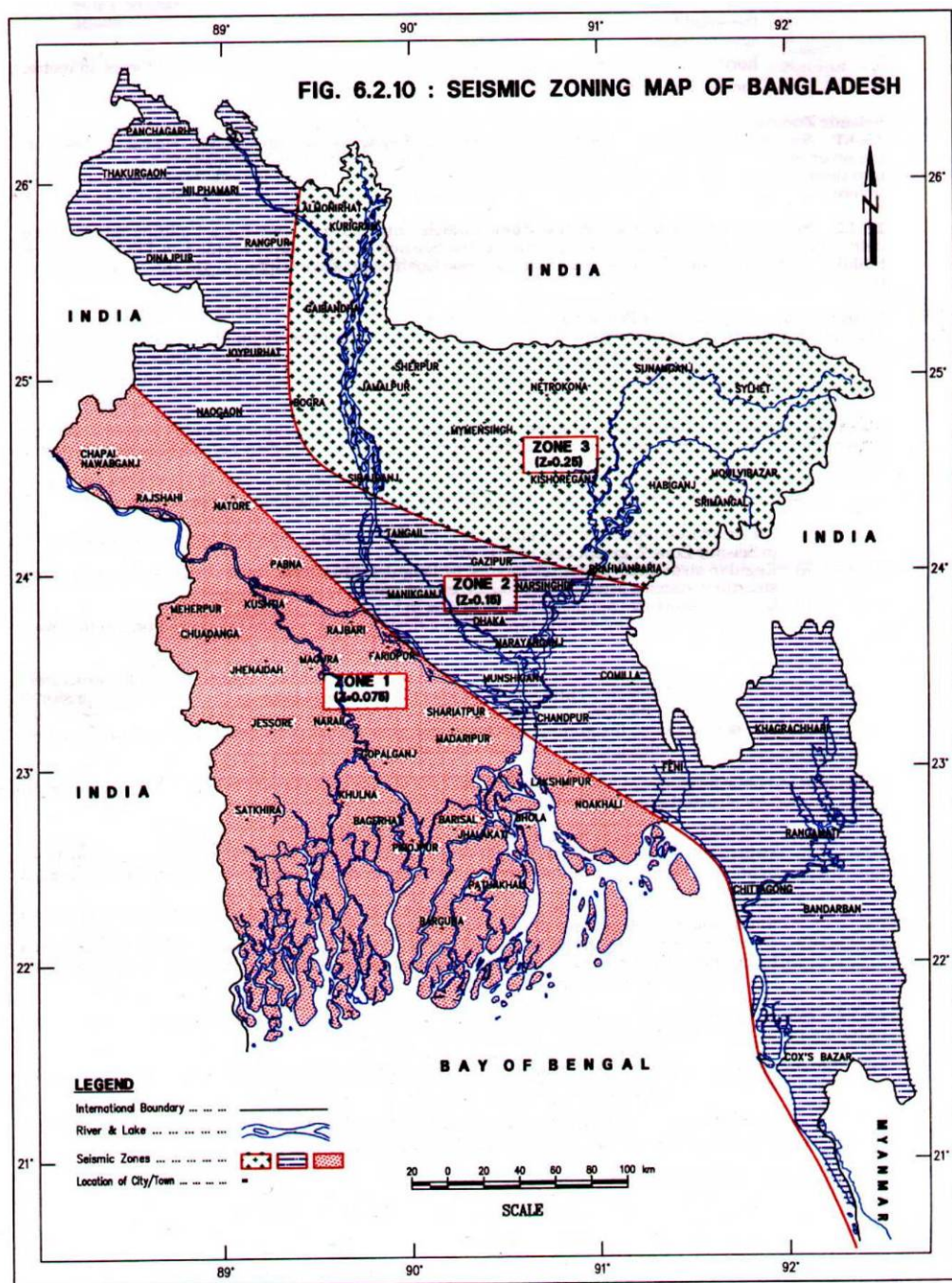


2.5 Earthquake

Bangladesh and the northeastern Indian states have long been one of the seismically active regions of the world, and have experienced numerous large earthquakes during the past 200 years. The catastrophic earthquakes of 1762 and 1782 are believed to have been partially responsible for the diversion of the main flow of the Old Brahmaputra river from the west to present Jamuna river and main flow of the Arial Khan river to the present Padma channel. Since 1860 over 20 shallow and intermediate earthquake epicenters have been recorded in Bangladesh and the surrounding areas.

Lots of seismo-tectonic studies have been undertaken on the area comprising the Indo-Burman ranges and their western extension and in the northern India. A complete list of reference of this is provided in Haque, (1990), using data from various sources. A seismicity map of Bangladesh and its adjoining areas has also been prepared by BMD and GSB. Bangladesh has been classified into three seismic zones with zone-3 the most and zone-1 the least vulnerable to seismic risks (Fig. 7).

Figure 7: Seismic Zoning Map of Bangladesh



Source: BNBC 1993 as reproduced in Choudhury, 2005

Table 4. List of Major Earthquakes Affecting Bangladesh

Date	Name of Earthquake	Magnitude (Richter)	Epicentral Distance from Dhaka (km)	Epicentral Distance from Sylhet City (km)	Epicentral Distance from Chittagong (km)
10 January, 1869	Cachar Earthquake	7.5	250	70	280
14 July, 1885	Bengal Earthquake	7.0	170	220	350
12 June, 1897	Great Indian Earthquake	8.7	230	80	340
8 July, 1918	Srimongal Earthquake	7.6	150	60	200
2 July, 1930	Dhubri Earthquake	7.1	250	275	415
15 January, 1934	Bihar-Nepal Earthquake	8.3	510	530	580
15 August, 1950	Assam Earthquake	8.5	780	580	540

Source: Choudhury, 2005

The record of approximately 150 years shows that Bangladesh and the surrounding regions experienced seven major earthquakes (with $M_b = 7$). In the recent past, a number of tremors of moderate to severe intensity had already taken place in and around Bangladesh. The Sylhet Earthquake ($M_b = 5.6$) of May 8, 1997, the Bandarban Earthquake ($M_b = 6.0$) of November 21, 1997, the Moheshkhali Earthquake ($M_b = 5.1$) of July 22, 1999, and the Barkal (Rangamati) Earthquake ($M_b = 5.5$) of July 27, 2003 may be cited as examples (Source: Choudhury, 2005).



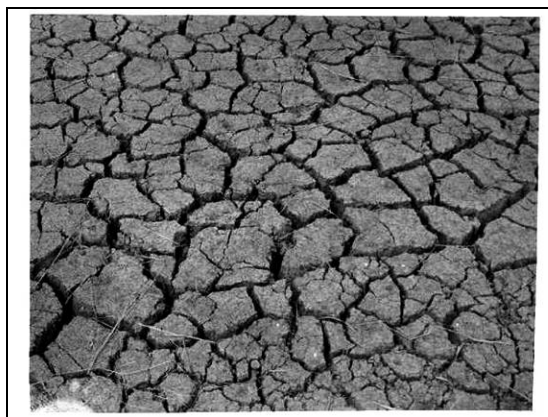
2.6 Drought

Bangladesh faces unpredictable drought hazard in the dry monsoon due to inadequate and uneven rainfall. It varies from place to place, however, North-western region suffers

most from the drought. As much as 17% of the Aman crops, the main paddy crops in the wet season may be lost in a typical year due to drought. Though this is an annual phenomenon, the last severe drought faced by Bangladesh was in 1994. In view of persistent food shortage, this is a catastrophe. In this paper, the role of surface water irrigation projects in drought management in Bangladesh has been discussed.

Drought affects not only the seasonal crops but also the fruit-bearing trees, forestry and the environment as a whole. Moreover, the crop environment during the monsoon (Kharif-II) season is not favourable for achieving full potential yields because of uneven distribution of rainfall, flooding etc. To combat the drought, it is essential for Bangladesh to utilize its water resources, both surface and groundwater. However, Bangladesh has increasingly used her ground water resources to such an extent that the depletion of ground water resources as well as arsenic contamination is occurring at an alarming rate in the ground water reservoirs due to over and unplanned withdrawal. The scope of increasing the irrigation areas by LLP is limited.

In these circumstances, there is no option but to use surface water to meet the water deficit created by droughts in the Kharif-II season and hence, surface water utilization projects such as barrages across the rivers, installation of pumping plants for lifting water from the rivers are essential.



Drought is an abnormal condition where there is a lack of sufficient water to meet the normal needs of agriculture, livestock, industry, or for human use. While generally associated with semi-arid or desert climates, droughts can also occur in areas that normally enjoy adequate rainfall, and moisture levels (ADB, 1991). It is the result of insufficient or no rainfall for an extended period, and causes a considerable hydrological (water) imbalance. The ensuing water shortage leads to stream flow reduction, depletion of ground water and soil moisture, and hence, crop damage. In drought conditions, evaporation and transpiration exceed normal levels. If it continues for a prolonged period, a serious threat is posed to agricultural production. In the agricultural context drought affects rice production the most. Based on drought severity, crop loss ranges between 20-60% for T. Aman and other rice varieties (Iqbal, 2000). It is one of the most insidious causes of human misery. Basically, there are three types of droughts in Bangladesh:

- Permanent drought characterizes regions with the driest climate, having sparse vegetation that is adapted to aridity. Agriculture cannot be practiced without irrigation.
- Seasonal drought occurs due to abnormal rainfall shortage in places where there are well-defined annual rainy and dry seasons.
- Unpredictable drought involves an abnormal rainfall failure, mostly in localized areas of humid and sub-humid climates.

Bangladesh is at higher risk from droughts. Between 1949 and 1991, droughts occurred in Bangladesh 24 times. Very severe droughts hit the country in 1951, 1957, 1958, 1961, 1972, 1975, 1979, 1981, 1982, 1984 and 1989. Past droughts have typically affected about 47% area of the country and 53% of the population (WARPO, 2005). Figures 8 shows the drought prone areas of Bangladesh.

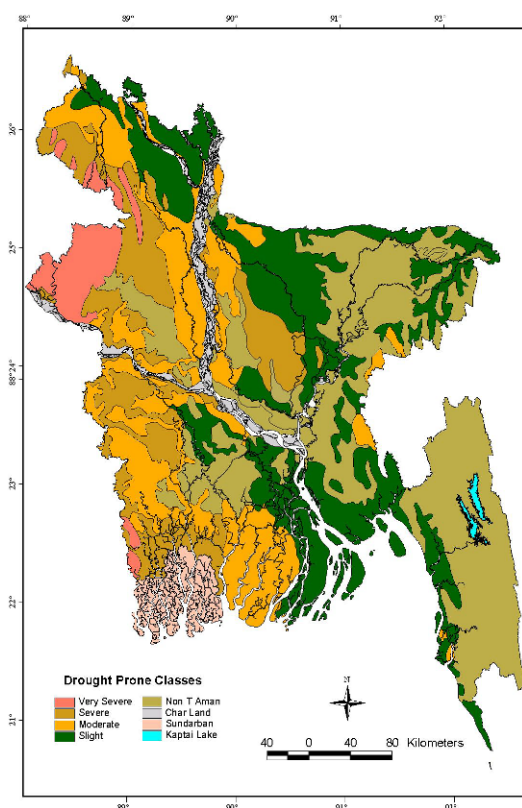


Figure 8 (a): Drought prone (Kharif) areas of Bangladesh (Source: SARDI)

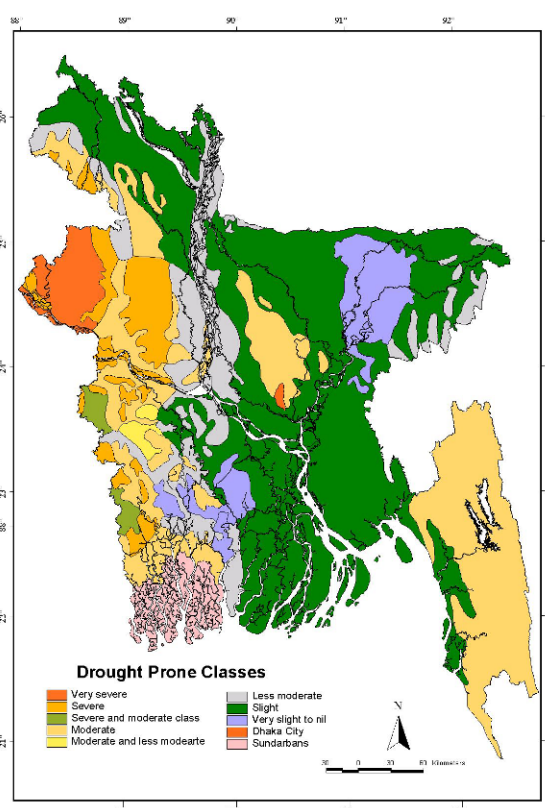


Figure 8 (b): Drought prone (Rabi and Pre Kharif) areas of Bangladesh (Source: SARDI)

Drought conditions due to deficiency in rainfall affect different parts of Bangladesh mostly during the pre-monsoon and post-monsoon periods. One study has shown (Figure 9) that from 1949 to 1979, drought conditions had never affected the entire country and total population in any drought year. The drought of 1979 was one of the severest in recent times. The percentage of drought-affected areas was 31.63 percent in 1951, 46.54 percent in 1957, 37.47 percent in 1958, 22.39 percent in 1961, 18.42 percent in 1966, 42.48 percent in 1972, and 42.04 percent in 1979 (Chowdhury and

Hussain 1981 as reported in SOE 2001). During 1981 and 1982, drought affected the production of the monsoon crop only.

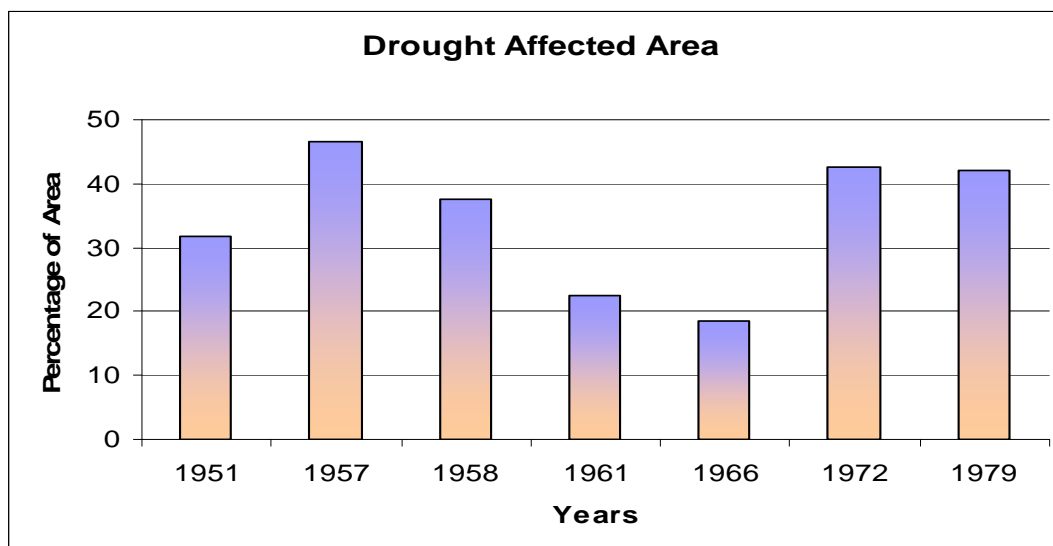


Figure 9: Drought affected areas of Bangladesh in different years (Source: State of Environment 2001).

Climate Change Impact

Global warming effects have already started showing up with increasing intensity, namely change in species habitats and habits, acidification of oceans, loss of wetlands and bleaching of coral reefs. Rapid and continued loss of biodiversity is taking place at an alarming rate, and the ecological footprint, which measures the extent of human demand on Earth's ecosystems, has tripled since 1961, showing that the planet's resources are being used at a rate 25% higher than their ability to regenerate. These disturbing effects will worsen as climate change accelerates and are likely to deprive hundreds of millions of people from access to water within just a couple of decades, while tens of millions will be displaced by floods from rising sea levels and tropical cyclones as well as wildfires will intensify; Food production may initially improve in some northern regions but starvation could affect hundreds of millions in near future.

Fresh water resources and their management: Droughts will spread to cover larger areas and rain will become more concentrated, implying more floods.

Ecosystem: The combination of climate change and associated disturbances like flooding, drought, wildfire, infestation and ocean acidification, in addition to other contributors to climate change such as land use change, pollution and overexploitation of resources, will exceed the resilience of many ecosystems. Increasing ocean acidification due to higher CO₂ atmospheric concentrations will harm corals, shelled organisms and dependant species.

Food production: Although crops may increase in high and mid-latitudes, once local mean temperatures increase more than 1-3°C, they will decrease globally. Increased risk of hunger in lower latitudes, especially seasonally dry and tropical

regions, where crop productivity may decrease for even small changes in local average temperature of 1-2°C. Adaptations through cultivation cycles may maintain cereal yields if warming remains modest. Regional adverse effects are predicted for aquaculture and fisheries.

Coastal systems and low-lying areas: Coasts will increasingly suffer from erosion and rising sea levels, exacerbated by human-induced pressures. Corals and coastal wetlands may be seriously affected by even small increases in sea surface temperatures and rising sea levels, respectively. Many people may be affected by continuous floods of coastal areas due to sea level rise may increase significantly, especially in the densely-populated and low-lying areas with low adaptive capacity and already prone to tropical storms and local coastal subsidence.

2.7 Arsenic Contamination

At present, arsenic contamination is considered to be a dangerous environmental threat and a serious health risk. It is identified as a public health emergency in Bangladesh. There is no specific treatment for chronic arsenicosis other than ceasing further intake of arsenic contaminated water and raising awareness of the population about the problem.

The value (recommended limit) for arsenic in drinking water as per the guideline of the World Health Organization (WHO) is 10 mg/L while the national standard in most countries, including Bangladesh, is 50 mg/L. With varying levels of contamination from region to region, groundwater in 61 out of the 64 districts in Bangladesh is contaminated with arsenic. According to a study conducted by the British Geological Survey and DPHE, Bangladesh, arsenic concentrations in the country range from less than 0.25 mg/L to more than 1600 mg/L. This study report estimates that out of the Bangladesh population of 125.5 million, up to 57 million drinks water that has an arsenic concentration greater than the WHO guideline value and up to 35 million drinks water that has concentrations in excess of the Bangladesh standard. The waters in the southwest and southeast parts of Bangladesh are highly contaminated with arsenic (Figure 10). Important government initiatives to mitigate risk to arsenic contamination include development of the National Policy for Arsenic Mitigation 2003 and the Implementation Plan for Arsenic Mitigation in Bangladesh.

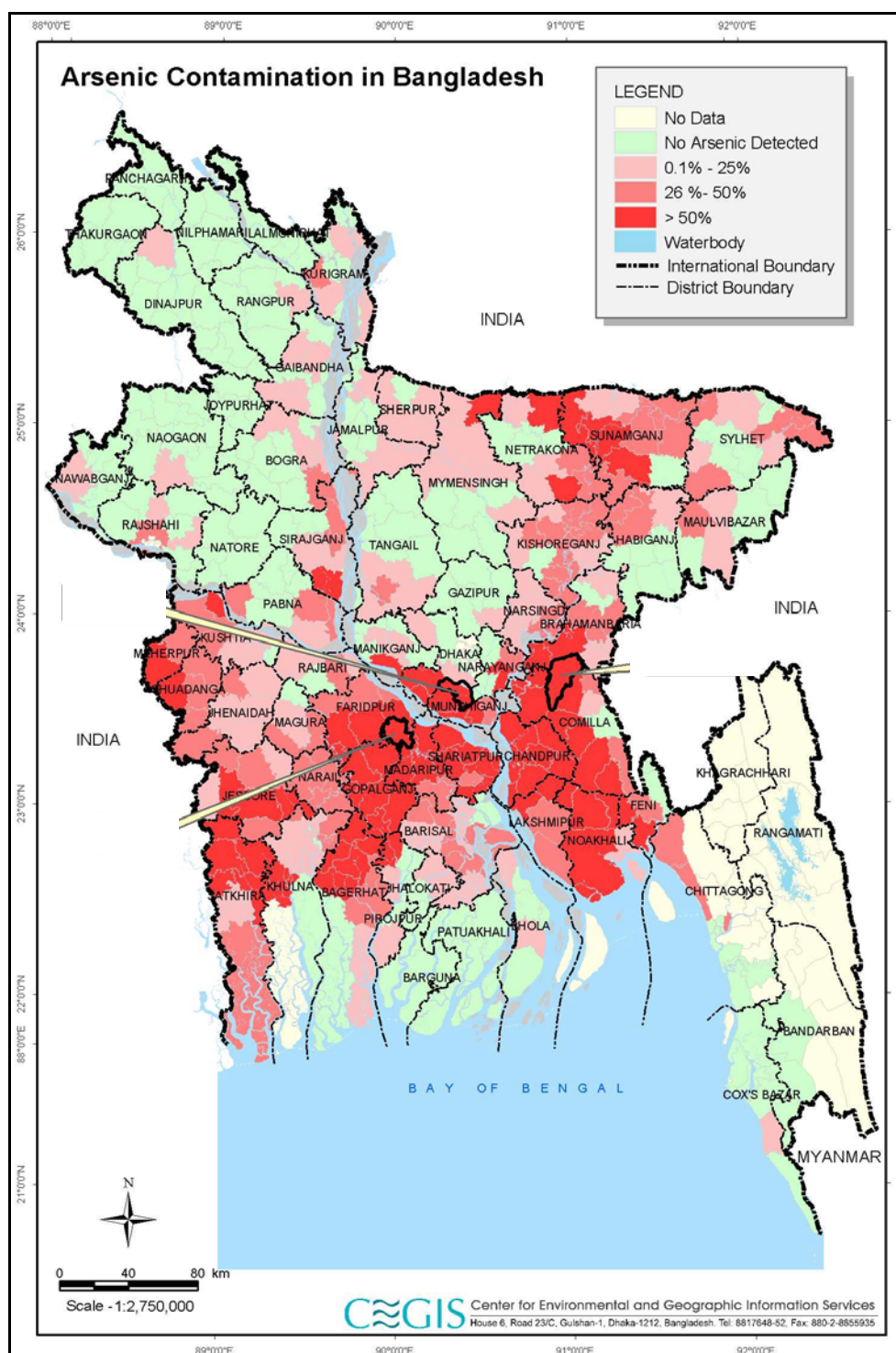


Figure 10: Arsenic contamination status in Bangladesh

2.8 Salinity Intrusion

Saline water intrusion is mostly seasonal in Bangladesh; in winter months the saline front begins to penetrate inland, and the affected areas rise sharply from 10 percent in the monsoon to over 40 percent in the dry season. Coastal districts such as Satkhira, Khulna, Bagerhat, Barguna, Patuakhali, Barisal are the victims of salinity intrusion. Agricultural production, fisheries, livestock, and mangrove forests are affected by higher salinity in the dry season. It is observed that dry flow trend is being declined as a result of which sea flow (saline water) is travelling far inside the country resulting in contamination both in surface and ground water.

Salinity data from Land Reclamation Programme (LRP) and Meghna Estuary Study (MES) indicate an enormous seasonal effect due to the influence of huge fresh water discharge from the Lower Meghna River on the horizontal distribution of salinity in the estuary. This distribution is strongly influenced by the fresh water flow in the Lower Meghna River. Figures 11 and 12 present the movement of the 1 ppt salinity line during monsoon and dry season respectively. High salinity both in monsoon and dry season in the southwest corner and along the Pussur-Sibsa system of the area is associated with the decreasing upstream freshwater flow as well as silting of major channels (WARPO, 2005).

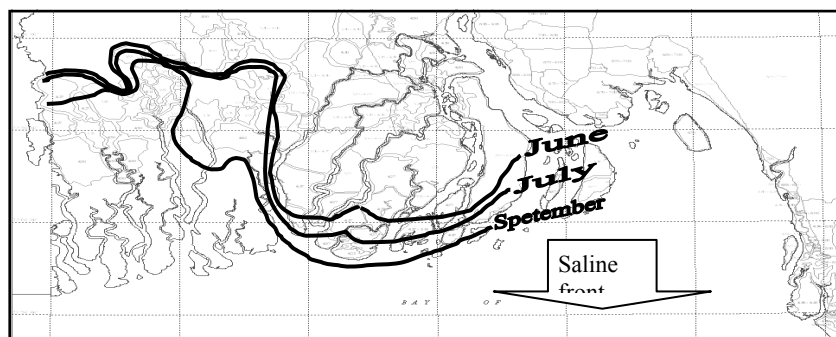


Figure 11: Movement of saline front of 1 ppt in the monsoon season (June to September)

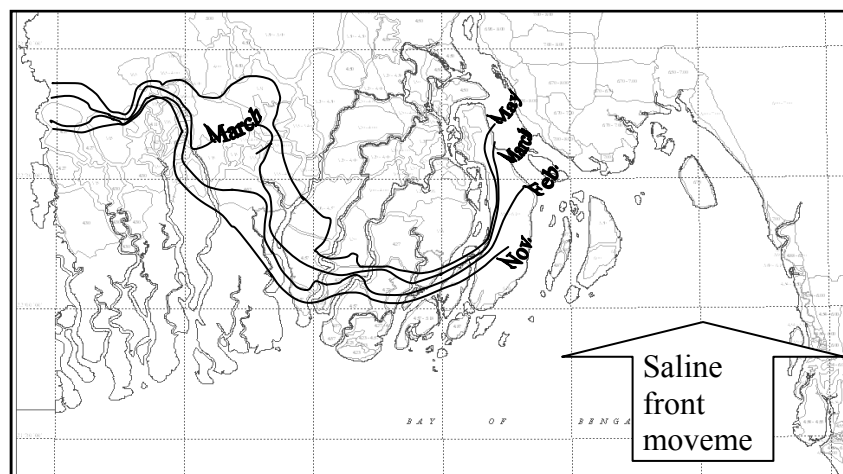


Figure 12: Movement of saline front of 1 ppt in the dry season (November to May)

2.9 Tsunami

Underwater strong earthquakes, volcanic eruption or other submarine landslide usually causes tsunamis. When earthquake occur offshore at subduction zones (places where a tectonic plate that carries an ocean is gradually slipping under a continental plate).

Some tsunamis can be very large. In coastal areas their height can be as great as 30 feet or more (100 feet in extreme cases), and they can move inland several hundred feet.

A tsunami consists of a series of waves. Often the first wave may not be the largest. The danger from a tsunami can last for several hours after the arrival of the first wave.

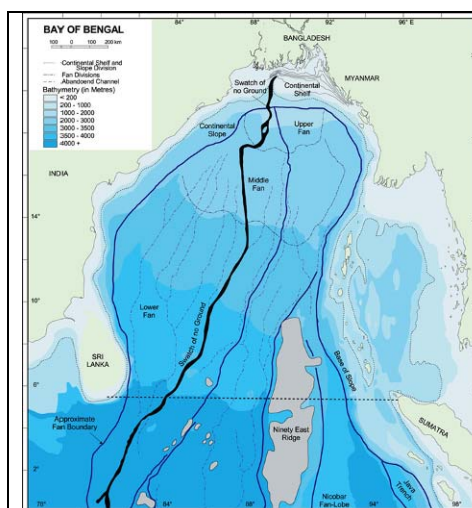
Tsunamis can move faster than a person can run.

Tsunamis can occur at any time, day or night.

Tsunami impact: although infrequent, tsunamis are among the most terrifying and complex physical phenomena, and have been responsible for great loss of life and extensive destruction to property. Because of their destructiveness, tsunamis have important impacts on the human, social, and economic sectors of societies. The last major Pacific-wide tsunami occurred in 1960. Many other local and regional destructive tsunamis have occurred with more localized effects.

Before the Asia Tsunami 2004, a few Bangladeshis ever thought that Bangladesh was vulnerable to tsunami hazards. However, the 2004 Asia Tsunami raised the question why Bangladesh was not hit by the Tsunami. Bangladeshi scientists put together the following reasons:

1. Long distance from the Epicenter;
2. Long Continental Shelf (about 200 km) at the front of Ganges- Brahmaputra active Delta System;
3. Thick sedimentation in Bengal fan;
4. High density of sea-water in Bay of Bengal around / along the coast (suspended load);
5. Anti-clockwise oceanic current at Bay of Bengal (winter time).



Considering the state of tsunami vulnerability and potential seismic sources, Geological Survey of Bangladesh has divided the Bangladesh coastal belt into three zones:

a. Tsunami Vulnerable Zone- I (Chittagong-Teknaf coastline): *Most vulnerable.* The intra-deltaic coastline is very close to the tectonic interface of Indian and Burmese plates. The active Andaman-Nicobar fault system is often capable of generating tsunami waves.

b. Tsunami Vulnerable Zone- II (Sundarban-Barisal coastline): *Moderately vulnerable.* This old deltaic belt is extremely vulnerable to local tsunamis due to presence of Swath of No Ground.

c. Tsunami Vulnerable Zone- III (Barisal-Sandwip estuarine coastline): *Low vulnerability.* The estuarine coastal belt considered to be less vulnerable due to presence of numerous islets and shoals in the upper regime of the continental shelf.

Bangladesh needs detailed study to scientifically assess the Tsunami vulnerability. Bangladesh also needs to develop a Tsunami early warning system and mass awareness of Tsunami threat at the coastal areas.

2.10 Fire

Fire hazards occur frequently in Bangladesh. Fire causes huge loss of lives and properties every year. Although termed as 'fire accident', most fire events are far from being accidental. Indeed, most fires are preventable. Industrial units, particularly garments industry, produce deadliest of the fires. For example, a fire broke out on 6 January 2005 on the fourth-floor of a building housing a factory in Narayanganj. It took fire-fighters four hours to extinguish the blaze. Dozens of workers were injured as they desperately tried to escape down the narrow smoke-engulfed stairs. About 23 people died because they were unable to escape because many of the exits were blocked, and the fire extinguishers were not working.



Tragically, factory fires are all too common in Bangladesh. Whenever a fire occurs, the authorities are usually asked to investigate the fire, pay exemplary compensation to the survivors as well as to the families of those that died, take immediate steps to improve health and safety in the industry, as well as take legal action against those found responsible for criminal negligence in allowing the existence of such unsafe conditions. Fire incidents in the country are increasing at an alarming rate. In 2004 alone, a total of 7,140 fire incident occurred which caused damage to property worth more than Tk. 200 crore.

2.11 Infrastructure Collapse

A nine-storied building housing a garments factory at Palashbari, Savar, Dhaka collapsed at around 1 am on 11 April 2005. It was a total structural failure. Local administration, especially the Fire Brigade and Bangladesh Army quickly rushed to the spot just after the collapse. NGOs, construction companies and other organizations joined later. 40-50 rescued alive during that night. Rescue Operations completed on 19.04.05. Scores of people died.

Lessons learned from the operation includes the following: a) site was inaccessible to the equipments – mobilized almost all the required equipments but sitting idle due to their inaccessibility to the site, b) unfamiliarity with the understanding and practical collapse condition, c) Lack of awareness of mass people on the stages of rescue operations, and d) Insufficient /lack of appropriate modern equipments to rescue victims alive.



Incidents of infrastructure collapse are on the rise. Prevention and preparedness programmes are absolute necessity of the time.

2.12 Landslide

Large and small landslides occur almost every year in nearly all regions of the world. In the past, landslide was not considered a major hazard in Bangladesh. However, recently landslide has emerged as a major hazard, particularly after the Chittagong Landslide 2007. Due to heavy rainfall during 10-11 June 2007, landslide and collapsed walls caused widespread damages in six areas of Chittagong city and in different Upazilas of the district. 50 MM rainfall was recorded from 12:00 AM 10 June 2007 to 6:00 AM June 11 2007, and 315 MM rainfall was recorded from 6:00am to 2:00 PM on 11 June 2007. More than 120 people have been reported dead due to Chittagong Landslide.

Landslide is a complex-disaster phenomenon that can be caused by earthquakes, volcanic eruptions, heavy rainfall (typhoons, hurricanes), sustained rainfall, heavy snowmelt, unregulated anthropogenic developments, mining, and others. In Bangladesh, landslide is mostly triggered by heavy rainfall. However, underlying causes of landslide include deforestation, hill cutting, unregulated development work, etc. Moreover, poverty and landlessness force poor people to live in the risky hill-slopes.

III. DISASTER MANAGEMENT VISION

The Disaster Management Vision of the Government of Bangladesh is to reduce the risk of people, especially the poor and the disadvantaged, from the effects of natural, environmental and human induced hazards, to a manageable and acceptable humanitarian level, and to have in place an efficient emergency response system capable of handling large scale disasters.

IV. DISASTER DEVELOPMENT LINKAGES: NATIONAL AND INTERNATIONAL DRIVERS FOR CHANGE

4.1. Millennium Development Goals

The Millennium Declaration of September 2000 identified, among others, the following key objectives:

Protecting the vulnerable

“We will spare no effort to ensure that children and all civilian populations that suffer disproportionately the consequences of natural disasters...are given assistance and protection so that they can resume normal life as soon as possible.”

Protecting our common environment, which resolve to “intensify cooperation to reduce the number and effects of natural and man-made disasters”.

Principal goals include the following:

- 1) Eradicate extreme poverty and hunger
- 2) Achieve universal primary education
- 3) Promote gender equality and empower women
- 4) Reduce child mortality
- 5) Improve maternal health
- 6) Combat HIV/AIDS, malaria and other diseases
- 7) Ensure environmental sustainability
- 8) Develop a global partnership for development

4.2. Poverty Reduction Strategy Paper (PRSP), Bangladesh

Poverty-disaster interface in Bangladesh is quite perplexing. Disasters have had adverse long-term impact on economic and social activities of the poor. Additionally, the poor are more vulnerable to any kind of disaster due to a) depletion of assets, b) income erosion

due to loss of employment, c) increased indebtedness and d) out migration. Moreover, cost to cope with disaster is disproportionately higher for the poor.

Poverty Reduction Strategy Paper is a policy and strategy document prepared by World Bank and the IMF member countries in broad consultation with stakeholders and development partners, including the staffs of the World Bank and the IMF to be updated every three years with annual progress reports. It describes the country's macroeconomic, structural and social policies and programs in support of growth and poverty reduction, as well as associated external financing needs and major sources of financing.

For WB and the IMF financing it is the basis for concessional lending from IMF and the WB for the low-income countries and debt relief under the WB-IMF Heavily Indebted Poor Countries (HIPC) initiatives.

The principal goal of the Bangladesh Government's economic policy is to reduce poverty so as to gradually lift the vast majority of the people above the poverty line and improve the quality of life for the average citizen. Developing homegrown poverty reduction strategies (PRs) along with operational plans suited to the particular circumstances and needs of Bangladesh with a focus of long-term vision was thus the objective of Bangladesh PRSP.

The core principle of the Bangladesh PRSP include the following:

- It is country-driven and promotes national ownership of strategies through broad-based participation of civil society;
- It is result-oriented and focused on outcomes that will benefit the poor;
- It is comprehensive in recognizing the multidimensional nature of poverty;
- It is partnership-oriented and involves coordinated participation of development partners (government, domestic stakeholders, and external donors); and
- It is based on a long-term perspective for poverty reduction.

The poverty reduction strategy framework in Bangladesh is as follows:

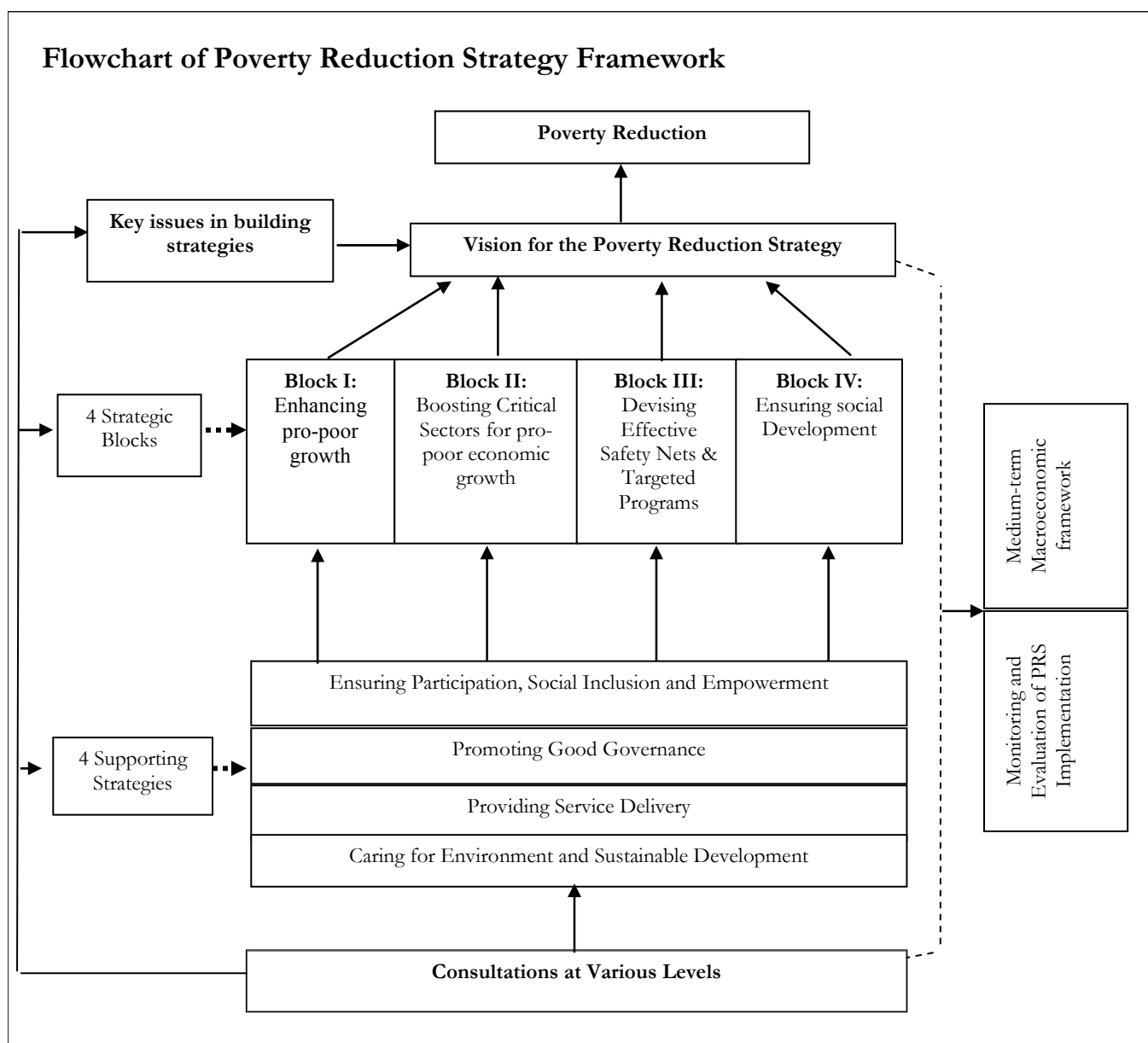


Figure- 13: Poverty Reduction Strategy Framework

Considering the direct poverty disaster linkages the Bangladesh PRSP included one separate policy matrix Number 07 on Comprehensive disaster management towards poverty reduction and growth. Disaster Management as a cross-cutting issue being included in the following three other policy matrices:

- a. Policy Matrix 08: Food security
- b. Policy Matrix 12: Promote use of ICT in Disaster Management
- c. Policy Matrix 15: Ensure social protection for women against vulnerability and risks

The Policy Matrix 07 envisages:

- Mainstreaming disaster management and risk reduction into national policies, institutions and development processes (introduction of Disaster Impact and Risk Assessment (DIRA))
- Strengthening disaster management and risk reduction capacity
- Ensuring knowledge management (acquiring, storing, sharing and applying) on disaster risk reduction
- Enhancing community level capacity for disaster risk reduction (community level preparedness, response, recovery and rehabilitation)

Ensuring social protection of women, children, elderly, people with disability and other vulnerable groups against vulnerability and risk.

4.3. Recommendations of the National Workshop on Options for Flood Risks and Damage Reduction in Bangladesh, 2004

In 2004, Bangladesh experienced one of the most devastating floods in nearly 50 years. About 38% of the country went under water. The damage caused by the flood was to the tune of US\$ 2 billion. Millions of people were affected. The most affected were the poor-the most vulnerable in such disasters.

In the backdrop of the devastating 2004 flood, on 7-9 September a national workshop was convened with the Prime Minister's Office on 'Options for Flood Risks and Damage Reduction in Bangladesh'. The workshop was attended by about 900 participants, including scientists, academicians, engineers, government servants, social workers, NGO leaders, defence personnel, businessmen and industrialists, representatives from development partners and the private sector. The objective of the workshop was to develop/design contexts based set of policy recommendations for flood management in Bangladesh and evaluate the experiences of flooding and flood management initiatives and lessons learnt from different kinds of interventions in the flood plains. The workshop also explored socio-economic aspects of the problem.

The workshop was inaugurated by the Hon'ble Prime Minister of the Peoples' Republic of Bangladesh. Hon'ble Ministers from the ministries concerned were present throughout the seminar. The Workshop started with presentation of three keynote papers from three very eminent experts on water resources, community participation and economy. Thereafter, the workshop broke up into parallel working group sessions along six broad themes. The themes included: (i) Working Group 1: Flood & Disaster Management and Mitigation Options, (ii) Working Group 2: Impact of Flood on National Transportation and Mitigation Options, (iii) Working Group 3: Impact to Flood on Agriculture, Livestock, Fisheries & industries Sector and Mitigation Options, (iv) Working Group 4: Impact of Flood on Housing, Urban Planning Utilities (Water Supply, Sanitations) & Environment and Mitigation Options, (v) Working Group 5: Impact of Flood on Social Services and Law & Order and Mitigation Options, (vi) Working Group 6: Impact of Flood on Economy Major Infrastructures and Livelihood and Mitigation Options.

The workshop came up with a total of 323 recommendations of which 87 recommendations were directly related to the Ministry of Food and Disaster Management.

As a follow-up to the workshop a detailed implementation plan of all the recommendations suggested were prepared with the direct involvement from the ministries and departments concerned. The Plan also identified the resource requirements, timeframe and the probable development partners.

4.4. Hyogo Framework for Action (HFA) 2005-2015

On January 18-22, 2005 the World Conference on Disaster Reduction was held in Kobe Japan. About 4,000 participants from 168 States, 78 observer organizations from the UN and other inter-governmental organizations, 161 NGOs and 154 media organizations attended the conference.

The broad objective of the conference was building the resilience of nations and communities to substantially reduce the losses in lives and social, economic and environmental assets of communities.

The specific objectives were:

- Conclude the review of the Yokohama Strategy and Plan of Action with a view to updating the guiding framework on disaster reduction for the 21st century;
- Identify specific activities aimed at ensuring the implementation of relevant provisions of the Johannesburg Plan of Implementation (JPOI), adopted in 2002 at the World Summit on Sustainable Development (WSSD);
- Share best practices and lessons learned to support and facilitate disaster reduction within the context of attaining sustainable development, and identify gaps and challenges;
- Increase awareness of the importance of disaster reduction policies to facilitate and promote the implementation of those policies; and
- Increase the reliability and availability of appropriate disaster-related information to the public and disaster management agencies in all regions, as set out in the relevant provisions of the JPOI.

The conference produced a 10 year Framework document called “**Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities**”. The HFA commits:

- To pursue an integrated multi-hazard approach for sustainable development to reduce the incidence and severity of disasters;
- To place disaster risk at the center of our political priorities and policies;
- To integrate disaster risk reduction in all our development work;
- To strengthen the capacity of disaster prone countries to address risk;
- To invest substantively in disaster preparedness;

- To reduce the relief-development gap and thereby reduce vulnerability;
- To enable civil society actors and affected communities to strengthen their resilience to disasters
- To reduce the gap between what we know and what we do, with the critical ingredient being political commitment; and
- To build on the momentum of this World Conference to accelerate implementation of the Framework for Action.

Priorities for action

Drawing on the conclusions of the review of the Yokohama Strategy, and on the basis of deliberations at the Conference and especially the agreed expected outcome and strategic goals, the World Conference on Disaster Reduction adopted the following five priorities for action:

1. Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation

Countries that develop policy, legislative and institutional frameworks for disaster risk reduction and that are able to develop and track progress through specific and measurable indicators have greater capacity to manage risks and to achieve widespread consensus for, engagement in and compliance with disaster risk reduction measures across all sectors of society.

2. Identify, assess and monitor disaster risks and enhance early warning

The starting point for reducing disaster risk and for promoting a culture of disaster resilience lies in the knowledge of the hazards and the physical, social, economic and environmental vulnerabilities to disasters that most societies face, and of the ways in which hazards and vulnerabilities are changing in the short and long term, followed by action taken on the basis of that knowledge.

3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels

Disasters can be substantially reduced if people are well informed and motivated towards a culture of disaster prevention and resilience, which in turn requires the collection, compilation and dissemination of relevant knowledge and information on hazards, vulnerabilities and capacities.

4. Reduce the underlying risk factors

Disaster risks related to changing social, economic, environmental conditions and land use, and the impact of hazards associated with geological events, weather, water, climate variability and climate change, are addressed in sector development planning and programmes as well as in post-disaster situations.

5. Strengthen disaster preparedness for effective response at all levels

At times of disaster, impacts and losses can be substantially reduced if authorities, individuals and communities in hazard-prone areas are well-prepared and ready to act and are equipped with the knowledge and capacities for effective disaster management.

4.5. United Nations Framework Convention on Climate Change (UNFCCC)

Climate change is rapidly emerging as one of the most serious threats that humanity may ever face. Global warming threatened the development goals for billions of the world's poorest people. We face a genuine danger that recent gains in poverty reduction will be thrown into reverse in coming decades, particularly for the poorest communities.

The Convention on Climate Change sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. It recognizes that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. The Convention enjoys near universal membership, with 189 countries having ratified.

Under the Convention, governments:

- gather and share information on greenhouse gas emissions, national policies and best practices
- launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries
- cooperate in preparing for adaptation to the impacts of climate change

The Convention entered into force on 21 March 1994.

4.6. SAARC Framework for Action (SFA) 2006-2015

The Heads of State or Governments in the 13th Dhaka Summit called for elaboration of a Comprehensive Framework on Early Warning and Disaster Management. In view of the December 2004 Asia Tsunami and the 2005 Pakistan Earthquake, the Heads of State or Governments underscored the urgency to put in place a regional response mechanism dedicated to disaster preparedness, emergency relief and rehabilitation to ensure immediate response. They directed the concerned national authorities to coordinate their activities in the areas of disaster management such as early warning, exchange of information, training and sharing of experiences and best practices in emergency relief efforts.

The significant outcome of the 13th Dhaka Summit is the establishment of SAARC Disaster Management Centre (SDMC) in New Delhi with a view to strengthening regional cooperation for Disaster Management. Currently, Director General of DMB holds the post of Chairmanship of Governing Body of the SDMC.

Following the Dhaka Declaration, a SAARC (South Asian Association for Regional Cooperation) Expert Group was formed to formulate a regional comprehensive

framework on disaster management for the SAARC region. The expert group met in Dhaka on 7-9 February 2006. As per the mandate of the Meeting and taking into account the deliberations of the Meeting, Bangladesh circulated a draft Comprehensive Framework on Disaster Management titled- 'Disaster Management in South Asia: A Comprehensive Regional Framework for Action 2006-2015', for consideration. After detailed discussions and amendments, the Framework was adopted in the Meeting.

Strategic Goals of the framework include the following:

- Professionalising the disaster management system;
- Mainstreaming disaster risk reduction;
- Strengthening of community institutional mechanisms;
- Empowering community at risk particularly women, the poor and the disadvantaged;
- Expanding risk reduction programming across a broader range of hazards (all hazards approach);
- Strengthening emergency response systems; and
- Developing and strengthening networks of relevant national, regional and international organizations.

The SFA identifies the following as the priority areas for action:

- Develop and implement risk reduction strategies
- Establish Regional and National Response Mechanisms
- Establish a Regional Information Sharing Mechanism and Develop Network of Institutions and Organizations
- Develop and implement Disaster Management training, education, research and awareness programmes
- Apply the ICT for disaster management.
- Establish an effective monitoring and evaluation mechanism.

For implementation and follow up of the SFA, it has been emphasized that:

- Different stakeholders in a multi-sectoral approach, including the development sector, should address the strategic goals and priorities for action.
- Member States and regional organizations will integrate disaster risk reduction considerations into their sustainable development policy, planning and programming at all levels.
- Civil society, including volunteers and community-based organizations, the scientific community and the private sector are vital stakeholders in supporting the implementation of disaster risk reduction at all levels.
- While each Member State has primary responsibility for its own economic and social development, an enabling regional environment is vital to stimulate and contribute to developing the knowledge, capacities and motivation needed to build disaster resilient nations and communities.
- All the Member States will be encouraged to apply a holistic approach and maintain consistency in programming and building multi-stakeholder partnerships at all levels, as appropriate, to contribute to the implementation of this Framework for Action.
- Member States and other actors are encouraged to promote the strengthening or establishment of volunteer corps, which can be made available during disasters.

- Member countries shall develop their own plan of action for implementation of this framework.

The draft SFA was placed before the SAARC Environment Ministers' Meeting held in Dhaka from 22-24 May 2006. The Meeting endorsed the SFA and urged the member states to prepare their own plans of actions for implementation of the SAARC framework and forward to the SAARC Secretariat by December 2006. This National Plan is an outcome of the SAARC process.

V. METHODS OF PLAN DEVELOPMENT

After the approval of the SFA at the SAARC Council of Ministers' Meeting held in Dhaka on 01 August 2006, the Ministry of Foreign Affairs requested MoFDM to urgently prepare the National Plan. Accordingly, the MoFDM formed a committee (Annexure- 1) to recommend a draft national plan. Several versions of the draft were prepared and consulted. With comments and suggestions from various ministries and departments, the version five was prepared and placed before the Inter-Ministerial Disaster Management Coordination Committee (IMDMCC) on 22 February 2007. In light with the discussions and decisions of the IMDMCC, the draft was further revised and was prepared for consideration of the Cabinet/Council of Advisors.

VI. OBJECTIVES OF THE PLAN

The objectives of this Plan are to:

- Align the strategic direction of disaster management programs with national priorities and international commitments.
- Articulate the vision and goals for disaster management
- Outline the strategic direction and priorities to guide the design and implementation of disaster management policies and programs.
- Create a cohesive and well-coordinated programming framework incorporating government, non-government and private sector.
- Ensure that disaster management has a comprehensive and all-hazards focus comprising disaster risk reduction and emergency response.
- Illustrate to other ministries, NGOs, civil society and the private sector how their work can contribute to the achievements of the strategic goals and government vision on disaster management.

6.1. Core Principles

The core principles of this plan have been adopted from the PRSP.

- **Country Driven**, promoting national ownership of strategies through broad based participation of government, NGOs and civil society.
- **Result Oriented** and focused on outcomes that will benefit vulnerable communities, especially women, the poor and socially disadvantaged.
- **Comprehensive** in recognizing the multidimensional nature of risk reduction.
- **Partnership oriented**, involving coordinated participation of development partners (government, domestic stakeholders, and external donors)
- Based on a **long-term perspective** for risk reduction.

VII. STRATEGIC GOALS OF THE PLAN

The strategic goals of the plan are drawn from the SAARC Disaster Management Framework

Goal 1: Professionalising the Disaster Management System

Goal 2: Mainstreaming Risk Reduction

Goal3: Strengthening Institutional Mechanisms

Goal 4: Empowering at Risk Communities

Goal 5: Expanding Risk Reduction Programming

Goal 6: Strengthening Emergency Response Systems

Goal 7: Developing and Strengthening Networks

The linkages of the key strategic goals to key international and national drivers for change are presented in Annexure- 6.

VIII. CONCEPTUALIZING DISASTER MANAGEMENT IN BANGLADESH

8.1. Disaster Management Model

Bangladesh has created a simplistic model to guide disaster risk reduction and emergency response management efforts in Bangladesh. The model (Figure 14) has three key elements and ensures that the move to a more comprehensive risk reduction culture remains central to all efforts.

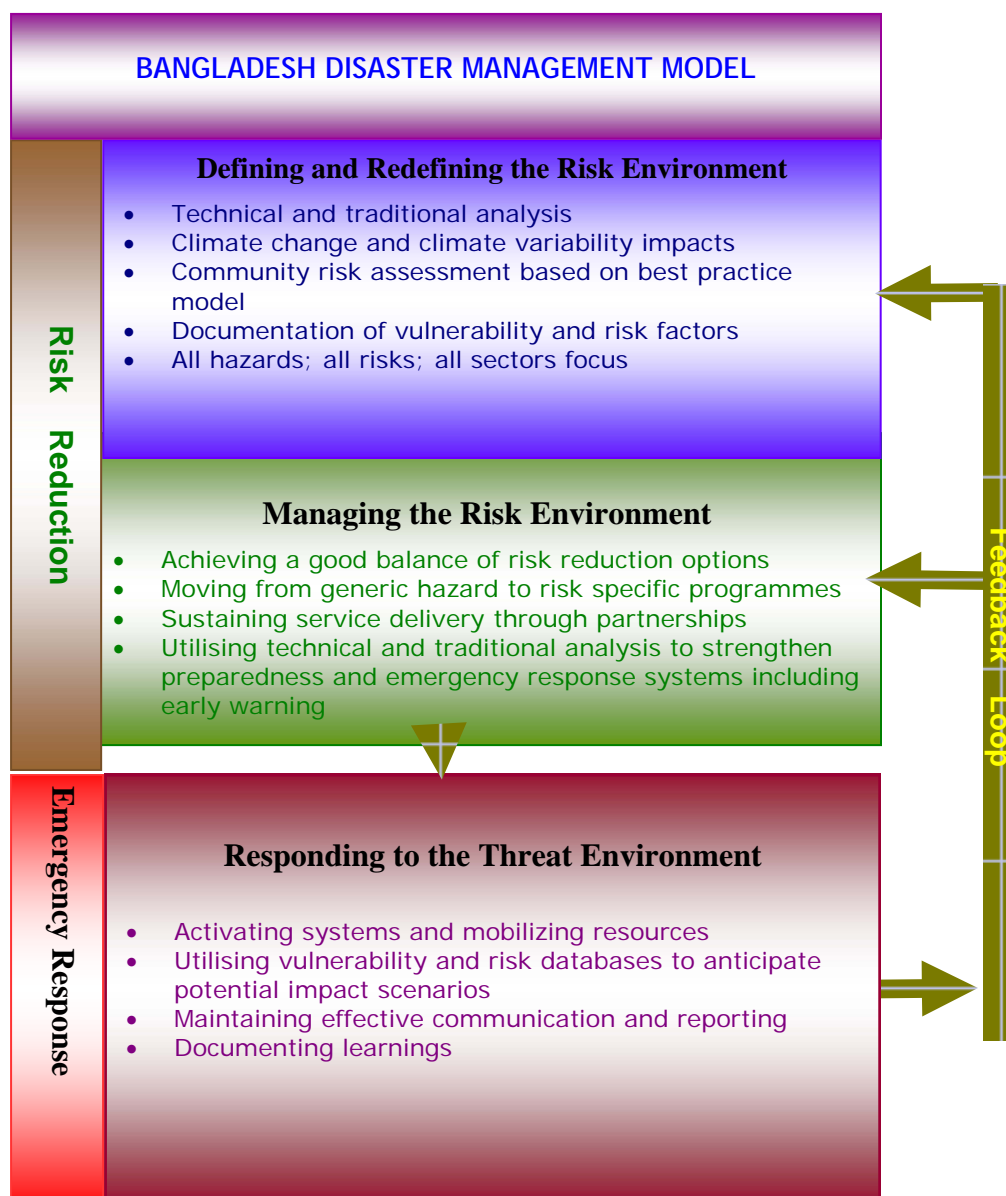


Figure 14: Disaster Management Model

8.1.1. Defining and redefining the risk environment

This element of the model promotes the use of scientific analysis (including climate change impacts) as the basis for accurately determining the future risk environment relative to all hazards, all sectors and all geographical areas.

To develop actions for managing risk (risk treatment options) the risk environment must first be defined. Defining the risk environment creates knowledge of the interaction of hazard and the elements at risk (community) and is conducted in a structured and analytical process. Defining the risk environment involves both the traditional and formal hazard analysis, and includes the following steps:

- Understanding the social, political and community environment (Establishing the context)
- Establishing what are the likely threats (Identifying hazards and risks)
- Understanding the likelihood and consequences (Analyse the risks)
- Rank risks in priority (Evaluate risks)
- What can be done to eliminate, reduce or manage risk (Identify risk treatment strategies).

8.1.1.1. Hazard Analysis

Hazard Assessment is the process of identification of events that lead to harm or loss. It may be undertaken using traditional or formal methods, and should consider both primary hazards (e.g. cyclone) and secondary hazards (e.g. storm surge, wind, rain). Hazards may be represented using GIS and modern mapping methodologies, and must include details of the effects to communities of the hazard.

8.1.1.2. Vulnerability Assessment

In order to understand the interaction of hazards on communities, it is important to conduct a vulnerability assessment. This should be completed in terms of elements within the community (e.g. women, children, and the poor), support elements to the community (e.g. lifelines (electricity) transportation links, community services) and livelihood factors within the community (e.g. food, accommodation, farm activity, industry)

8.1.1.3. Risk Treatment

Risk Treatment options involve ranking risk in priority, and addressing vulnerability by determining actions that reduce or eliminate risk or by determining mitigation programs for communities.

8.1.2. Managing the risk environment

This element of the model promotes the design of risk reduction strategies (Community Based Adaptation Programmes) as an outcome of the risk assessment process. This ensures Prevention, Preparedness, Response and Recovery programmes are multi hazard focused and that the move from being hazard generic in nature to risk specific. This will enable communities to better understand their changing risk environment and thus become more resilient through proactive risk reduction efforts.

Managing the risk environment involves developing programs and strategies that eliminate, or reduce the level of risk. Traditionally mitigation programs were viewed as engineering solutions to eliminate risk, but it is now accepted that all activities undertaken to eliminate or reduce risk are “mitigation” strategies (e.g. community education and awareness, planning activities, development of warning systems). This includes activities previously described as the PPRR Model- Prevention, Preparedness, Response and Recovery. Activities in developing response or recovery systems are included as legitimate mitigation activities.

8.1.3. Responding to the threat environment

This element of the model involves responding to an actual threat situation. It helps Bangladesh disaster management officials to clearly articulate the difference between risk reduction and emergency response and how accurately defining risk environments can influence and enhance emergency response systems and decisions.

Not all hazards can be managed and not all risks can be eliminated or minimized. At times a response to an emerging threat or an event that has happened will be necessary. In this case, response and recovery systems that have been developed in managing the risk environment are activated as needed to respond to the threat. Such response may include:

- Warning Period (Alert and activation).
- Hazard Onset (Response), and.
- Post Hazard Period (Relief, early recovery and Rehabilitation).

The key attributes of the model are:

- It provides a framework to guide the achievement of the Hyogo Framework for Action commitments.
- It clearly articulates the key elements of disaster management and their interactive relationships.
- It facilitates the transition from generic hazard based to specific risk based programmes through the inclusion of technical inputs.
- It provides guidance for the design of policy, planning and training.
- It provides a mechanism to achieve consistency in process and methodology.
- It ensures preparedness and response strategies are influenced by technical and traditional considerations

8.2. Mainstreaming Risk Reduction – The Strategies

Mainstreaming risk reduction efforts within government, NGOs and private sector is viewed as being the key to achieving sustainable all hazards risk reduction interventions across the whole country. In Bangladesh mainstreaming is seen in much the same light as poverty reduction in that it is the outcome of many top down and bottom up interventions. These are summarized below and articulated briefly within Figure 16.

8.2.1. Advocacy: Awareness raising among Political, Senior Policy and Government Department Officials, Media and Academic Institutions is a priority strategy for building knowledge and understanding on the benefits of risk reduction and the roles these organizations play in implementing risk reduction programmes.

8.2.2. Policy and Planning Reform: A significant review of disaster management and development planning policy is being undertaken to ensure that they facilitate mainstreaming and promote a comprehensive risk reduction culture.

8.2.3. Capacity Building: This strategy has targeted a complete review of the roles and responsibilities of disaster management committees (DMCs) at all levels to ensure they reflect risk reduction as well as emergency response functions. A national training curriculum is being developed to ensure that committees receive capacity building training to ensure they understand and can fulfill their functions effectively.

8.2.4. Planning Frameworks: Disaster management planning at all levels is being significantly overhauled to ensure that DMC plans accommodate risk reduction mainstreaming at all levels.

8.2.5. Uniform CRA Guidelines: Uniform CRA processes are being established to ensure consistency in the conduct of community risk identification and compatibility with the risk reduction planning processes of the respective DMCs. The guidelines also have steps to ensure strong linkages with scientific analysis information.

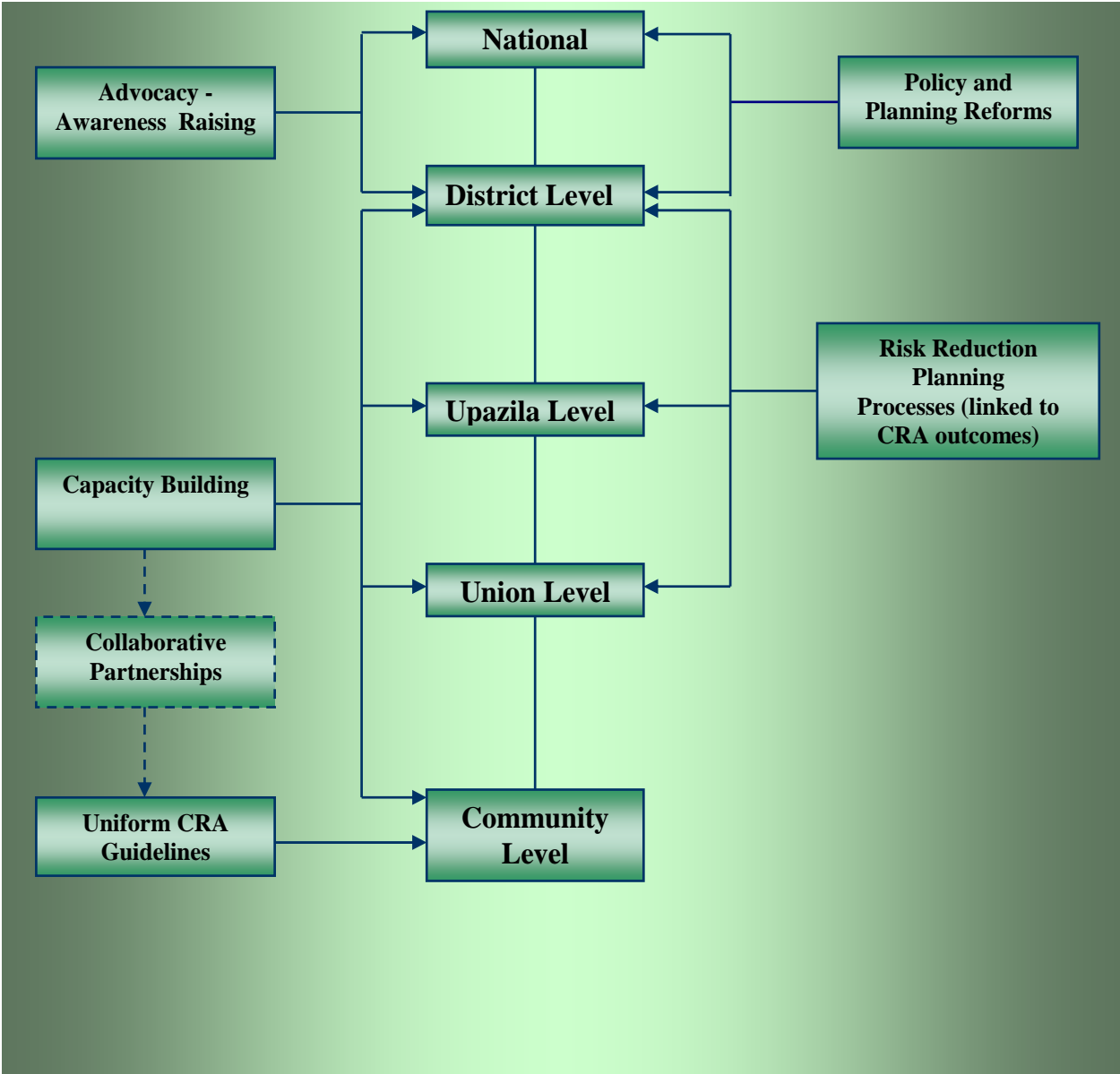


Figure 15: Mainstreaming strategies

IX. DISASTER MANAGEMENT SYSTEM IN BANGLADESH

The Ministry of Food and Disaster Management (MoFDM) of the Government of Bangladesh has the responsibility for coordinating national disaster management efforts across all agencies. In January 1997 the Ministry issued the Standing Orders on Disaster (SOD) to guide and monitor disaster management activities in Bangladesh.

The Standing Orders have been prepared with the avowed objective of making the concerned persons understand their duties and responsibilities regarding disaster management at all levels, and accomplishing them. All Ministries, Divisions/Departments and Agencies shall prepare their own Action Plans in respect of their responsibilities under the Standing Orders for efficient implementation. The National Disaster Management Council (NDMC) and Inter-Ministerial Disaster Management Coordination Committee (IMDMCC) will ensure coordination of disaster related activities at the National level. Coordination at district, upazila and union levels will be done by the respective District, Upazila and Union Disaster Management Committees. The Disaster Management Bureau will render all assistance to them by facilitating the process.

A series of inter-related institutions, at both national and sub-national levels (Figure 12) have been created to ensure effective planning and coordination of disaster risk reduction and emergency response management.

At the national level

- i. **National Disaster Management Council (NDMC)** headed by the Hon'ble Prime Minister to formulate and review the disaster management policies and issue directives to all concerns.
- ii. **Inter-Ministerial Disaster Management Co-ordination Committee (IMDMCC)** headed by the Hon'ble Minister in charge of the Ministry of Food and Disaster Management (MoFDM) to implement disaster management policies and decisions of NDMC / Government.
- iii. **National Disaster Management Advisory Committee (NDMAC)** headed by an experienced person having been nominated by the Hon'ble Prime Minister.
- iv. **Cyclone Preparedness Program Implementation Board (CPPIB)** headed by the Secretary, Ministry of Food and Disaster Management to review the preparedness activities in the face of initial stage of an impending cyclone.
- v. **Disaster Management Training and Public Awareness Building Task Force (DMTATF)** headed by the Director General of Disaster Management Bureau (DMB) to co-ordinate the disaster related training and public awareness activities of the Government, NGOs and other organizations.
- vi. **Focal Point Operation Coordination Group of Disaster Management (FPOCG)** headed by the Director General of DMB to review and co-ordinate the activities of various departments/agencies related to disaster management and also to review the Contingency Plan prepared by concerned departments.
- vii. **NGO Coordination Committee on Disaster Management (NGOCC)** headed by the Director General of DMB to review and co-ordinate the activities of concerned NGOs in the country.

- viii. **Committee for Speedy Dissemination of Disaster Related Warning/ Signals (CSDDWS)** headed by the Director General of DMB to examine, ensure and find out the ways and means for the speedy dissemination of warning/ signals among the people.

At sub-national levels

- i. **District Disaster Management Committee (DDMC)** headed by the Deputy Commissioner (DC) to co-ordinate and review the disaster management activities at the district level.
- ii. **Upazila Disaster Management Committee (UZDMC)** headed by the Upazila Nirbahi Officer (UNO) to co-ordinate and review the disaster management activities at the Upazila level.
- iii. **Union Disaster Management Committee (UDMC)** headed by the Chairman of the Union Parishad to co-ordinate, review and implement the disaster management activities of the concerned union.
- iv. **Pourashava Disaster Management Committee (PDMC)** headed by Chairman of Pourashava (municipality) to co-ordinate, review and implement the disaster management activities within its area of jurisdiction.
- v. **City Corporation Disaster Management Committee (CCDMC)** headed by the Mayor of City Corporations to co-ordinate, review and implement the disaster management activities within its area of jurisdiction.

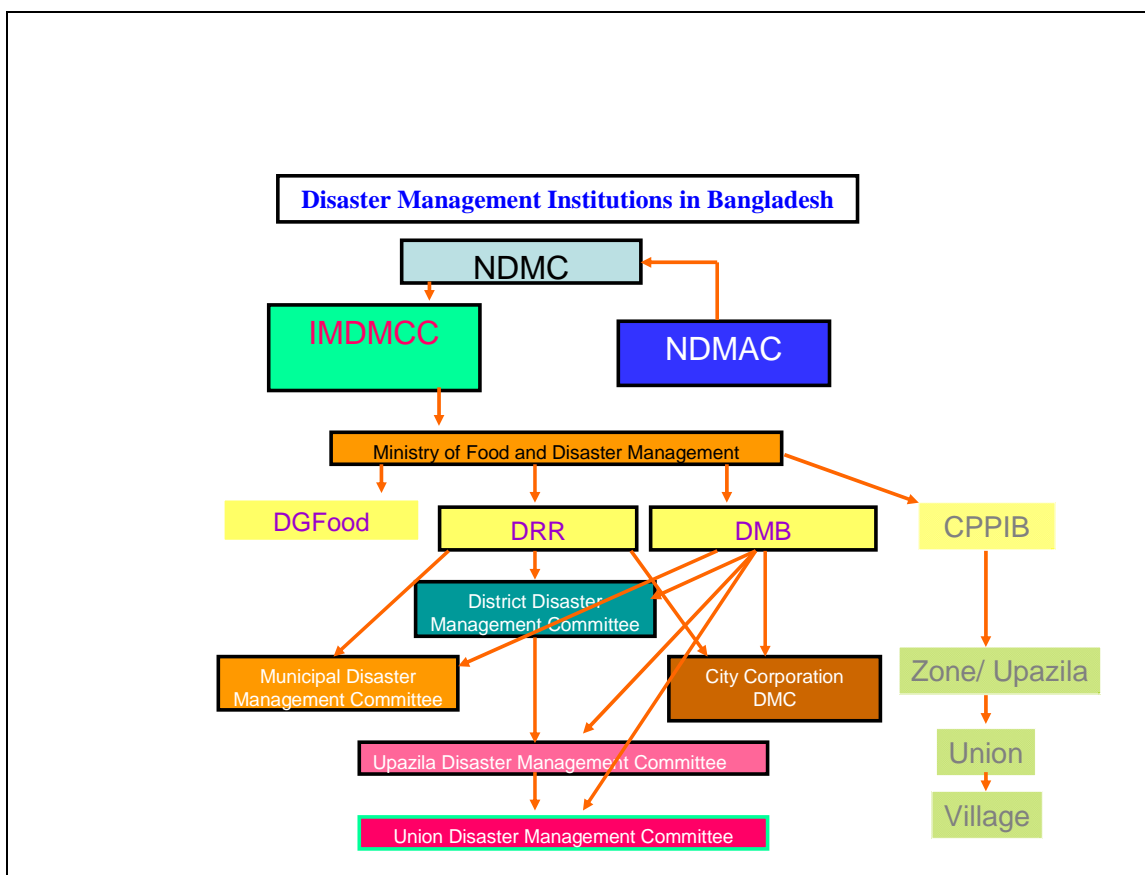


Figure 16: Disaster Management Institutions in Bangladesh

Detailed roles and responsibilities of all entities are outlined in the Standing Orders on Disaster.

X. DISASTER MANAGEMENT REGULATIVE FRAMEWORK

Bangladesh's regulative framework for disaster management provides for the relevant legislative, policy and best practice framework under which the activity of Disaster Risk Reduction and Emergency Management in Bangladesh is managed and implemented. The framework includes:

10.1. Disaster Management Act

A Disaster Management Act will be enacted with a view to create the legislative tool under which disaster risk and emergency management will be undertaken in Bangladesh, and the legal basis in which activities and actions will be managed. It will also create mandatory obligations and responsibilities on Ministries, committees and appointments. The objectives of the Act will be a) To help communities to mitigate the potential adverse effects of hazard events, prepare for managing the effects of a disaster event, effectively respond to and recover from a disaster or an emergency situation, and adapt to adverse effects of climate change; b) To provide for effective disaster management for Bangladesh; c) To establish an institutional framework for disaster management; and d) To establish risk reduction as a core element of disaster management.

10.2. National Disaster Management Policy

A National Disaster Management Policy will be formulated to define the national perspective on disaster risk reduction and emergency management, and to describe the strategic framework, and national principles of disaster management in Bangladesh. It will be of strategic in nature and will describe the broad national objectives, and strategies in disaster management.

10.3. Disaster Management Plans

The Bangladesh National Plan for Disaster Management is a strategic document to be effective for a certain period of time. This is an umbrella plan which provides the overall guideline for the relevant sectors and the disaster management committees at all levels to prepare and implement their area of roles specific plans. The Ministry of Food and Disaster Management (MoFDM) being the focal ministry for disaster risk reduction and emergency management will take the lead role in disaster risk reduction and emergency management planning. Additionally, there will be a few hazard specific management plans, such as Flood Management Plan, Cyclone and Storm Surge and Tsunami Management Plan, Earthquake Management Plan, Drought Management Plan, River Erosion Management Plan, etc. Moreover, there will be a detailed Disaster Management Plan for each District, Upazila, Union and Paurashava and City Corporation of the country. A District Disaster Management Plan will be the compilation of the Upa-zila Disaster Management Plans of the district. Similarly a Upa-zila Disaster Management Plan will be the compilation of the union disaster management plans of that Upazila prepared by the Union DMCs. So DMCs at Union and Paurashava levels will be mainly responsible for conducting the risk assessments and prepare the ground level plans. Once developed those will be sent to the DMCs at one level higher – Upazila DMCs, whose role will be to verify and compile the union plans and identify the resource requirements for the Upazila.

10.4. Standing Orders on Disaster

The Standing Orders on Disaster describes the detailed roles and responsibilities of committees, Ministries and other organizations in disaster risk reduction and emergency management, and establishes the necessary actions required in implementing Bangladesh's Disaster Management Model. The Standing Orders have been prepared with the avowed objective of making the concerned persons understand their duties and responsibilities regarding disaster management at all levels, and accomplishing them. All Ministries, Divisions/Departments and Agencies shall prepare their own Action Plans in respect of their responsibilities under the Standing Orders for efficient implementation. The National Disaster Management Council (NDMC) and Inter-Ministerial Disaster Management Coordination Committee (IMDMCC) will ensure coordination of disaster related activities at the National level. Coordination at district, Thana and union levels will be done by the respective District, Upazila and Union Disaster Management Committees. The Disaster Management Bureau will render all assistance to them by facilitating the process.

10.5. Guidelines for Government at all Levels (Best Practice Models)

Guidelines for Government is to be implemented at all levels are developed as best practice models, and are used to assist Ministries, Directorate, Institutions and Divisions under the Ministry, NGOs, disaster management committees and civil society in implementing disaster risk management. Guidelines will include, among others:

- Disaster Impact and Risk Assessment Guideline
- Local Disaster Risk Reduction Fund Management Guidelines
- Emergency Fund Management Guidelines
- Indigenous Coping Mechanism Guidebook
- Community Risk Assessment Guidelines
- Damage and Needs Assessment Methodology
- Hazard Specific Risk Assessment Guidelines
- Emergency Response and Information Management Guideline
- Contingency Planning Template
- Sectoral Disaster Risk Reduction Planning Template
- Local Level Planning Template
- National Risk Reduction Fund Management Guideline
- National Disaster Reduction and Emergency Fund Management Guideline
- Local Disaster Management Fund Guideline
- Guideline for road and water safety
- Guideline for industrial safety
- Guideline for Disaster Shelter Management
- Monitoring and Evaluation Guideline for the Implementation of the Plan
- Guideline for international Assistance in disaster emergency

Figure 17 shows the inter-linkages between various regulative instruments and programming for implementation.

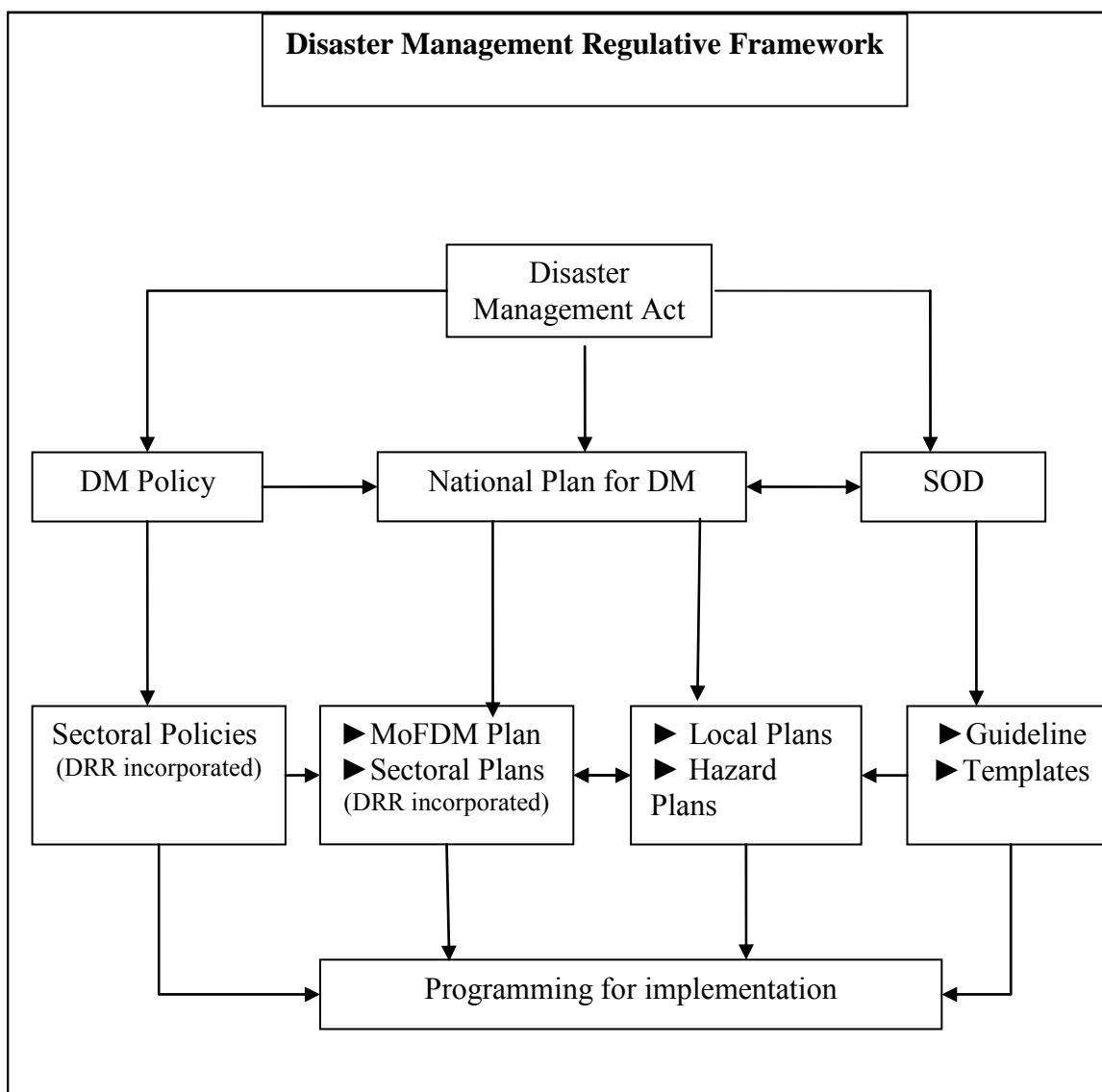


Figure 17: Disaster Management Regulative Framework

XI. DISASTER MANAGEMENT PLANS

The disaster management planning framework in Bangladesh is presented below:

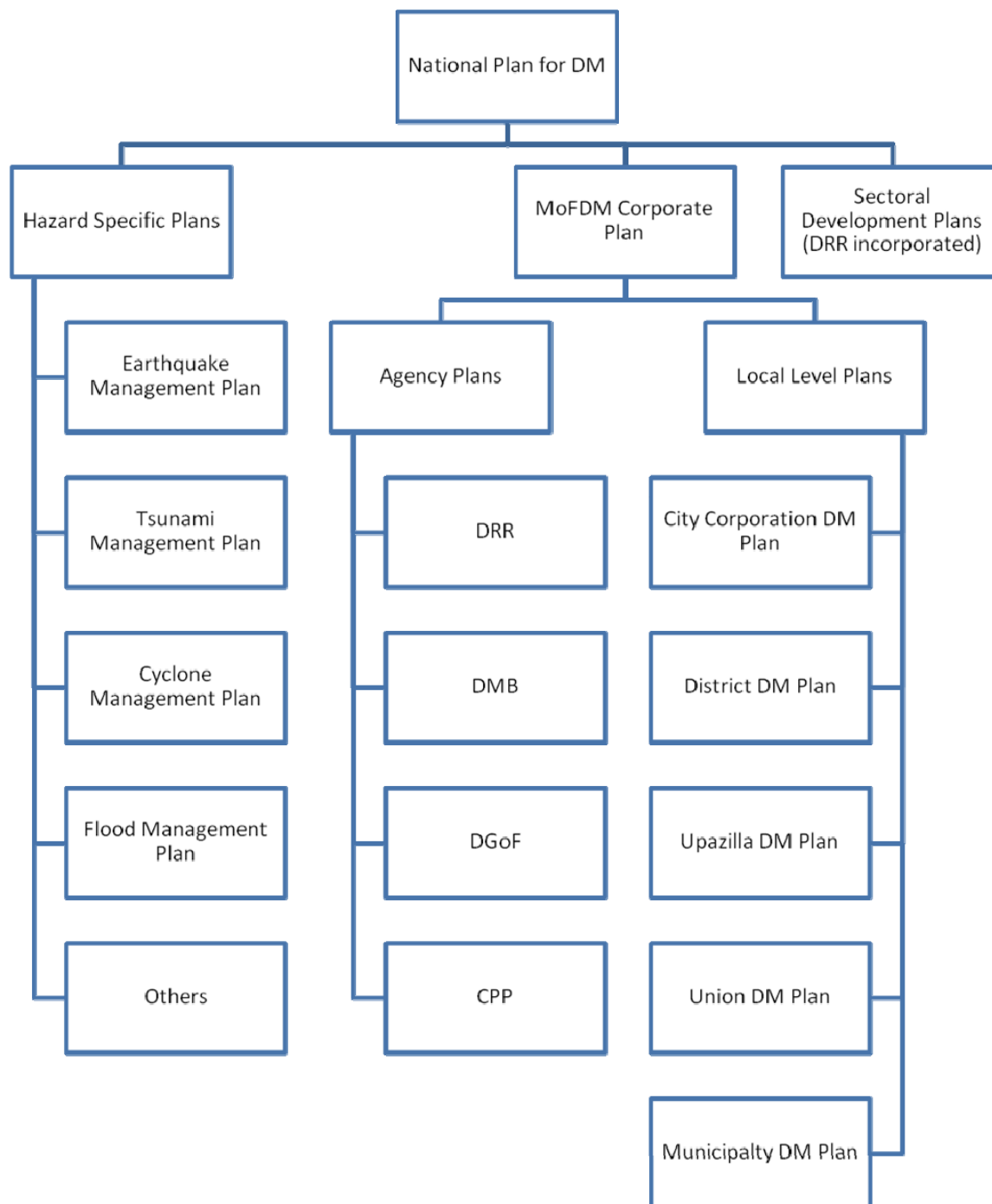


Figure-18: Disaster Management Planning Framework

11.1. National Plan for Disaster Management

The National Plan for Disaster Management is prepared by the Ministry of Food and Disaster Management. This plan should cover a way to culture of prevention that should be developed by introducing disaster management in school curriculum, including relevant aspects of disaster management in professional courses, enhancing the capacity of disaster managers by better training facilities and creating a massive awareness at all levels. Involving people at the grassroots, particularly those who are more vulnerable, for better preparedness and response, should encourage community level initiatives for disaster preparedness. Appropriate zonal regulations, design standards, building codes and performance specifications should be developed for safe constructions. All development schemes in vulnerable areas should include a disaster mitigation analysis, whereby the feasibility of a project is assessed with respect to vulnerability of the area. Disaster mitigation components should be built into all development projects, financed under the Plan, as part of approved project costs.

Followings are as key factors for enhancing sustainability of the disaster management plan:

- The existence of “culture of coping with crisis” and “culture of disaster reduction” exist
-
- Risk assessment process involves participation of people and incorporating their perception of vulnerability and capacity
- Community and supporting agencies share common motivation and ownership for the initiation and sustainability of CBDM
- Capacity building objectives, with specific focus on sectoral groups like women, elderly, children and ethnic minorities
- Well-delivered training inputs in accordance with the objectives of the plan and the needs of the community for training
- Wider stakeholders involvement and participation
- Accumulation of physical, technological and economic assets to reduce hazards and vulnerability

The plan includes the following as minimum:

- i. Introduction
- ii. GoB Vision for Disaster Management
- iii. Hazards profile of Bangladesh,
- iv. Disaster development linkages: national and international drivers for change
- v. Aim of the plan,
- vi. Strategic goals of the plan,
- vii. Conceptualizing disaster management in Bangladesh
- viii. Disaster management system in Bangladesh

- ix. The roles and responsibilities of entities involved in emergency operations and risk reduction
- x. Disaster management regulative framework,
- xi. Action matrix for disaster risk reduction and emergency management in Bangladesh describing the priorities and the strategies
- xii. Review and evaluation
- xiii. Implementation and follow-up
- xiv. Financing of the plan
- xv. Other matters relating to disaster management as deemed necessary by appropriate authority for inclusion in the plan.

The Plan to be used to:

- i. Articulate the long-term strategic focus of disaster management in Bangladesh.
- ii. Demonstrate a commitment to address key issues: risk reduction, capacity building, information management, climate change adaptation, livelihood security, issues of gender and the socially disadvantaged, etc.
- iii. Show the relationship between the government vision, key result areas, goals and strategies, and to align priorities and strategies with international and national drivers for change.
- iv. Detail a road-map for the development of disaster management plans by various entities.
- v. Guide the MoFDM in the development and delivery of guidelines and programmes.
- vi. Illustrate to other ministries, NGOs, civil society and the private sector how their work can contribute to the achievements of the strategic goals and government vision on disaster management.
- vii. Provide a framework within which to report performance and success in achieving goals and strategies

11.2 Corporate Plan of the Ministry of Food and Disaster Management (2005-2009):

As a long term strategy the Ministry of Food and Disaster Management had developed the corporate plan a framework for action. The plan also followed by the strategic plan and operational plan of the different directorate of the ministry.

Purpose of the Corporate Plan

- Articulate the Ministry's long-term Strategic Focus.
- Demonstrate a commitment to address key issues: risk reduction, capacity building, climate change, food security, issues of gender and the socially disadvantaged.
- Show the relationship between the government vision, and the MoFDM mission, key result areas, goals and strategies, and to align priorities and strategies with international and national drivers for change.

- Detail a road-map for the development of internal Strategic Plans for the Disaster Management Bureau (DMB), Directorate of Relief and Rehabilitation (DRR), Director-General of Food (DGoF) and the Policy Programme and Partnership Development Unit (PPPDU).
- Guide the MoFDM in the development and delivery of programmes for which the MoFDM is accountable.
- Provide guidance to the MoFDM's Executives in the formulation of programmes, and the allocation of budgets and resources.
- Illustrate to NGOs, other Ministries and civil society how their work can contribute to the achievements of the government vision, and how they can support the MoFDM goals.
- Inform about challenges, opportunities and risks that will have an impact on policies and practices.
- Provide a framework within which to report performance and success in achieving goals and strategies.

Key Result Areas

- Strengthening and Professionalising the Disaster Risk Reduction System. Mainstreaming of disaster risk management programming through coordination, cooperation and advocacy (partnership development).
- Strengthening of community institutional mechanisms (community empowerment).
- Expanding Mitigation, Preparedness and Response Strategies across a Broader Range of Hazards.
- Strengthening Emergency Response and Recovery (Relief and Rehabilitation) Systems (Operationalising Response and Recovery).
- Maintaining and strengthening the National Food Security System.

A steering committee had been established in the Ministry of Food and Disaster Management to implement the comprehensive disaster management approaches in the country. The steering committee is headed by the Honourable Minister/ Adviser, Ministry of Food and Disaster Management. The Strategic Partner had also been identified as a part of the medium term strategies. The strategic partners included Government department/agencies, Academic and Scientific Institution as well as Non Governmental Institutions. For immediate strategies implementing partners had also been identified. The implementing partners will implement the programme from community to national level. A coordination committee had also been established to coordinate and monitor the activities of the strategic and implementing partners.

11.3. District Disaster Management Plan (DDMP)

There is a District Disaster Management Committee (DDMC) at the District level. The DDMC consists of the Deputy Commissioner of the District as the chairperson and members comprising all District level department heads, NGO leaders and civil society members. District Relief and Rehabilitation Officer (DRRO) acts as member secretary of the committee. Members of Parliament act as advisors of the committees. The committee is required to meet bi-monthly during normal period and as and when necessary during emergency situation.

There will be a plan for each District titled “District Disaster Management Plan” comprising both disaster risk reduction and emergency response to be prepared by the District Disaster Management Committee. This is a plan to be prepared by compilation of the Upa-zila and Paurashava Disaster Management Plans of the district being received from the respective Upazila and Paurashava/City Corporation DMCs. The DDMP should highlight and articulate, among others, the following:

- a. The areas in the district vulnerable to different forms of hazards and risks,
- b. Total resource requirements and the planned action for the district
 - i. to take measures for prevention and mitigation of disasters by government agencies, NGOs, CBOs and the private sector within the district,
 - ii. capacity building and preparedness measures to be taken by government agencies, NGOs, CBOs and the private sector
 - iii. strengthening emergency response management system plans and procedures in the event of a disaster, providing for –
- c. The response plans and procedures in the event of a disaster, providing for –
 - i. Allocation of responsibilities to the departments of the government at district level and other DMC members;
 - ii. Procedure for mobilization of resources,
 - iii. Prompt response to disaster and relief thereof;
 - iv. Procurement of emergency supplies;
 - v. Operation of disaster shelters,
 - vi. Restoration of emergency services, such as water supply, gas supply, power, telecommunication, road links,
 - vii. Provision of emergency medical services,
 - viii. Burial of dead bodies,
 - ix. Trauma counselling, and
 - x. The dissemination of information.
- d. Recovery plans and procedures delineating damage assessment procedure, restoration of damaged public infrastructure, resumption of educational institutions, restoration of livelihood, rehabilitation of affected people, especially the disabled, and elderly women and children.
- e. The DDMP shall be reviewed and updated annually.
- f. The copies of the DDMP shall be made available to all district level stakeholders, Divisional Commissioners, etc.

- g. A copy of the DDMP will be sent to the Disaster Management Bureau and all relevant ministries and divisions.
- h. The DMB/ NDMTI will provide technical advice and capacity building services to all DMCs.

11.4. Upazila Disaster Management Plan (UZDMP)

Upazila is an important and vital administrative unit of Bangladesh. There is a Upa-Zila Disaster Management Committee (UZDMC) at the Upa-Zila level. The UZDMC consists of the Upa-Zila Nirbahi Officer as the chairperson and members comprising all Upa-Zila level department heads, NGO leaders and civil society members. The PIO acts as the member secretary of the committee. Members of Parliament act as advisors of the committees. The committee is required to meet bi-monthly during normal period and as and when necessary during emergency situation.

There will be a plan for each Upazila titled “Upazila Disaster Management Plan” comprising both disaster risk reduction and emergency response to be prepared by the Upa-Zila Disaster Management Committee by compiling all the Union Disaster Management Plans of the Upazila being received from the respective Union DMCs of the Upazila. The UZDMP should highlight and articulate, among others, the following:

- a) The areas in the upazila vulnerable to different forms of hazards and risks
- b) Total resource requirements and the planned action for the district
 - i. to take measures for prevention and mitigation of disasters by government agencies, NGOs, CBOs and the private sector within the district,
 - ii. capacity building and preparedness measures to be taken by government agencies, NGOs, CBOs and the private sector
 - iii. strengthening emergency response management system plans and procedures in the event of a disaster, providing for –
- c) The response plans and procedures in the event of a disaster, providing for
 - i. Allocation of responsibilities to the departments of the government at district level and other DMC members;
 - ii. Procedure for mobilization of resources,
 - iii. Prompt response to disaster and relief thereof;
 - iv. Procurement of emergency supplies;
 - v. Operation of disaster shelters,
 - vi. Restoration of emergency services, such as water supply, gas supply, power, telecommunication, road links,
 - vii. Provision of emergency medical services,
 - viii. Burial of dead bodies,
 - ix. Trauma counselling, and
 - x. The dissemination of information.
- d) Recovery plans and procedures delineating damage assessment procedure, restoration of damaged public infrastructure, resumption of educational institutions, restoration of livelihood, rehabilitation of affected people, especially the disabled, and elderly women and children.
- e) The UZDMP shall be reviewed and updated annually.

- f) The copies of the UZDMP shall be made available to all Upazila level stakeholders and members of DDMCs.
- g) A copy of the UZDMP will be sent to the District Disaster Management Committee and DMB.
- h) The DMB/ NDMTI will provide technical advice and capacity building services to all DMCs.

11.5. Union Disaster Management Plan (UDMP)

Union Parishad is the lowest administrative unit of Bangladesh. There is a Disaster Management Committee at the Union level. The UDMC is Chaired by the elected Chairman of the respective Union Parishad. The Union Disaster Management Committee consists of the Union Parishad Chairman as the Chairperson and members comprising all the Government department head at Union level, members of Union Parishad, NGO leaders working in respective union and civil society members. Secretary of the respective Union Parishad acts as the member secretary of the committee. The committee is required to meet bimonthly during normal period and as and when necessary during emergency situation.

There will be a plan for each Union titled “Union Disaster Management Plan” comprising both disaster risk reduction and emergency response to be prepared by the Union Disaster Management Committee following a proper community risk assessment procedure to be provided by MoFDM with the participation of vulnerable groups and the communities. The UDMP should highlight and articulate, among others, the following:

- a) Defining and redefining community risks to hazards utilizing both traditional and scientific knowledge,
- b) Total resource requirements and the planned action for the district
 - i. to take measures for prevention and mitigation of disasters by government agencies, NGOs, CBOs and the private sector within the district,
 - ii. capacity building and preparedness measures to be taken by government agencies, NGOs, CBOs and the private sector
 - iii. strengthening emergency response management system plans and procedures in the event of a disaster, providing for –
- c) The response plans and procedures in the event of a disaster, providing for –
 - i. Allocation of responsibilities to the departments of the government at district level and other DMC members;
 - ii. Procedure for mobilization of resources,
 - iii. Prompt response to disaster and relief thereof;
 - iv. Procurement of emergency supplies;
 - v. Operation of disaster shelters,
 - vi. Restoration of emergency services, such as water supply, gas supply, power, telecommunication, road links,
 - vii. Provision of emergency medical services,
 - viii. Burial of dead bodies,
 - ix. Trauma counselling, and
 - x. The dissemination of information.
- d) Recovery plans and procedures delineating damage assessment procedure, restoration of damaged public infrastructure, resumption of educational institutions,

restoration of livelihood, rehabilitation of affected people, especially the disabled, and elderly women and children.

- e) The UDMP shall be reviewed and updated annually.
- f) The copies of the UDMP shall be made available to all Union level stakeholders, UNOs and DCs.
- g) A copy of the UDMP will be sent to the Upazila Disaster Management Committee.
- h) The DMB/ NDMTI will provide technical advice and capacity building services to all DMCs.

11.6. Paurashava/City Corporation Disaster Management Plan

Paurashava is at the bottom of the urban administrative tier of Bangladesh. There is a Disaster Management Committee at the City Corporation/Paurashava level. The Paurashava Chairman is the head of the committee. The members of the Committee are all Paurashava commissioners, representatives from all the Government departments, NGOs and CBOs. Chief Executive Officer of the Paurashava is the member secretary of the committee. The committee is required to meet monthly during normal period and as and when necessary during emergency situation. Besides, metropolitan cities in Bangladesh have City Corporation Disaster Management Committees with the Mayor as the Chairman and comprising members as it is in case of Paurashavas.

There will be a plan for each Paurashava/City Corporation titled “Paurashava/City Corporation Disaster Management Plan” to be prepared by the “Paurashava/City Corporation Disaster Management Committee having linkages with the National Plan for Disaster Management. The PDMP/ CCDMP should highlight and articulate, among others, the following:

- a) The areas in the Paurashava/city corporation vulnerable to different forms of hazards and risks,
- b) Total resource requirements and the planned action for the district
 - i. to take measures for prevention and mitigation of disasters by government agencies, NGOs, CBOs and the private sector within the district,
 - ii. capacity building and preparedness measures to be taken by government agencies, NGOs, CBOs and the private sector
 - iii. strengthening emergency response management system plans and procedures in the event of a disaster, providing for –
- c) The response plans and procedures in the event of a disaster, providing for –
 - i. Allocation of responsibilities to the departments of the government at district level and other DMC members;
 - ii. Procedure for mobilization of resources,
 - iii. Prompt response to disaster and relief thereof;
 - iv. Procurement of emergency supplies;
 - v. Operation of disaster shelters,
 - vi. Restoration of emergency services, such as water supply, gas supply, power, telecommunication, road links,
 - vii. Provision of emergency medical services,
 - viii. Burial of dead bodies,

- ix. Trauma counselling, and
 - x. The dissemination of information.
- d) Recovery plans and procedures delineating damage assessment procedure, restoration of damaged public infrastructure, resumption of educational institutions, restoration of livelihood, rehabilitation of affected people, especially the disabled, and elderly women and children.
 - e) The PDMP shall be reviewed and updated annually.
 - f) The copies of the PDMP shall be made available to all Paurashava/city corporation level stakeholders, UNOs and DCs.
 - g) A copy of the PDMP will be sent to the District Disaster Management Committee and Disaster Management Bureau.
 - h) The DMB/ NDMTI will provide technical advice and capacity building services to all DMCs.

11.7. Plan for women, children, elderly and disabled:

The gender dimension of vulnerability suggests that risks and impacts of environmental crises and natural disasters are experienced by women and men differently and are mediated by their differential access to and control over resources and familial relationships. Natural disasters also result in reaffirmation and re-genesis of traditional gender patterns in communities as the need for care giving and daily household maintenance in a difficult disaster situation expands their workload dramatically. Where life-saving skills are concerned, women are at a disadvantage due to social confinement and are more vulnerable to violence, personal injury, drowning, and health hazards. Furthermore, break up of marriages and desertion of wives, children and the elderly often increase during and after disasters following migration of men in search of employment. Female-headed households have less access to social, political and financial resources and are more likely to experience a more difficult recovery process than similarly poor male-headed households.

Age differentials play a critical role in creating greater vulnerability to disease, discomfort and dependency during a disaster. Particularly the children and the elderly suffer more and mortality rates are found to be much higher among the very young and the very old.

People with disabilities are one of the most neglected and alienated sections of the society and as such remain more vulnerable to natural hazards. In the absence of any special provisions, they face particular difficulties during evacuation and in post evacuation shelters. Human casualties during cyclones and tornadoes comprise proportionately more people with disabilities. On the other hand, many who sustain physical injury become disabled due to the lack of appropriate medical facilities.

Every concerned Ministry of the Government of Bangladesh will prepare their own Disaster Management Plans with a view to safeguarding women/children/elderly/disabled from disaster.

11.8. Casualty Information Management Plan:

There are thousands of people casualties, which are not officially reported and documented in every disaster. This plan is planned to make the provision for the DMCs to document all relevant information regarding casualty at the time of disaster including the victim age, gender and profession. It is also giving emphasis to ensure attendance of doctors to the every disaster victims. Post mortem report at list death certificates have to be issued for the victims of disaster by the local government / non-government doctors.

11.9. Catch up of Ansar- VDP in the programme:

This plan have the opportunity to develop Anser VDP personnel to maintain an effective emergency deployment skill during disaster situation for search, rescue and relief purpose and manage and provide information on various disasters, loss and damage assessment as required. The Anser VDP will be the helping force for the Local Government agencies, local administrative authorities and disaster management committees for reducing the impact of natural disaster.

11.10. Sectoral Development Plans incorporating Disaster Risk Reduction

Every Ministry/Division of the Government of Bangladesh prepares their own Sectoral Development Plans. MoFDM with the participation of sectoral experts will prepare a general guideline to incorporate disaster risk reduction agenda for the sectors. MoFDM will also be responsible for overall monitoring and follow-up of the process to ensure that disaster risk reduction agenda are mainstreamed within the sectoral policies, plans and programmes. The development plans should address, among others, the following:

- a) Defining and redefining risk environment through hazard analysis, vulnerability assessment, risk evaluation, risk treatment options, and risk treatments.
- B) Managing the risk environment by developing programs and strategies that eliminate, or reduce the level of risk. Traditionally mitigation programs were viewed as engineering solutions to eliminate risk, but it is now accepted that all activities undertaken to eliminate or reduce risk are “mitigation” strategies (e.g. community education and awareness, planning activities, development of warning systems). This includes activities previously described as the PPRR Model- Prevention, Preparedness, Response and Recovery.
- c) Regularly review and update the plan; and
- d) Submit a copy of the plan, and of any amendment thereto, to appropriate authority including the MoFDM.
- e) Submit a copy of its disaster management plan, and of any amendment thereto, the concerned authority.

11.11. Hazard Specific Multi-sectoral Disaster Management Plans

In addition to area specific disaster management plans and sector specific disaster risk reduction plans, it is envisaged that there will be a few hazard-specific management plans, such as earthquake management plan. This type of plans will be multi-sectoral and will be divided into two components: risk reduction and emergency response. This type of plans will address specific necessities to deal with a particular hazard.

11.12 Cyclone and Flood Shelter Management Plan

To face the aforesaid challenges particularly cyclone, flood and tidal surge, different govt. & non govt. organizations have constructed about 2033 cyclone shelters in the coastal belts of 15 districts of the country. These shelters are insufficient in terms of necessity. So it would not be possible to provide shelter to all the affected people as well as their domestic animals. A survey team captioned as Multipurpose Cyclone Shelter Programme (MCSP) headed by Prof. Dr. Jamilur Reza Chowdhury recommended in its report of 1993 to construct 1250 new cyclone shelter as priority no.1 and 1250 as priority no.2 for providing shelters to the affected people during disasters. The report also mentioned that the total number of 2500 cyclone shelters including primary school, madrasa and secondary schools were proposed to be constructed.

These shelters will be constructed on the government khas land/ institution's land / purchased lands. There is a provision of separate latrine facilities for women. One tube-well for each shelter will set-up for supplying pure drinking water. In normal period these shelters will be used as educational institution.

It was decided that Bangladesh's plan of action should be inclusive to multi-hazard, all risk, and all sector approach. Therefore, following technical options are considered as critical element of the plan of action.

- Comprehensive Risk assessment (Hazard Assessment and Vulnerability Assessment), including tsunami inundation modeling and evacuation mapping;
- Warning Guidance, including seismic and sea level monitoring, data evaluation, processing and interpretation, forecasting methods and warning dissemination (a detailed plan of action is prepared);
- Mitigation and Preparedness, including education and awareness programmes, structural and non-structural mitigations, and government policy and emergency management procedures.
- Development of Rescue, Relief and Rehabilitation Plan of Action based on Comprehensive Risk Assessment.
- Existing Cyclone Preparedness Programme (CPP) should be strengthened in a way that they can prepare the community for tsunami as well as cyclone.

Management Aspects of Shelter Center in Coastal Zones

DMB proposes the facilitating role of local Disaster Management Committee in forming the Cyclone Center Management Committee for each center. The committee will have the following types of representation:

- ❑ A member of local Disaster Management Committee
- ❑ Locally Elected Representative (UP Member)
- ❑ Head Master of local Primary School
- ❑ Imam of Local Mashjid
- ❑ NGO representative
- ❑ Women representative

DMB also propose for multipurpose use of the Cyclone Centers by local NGOs, Civil Society Groups and community people for public functions like marriage ceremony, meeting, training session and other social functions under the supervision of CC Management Committee. The users will pay a minimum fee for using CC as maintenance charge. The Management Committee will be responsible for keeping financial statement of CC.

11.13 Tsunami Response Plan

Based on several exercises, workshops, seminars and meetings the following draft plan of action Tsunami Response is prepared for Bangladesh (Table- 1)

Table 1: Plan of Action for Tsunami Risk Reduction

Proposed Action Narratives	1-3 Months	4-24 Months	25-60 Months	61-120 Months	Proposed Responsibility
Conduct a Comprehensive Study on Tsunami Risk Assessment (from geological, geographical, social, economic, political and cultural perspectives) with the collaboration of National and International Experts					<ul style="list-style-type: none"> Disaster Management Bureau Geological Survey of Bangladesh Institute for Oceanographic Research
Upgrade the present Non IP link to Tokyo through New Delhi to direct IP link to Tokyo (Japan Meteorological Department).					<ul style="list-style-type: none"> Ministry of Food and Disaster Management Bangladesh Metrological Department
Establish Direct Communication link through V-SAT with Pacific Ocean Tsunami Warning Center at Hawaii.					<ul style="list-style-type: none"> Ministry of Food and Disaster Management Bangladesh Metrological Department
Establish Direct Communication Link the proposal in Indian Ocean Tsunami Warning Center					<ul style="list-style-type: none"> Bangladesh Metrological Department DMB-Disaster Management Information Center (DMIC)
Install and Modernize Seismic Equipments in 4 Earthquake Observation Centers in Bangladesh					<ul style="list-style-type: none"> Bangladesh Metrological Department
Designate one Emergency Focal Person in Prime Minister's Office, Ministry of Food and Disaster Management, Disaster Management Bureau, Directorate of Relief and Rehabilitation, Bangladesh Metrological Department, Fire Service and Civil Defense, Bangladesh Police, Ministry of Information, Department of Mass Communication, Bangladesh Red Crescent and CPP and					<ul style="list-style-type: none"> All concerned Ministry All Concerned Directorate/Department Disaster Management Bureau

Proposed Action Narratives	1-3 Months	4-24 Months	25-60 Months	61-120 Months	Proposed Responsibility
develop an internal emergency communication system at National Level.					
Organize Workshop on “Community Based and National Multi Hazard Warning System Development” with the Participation of Bangladesh Betar, Bangladesh Television, Private Television Channels, CPP, Bangladesh Police, Bangladesh Navy, Bangladesh Army, Fire Service and Civil Defense, Bangladesh Metrological Department, Bangladesh Geological Survey, Ministry of Information, Ministry of Food and Disaster Management, Disaster Management Bureau, Prime Minister’s Office, Flood Forecast and Warning Center and Bangladesh Red Crescent Society.					<ul style="list-style-type: none"> Disaster Management Bureau
Designate one Emergency Focal Person in Each Disaster Management Committee (from National to Local)					<ul style="list-style-type: none"> Disaster Management Bureau Directorate of Relief and Rehabilitation
Assign roles and responsibilities of the emergency focal persons and arrange necessary training					<ul style="list-style-type: none"> Disaster Management Bureau CDMP
Develop an Efficient and Effective Communication System which will enable to disseminate emergency messages to all focal persons at a time without any time loss					<ul style="list-style-type: none"> Disaster Management Bureau Bangladesh Metrological Department CDMP
Develop Local Warning (Siren) System, which will enable to disseminate warning messages very quickly to the people at risk.					<ul style="list-style-type: none"> Ministry of Local Government Disaster Management Bureau Directorate of Fire Service and Civil Defense
Setup Disaster Management Information Centers at District Level					<ul style="list-style-type: none"> Disaster Management Bureau Directorate of Relief and Rehabilitation DMIC

Proposed Action Narratives	1-3 Months	4-24 Months	25-60 Months	61-120 Months	Proposed Responsibility
Setup Disaster Management Information Centers at Upazila Level					<ul style="list-style-type: none"> Ministry of Food and Disaster Management
Develop a multi channel warning message communication system					<ul style="list-style-type: none"> Ministry of Information Ministry of Home Affairs Ministry of Defense Disaster Management Bureau Cyclone Preparedness Programme DMIC NGOs
Establish mechanism to use the radio network of the Bangladesh Police for Disseminating Emergency Warning Messages to Local Level					<ul style="list-style-type: none"> Disaster Management Bureau Bangladesh Police Bangladesh Metrological Department DMIC
Train the Bangladesh Police on Disaster Warning Message Dissemination					<ul style="list-style-type: none"> Disaster Management Bureau Bangladesh Police DMIC
Provide orientation training to Fire Service and Civil Defense, Red Crescent, CPP, DRR Officers and Volunteers on Tsunami					<ul style="list-style-type: none"> Disaster Management Bureau CDMP Bangladesh Red Crescent Society Cyclone Preparedness Programme DRR
Hold a Dialogue with Water Resource Ministry for integrating Tsunami issues into Coastal Zone Management Policy and Plan					<ul style="list-style-type: none"> Ministry of Water Resources Disaster Management Bureau Geological Survey of Bangladesh
Incorporate Tsunami Risks in land use planning in Coastal Zone Development Plans developed by Ministry of Water Resources					<ul style="list-style-type: none"> Ministry of Water Resources Disaster Management Bureau DRR
Prepare an Institutional Resource Map of Coastal Zone					<ul style="list-style-type: none"> Disaster Management Bureau CDMP
Prepare Institutional Resources for using in warning, evacuation and rescue work					<ul style="list-style-type: none"> Disaster Management Bureau Cyclone Preparedness Programme NGOs & DRR
Undertake mass awareness programme in Mass Media					<ul style="list-style-type: none"> Disaster Management Bureau Directorate of Mass Communication CDMP
Train Local Government Representatives, Imams					<ul style="list-style-type: none"> Local Government Division/NILG

Proposed Action Narratives	1-3 Months	4-24 Months	25-60 Months	61-120 Months	Proposed Responsibility
and Teachers of Coastal Zone					
Arrange a workshop with Ministry of shipping on Inclusion of Tsunami Issues into the Action Plan of Ministry					<ul style="list-style-type: none"> Ministry of Shipping Disaster Management Bureau Bangladesh Metrological Department
Conduct a mock exercise on Tsunami Warning and Evacuation Preparedness					<ul style="list-style-type: none"> Disaster Management Bureau Directorate of Fire Service and Civil Defense Cyclone Preparedness Programme NGOs, DRR
Prepare Evacuation Route in the Tsunami and Cyclone Risk areas with the existing CPP facilities and strength					<ul style="list-style-type: none"> Disaster Management Bureau Cyclone Preparedness Programme NGOs, DRR
Prepare a awareness video on Tsunami and Cyclone and Disseminate the Video to the Hotels in Cox's Bazar and Kuakata for regular broadcasting in satellite channel					<ul style="list-style-type: none"> Ministry of Civil Aviation and Tourism Disaster Management Bureau CDMP, DRR
Motivate Education Ministry and LGED to design and construct schools in coastal zone considering Tsunami and Cyclone risks					<ul style="list-style-type: none"> Ministry of Education Ministry of Primary and Mass Education Disaster Management Bureau LGED Department of Education Engineering
Establish s GO-NGO network for Tsunami Risk Reduction in Coastal Zone					<ul style="list-style-type: none"> Disaster Management Bureau NGO Affairs Bureau
Train teachers and aware students on tsunami issues.					<ul style="list-style-type: none"> Ministry of Education Ministry of Primary and Mass Education Disaster Management Bureau
Incorporate tsunami issues in disaster related acts, curriculums, action plans, standing orders and other documents of government.					<ul style="list-style-type: none"> Ministry of Food and Disaster Management Disaster Management Bureau Directorate of Relief and Rehabilitation
Mass awareness among people at risk, civil society, journalists, volunteers, NGOs, youth clubs, mosques, madrasas, temples, churches, pagodas and professionals					<ul style="list-style-type: none"> Disaster Management Bureau

Proposed Action Narratives	1-3 Months	4-24 Months	25-60 Months	61-120 Months	Proposed Responsibility
Develop a guideline for proper maintenance of cyclone and tsunami shelters					<ul style="list-style-type: none"> Disaster Management Bureau
Develop separate building code for coastal zone considering the tsunami, cyclone, salinity, storm surge and other hazards in coastal zone					<ul style="list-style-type: none"> Ministry of Housing and Public Works Disaster Management Bureau
Integrate Bangladesh Metrological Department within the Ministry of Food and Disaster Management					<ul style="list-style-type: none"> Prime Minister's Office Cabinet Division
Construct more multi-purpose Disaster shelters in coastal zone					<ul style="list-style-type: none"> Ministry of Housing and Public Works Ministry of Education Ministry of Primary and Mass Education Disaster Management Bureau, DRR
Take initiative for introducing community radio system in coastal zone					<ul style="list-style-type: none"> Ministry of Information Disaster Management Bureau
Include Fire Stations of coastal zone under radio network					<ul style="list-style-type: none"> Ministry of Information Disaster Management Bureau Directorate of Fire Service and Civil Defense Bangladesh Police
Review land use planning of tsunami risk areas for building of infrastructure, housings, industries, and cities.					<ul style="list-style-type: none"> Ministry of Land Ministry of Industry Ministry of Local Government Disaster Management Bureau
Revisit the strength of construction of existing hotels in Cox's Bazar and Kuakata beach from tsunami perspective, and strengthen the construction to ensure it's tsunami resilience					<ul style="list-style-type: none"> Ministry of Civil Aviation and Tourism Disaster Management Bureau Ministry of Housing and Public Works
Strengthen coastal forestry programme (with special emphasis on bamboo and bush category plants)					<ul style="list-style-type: none"> Disaster Management Bureau Directorate of Forest, BWDB
Increase the plantation of bamboo and cane and train the people on bamboo and cane based small and cottage industries.					<ul style="list-style-type: none"> Directorate of Forest Bangladesh Small and Cottage Industry Corporation NGOs

XII. DISASTER MANAGEMENT ACTION MATRIX 2008-2015

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
1.0 Professionalizing the disaster management system	1.1 Establish a Disaster Management Regulative Framework	1.1.1 A legal, policy and planning framework that makes disaster risk reduction a mandatory requirement for disaster management at all levels.	1.1.1.1 Review and revise key disaster management policy and planning instruments reflecting broader risk reduction functions 1.1.1.2 Enact Disaster Management Act and formulate rules under the Act 1.1.1.3 Develop, approve and implement Disaster Management Policy and Plans 1.1.1.4 Revise Allocation of Business in relation to MoFDM Mandates 1.1.1.5 Revise Standing Orders on Disaster in line with Comprehensive Disaster Risk Reduction and Emergency Management Approach	MoFDM DMB	Ministry of Establishment /Ministry of Law, Justice and Parliamentary Affairs/ Cabinet Division/ Sectoral Ministries
	1.2 Establish and progressively implement a learning and development strategy to facilitate the	1.2.1 A professional and competent disaster management	1.2.1.1 To ensure that risk reduction is a mandated requirement for all disaster management programmes	MoFDM DMB	Ministry of Education (MoEd)

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
	professional development of MoFDM and key personnel from government, NGOs and the private sector.	workforce that is demonstrating effective leadership nationally and regionally	<p>1.2.1.2 Enhance professional skills and knowledge of MoFDM and selected other key implementing agency staff on disaster risk reduction, preparedness, warning and forecasting system, and post-disaster recovery activities</p> <p>1.2.1.3 Develop a learning and development framework for disaster management professionals</p> <p>1.2.1.3 Develop and implement a skills enhancement strategy for effective disaster management</p> <p>1.2.1.4 Promote and establish Graduate Programmes in Disaster Management at the tertiary level</p> <p>1.2.1.5 Review and recommend disaster management curricula to universities</p> <p>1.2.1.6 Promote, design and</p>		MoEd, Relevant ministries

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
			implement research and evaluation programme on disaster management		
	1.3 Design and implement training and awareness programmes targeting national and district level policy officials.	1.3.1 All the policy officials at all levels are aware of the disaster management concepts and frameworks	1.3.1.1 Develop an introductory training course for disaster management 13.1.2 Design and implement the training programme for the policy officials at all levels	MoFDM DMB	Relevant ministries NGO Affairs Bureau

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
2.0 Mainstreaming Disaster Risk Reduction	2.1. Risk reduction principles and practices are mainstreamed within all development programmes and policies	<p>2.1.1 MoFDM is recognized as a key partner in development planning and policy making process (such as NEC, ECNEC, Economic Affairs Council etc.)</p> <p>2.1.2 Development project appraisal process includes disaster risk reduction issues</p>	<p>2.1.1.1 Identify relevant development policy and planning frameworks, develop and establish mechanisms to ensure risk reduction is a national and local priority.</p> <p>2.1.1.2 Develop Disaster Impact and Risk Assessment (DIRA) tool for all hazards and incorporate into the Project Proforma (PP), Technical Project Proforma (TPP) and Project Concept Paper (PCP) formats</p> <p>2.2.1.3 Develop and implement an advocacy strategy facilitating incorporation of disaster risk reduction within development and agency policy and plans.</p> <p>2.1.1.4 Design and implement capacity building training to strengthen relevant planning capability at national and local levels.</p> <p>2.1.1.5 Incorporate disaster risk reduction approaches in all ongoing and future development plans, programs, and policies.</p> <p>2.1.1.6 Inclusion of disaster risk management within the development project validation process through Disaster Risk Reduction</p>	Ministry of Finance and Planning	MoFDM/ Planning Commission/ Ministry of Environment and Forest/ Ministry of Water Resources/ Ministry of Agriculture/ NGO Affairs Bureau/ / Sectoral Ministries/ NGO Affairs Bureau, Private Sector bodies Development Partners

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
	2.2 Mainstreaming disaster risk reduction issues in all the sectoral policies and plans	<p>2.2.1 Sectoral damage and loss from disaster declined</p> <p>2.2.2 Strengthened relevant planning capability at all levels.</p>	<p>2.2.1.1 Establish Focal points within relevant ministries and departments</p> <p>2.1.1.2 Identify relevant sectoral policy and planning frameworks and documents</p> <p>2.2.1.3 Review and revise the policy and planning documents incorporating disaster risk reduction issues</p> <p>2.2.1.4 Develop and implement an advocacy strategy facilitating incorporation of disaster risk reduction issues</p> <p>2.2.1.5 Prepare a monitoring and evaluation Guideline</p>	Relevant Ministries	MoFDM/DMB/DRR Relevant Ministries

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
	2.3 Disaster risk reduction considerations incorporated in NGO programmes and plans	2.3.1 NGO communities have a better understanding of their risks and strategies for reducing or managing their all hazard risks 2.3.2 Sustainability of community benefits received through NGO interventions	2.3.1.1 Inclusion of Disaster Risk Reduction Mechanism into FD-6 Form (for NGO programmes) 2.3.1.2 Advocacy and public awareness for social mobilization 2.3.1.3 Prepare a monitoring and evaluation Guideline	NGO Affairs Bureau DMB DRR	MoFDM NGOs
3.0 Strengthening Institutional Mechanisms	3.1 Capacity Building of DMCs at all levels	3.1.1 Members of DMCs at all levels are aware of their roles and responsibilities 3.1.2 DMCs at all levels are functional and carrying out their mandated jobs during both normal and emergency periods and post emergency situations	3.1.1.1 Revise roles and responsibilities of DMCs in relation to risk reduction and emergency response process; 3.1.1.2 Identify national, regional, sub-regional and local institutional mechanisms including informal systems and undertake an audit to validate roles and linkages 3.1.1.3 Design and implement a national training strategy aimed at building knowledge and understanding of disaster management roles and	DMB	Ministry of Establishment /Ministry of Law, Justice and Parliamentary Affairs/ Cabinet Division/ Sectoral Ministries/NGOs Affairs Bureau/NGOs / Development Partners

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
			<p>responsibilities of key players at all levels as per SOD</p> <p>3.1.1.4 Promote development and establishment of Disaster Management Plans at all levels</p> <p>3.1.1.5 Establish local level contingency planning frameworks with provision of resources for risk reduction</p>		
	3.2 Create a national training capacity to sustain and progressively expand the training efforts.	<p>3.2.1 Bangladesh Institute of Disaster Management Training and Research is established and well functioning</p> <p>3.2.2 Disaster Management is taught in all the training courses of the public training institutes</p> <p>3.2.3 All training institutes used the updated module for</p>	<p>3.2.1.1 Establish Bangladesh Institute of Disaster Management Training and Research</p> <p>3.2.1.2 Develop and implement a national training policy to enhance competencies and skills for effective disaster risk reduction and emergency response.</p> <p>3.2.1.3 Incorporate disaster risk reduction issues into the training curriculum of all public sector training institutes, such as BPATC, APD, BARD, RDA and</p>	<p>DMB</p> <p>MoFDM/DMB</p> <p>Relevant ministries</p>	<p>Ministry of Finance and Planning; Ministry of Establishment</p> <p>Ministry of Finance and Planning; Ministry of Establishment</p> <p>MoFDM</p>

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
		disaster management	<p>specialized training institutes for BCS Cadres.</p> <p>3.2.1.4 Incorporate disaster risk reduction issues into the training curriculum for:</p> <ul style="list-style-type: none"> - local government public representatives and officials at all levels. - teachers at all levels. - religious leaders of all faith. - Bangladesh Scouts and Ansars and VDPs <p>3.2.1.5 Conduct TOT and capacity building training for the teachers and instructor of different national training institutions on the revised curriculum</p> <p>3.2.1.6 Promote gender, cultural and religious sensitivity training as integral components of education and training for disaster risk reduction</p>	<p>MoLG&RD,</p> <p>MoED, MoPME,</p> <p>MoRA,</p> <p>Bangladesh Scouts, MoHA</p> <p>Relevant Ministries</p> <p>Relevant Ministries</p>	<p>MoFDM</p> <p>MoFDM</p> <p>MoFDM</p> <p>MoFDM</p> <p>MoFDM</p>

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
	3.4 Develop a national monitoring and evaluation system to enable the effectiveness of the training strategy to be measured.	3.4.1 A common pre- and post-training assessment tool is in place to monitor the disaster management training programmes of the public training institutes	3.4.1.1 Develop a common methodology to monitor and evaluate the disaster management training programmes 3.4.1.2 Establish a monitoring and evaluation mechanism about when and what to monitor by whom 3.4.1.3 Establish a reporting mechanism	DMB	Relevant Ministries
	3.5 Catch up of Ansar-VDP in Emergency Response works	3.5.1 Ansar VDP are well trained and oriented for emergency response works	3.5.1.1 Plan and implement programmes/activities for enhancing capacity of Ansar VDP for risk reduction work 3.5.1.2 Proper Orientation for Ansar-VDP to involve them actively in emergency works is needed.	MoHA MoHA	MoFDM/DMB MoFDM/DMB
4.0 Empowering At Risk Communities.	4.1 Develop and establish a standard assessment procedure to identify community and household level risks	4.1.1 Communities have a greater understanding of their risks and vulnerabilities to hazards and strategies for	4.1.1.1 Identify and document community and household level all-hazards risks with special emphasis on risks of women, children, the elderly and the disabled, following the standard	DMB	Relevant ministries/ NGO Affairs Bureau/ DMCs /NGOs /Development Partners/

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
		reducing or managing their all-hazards risks.	assessment procedure		
	4.2 Establish a disaster risk reduction action planning framework	<p>4.2.1 Disaster risk reduction action plans for all hazards, all risks and all sectors are produced and endorsed by the relevant DMCs at all levels</p> <p>4.1.2 Government and donor funding targeting strategies identified within the local level risk reduction plans.</p>	<p>4.2.1.1 Develop a disaster risk reduction action planning template through pilot testing</p> <p>4.2.1.2 Prepare risk reduction action plans for all high risk unions, upazilas and districts and endorsed by the respective DMCs</p> <p>4.2.1.3 Design and implement an advocacy strategy to ensure execution of the plans by the respective concerned authorities</p>	DMB	MoWR, MoF, Other Relevant Ministries
	4.3 Strengthen community and household level capacity to withstand the disastrous situations	4.3.1 Community and households are better prepared to cope with disaster events	<p>4.3.1.1 Design and implement skill and knowledge based training programme for DMCs</p> <p>4.3.1.2 Organize community level drills</p> <p>4.2.1.3 Design and implement livelihood support programmes for</p>	DMB	Other Relevant Ministries/ NGO Affairs Bureau/ NGOs

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
			at risk communities, particularly women, the elderly, the disabled and other disadvantaged groups.		
	4.4 Reduce vulnerability of the at risk communities through social safety nets	4.4.1 Protect the needs of the poor, particularly women, children, the elderly the disabled and other disadvantaged population of at risk communities against seasonality and shocks	<p>4.4.1.1 Establish guidelines and procedures to design and implement the target based FFW, FFE, CFW, VGD, TR, RRP and other safety net programmes</p> <p>4.4.1.2 Establish an effective targeting mechanism</p> <p>4.4.1.3 Establish an effective monitoring and support mechanism to ensure proper execution of the guideline and avoidance of political influences and leakages.</p> <p>4.4.1.4 Policy advocacy to ensure continuity of the allocations for safety net programmes in the annual budget</p>	MoFDM/DRR DGFood	Other Relevant Ministries/NGO Affairs Bureau/ NGOs

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
5.0 Expanding Risk Reduction Programming across hazards and sectors	<u>Across Hazards:</u> 5.1 Update hazard maps such as flood, cyclone, drought, earthquake and tsunami	5.1.1 Local and national development plans are developed on the basis of the updated hazard maps	5.1.1.1 Conduct Hazard Risk Analysis and produce updated hazard maps	MoFDM	Ministry of Defence/ MoWR/Ministry of Science and Technology/NGO Affairs Bureau/ NGOs / Development Partners

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
	5.2 Establish an Integrated Approach to disaster management including Climate Change and climate variability impacts	<p>5.1.2 Scientific analysis including climate change impacts is guiding all hazards risk assessment processes</p> <p>5.1.3 Timely all hazards risk information readily available in user friendly format to key stakeholders and development planners.</p> <p>5.1.4 Research gaps are influencing government, donor and private sector priorities.</p> <p>5.1.5 Disaster Management stakeholders are updated with climate change and climate variability impact knowledge</p>	<p>5.2.1.1 Establish and capacitate the Climate Change Cell (CCC) within DoE</p> <p>5.2.1.2 Develop scenario and prediction models to determine climate change and climate variability impacts.</p> <p>5.2.1.3 Conduct research to determine climate change and climate variability impacts for Bangladesh</p> <p>5.2.1.4 Strengthen existing knowledge and information accessibility on impact prediction and adaptation to climate change</p> <p>5.2.1.5 Identify adaptation options through action research</p> <p>5.2.1.6 Establish a climate change information library, database and Knowledge information network</p> <p>5.2.1.7 Incorporate climate change and climate variability impact information in the disaster Risk reduction programmes design</p>	MoEF	MoFDM Ministry of Defence/ Technological Universities/ MoWR/ NGOs/ Development Partners

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
	5.3 Construction of adequate multi-purpose Cyclone and Flood Shelters in cyclone and flood prone areas	<p>5.3.1 Identify the requirement of Cyclone and Flood Shelters for cyclone and disaster prone areas.</p> <p>5.3.2 Construction of required Cyclone and Flood Shelters will be completed.</p> <p>5.3.3 Well maintenance plan for Cyclone Shelters and execute them accordingly</p> <p>5.3.4 Multi-purpose use of Cyclone Shelters</p>	<p>5.3.1.1 Identify the site and required numbers of Cyclone and Flood Shelters for cyclone and flood prone areas.</p> <p>5.3.1.2 Prepare design of Cyclone Shelter that cater for multipurpose uses.</p> <p>5.3.1.3 Prepare implementation plan for constructing cyclone shelters</p> <p>5.3.1.4 Establish cyclone shelter management committee for optimum use of cyclone shelter</p> <p>5.3.1.5 Prepare a maintenance plan for cyclone shelters and ensure maintenance of cyclone shelters as per plan</p> <p>5.3.1.6 Ensure multipurpose use of cyclone shelters during normal time</p> <p>5.3.1.7 Strengthen CCP to prepare communities for disaster risk reduction</p>	<p>MoFDM/ Relevant Ministries/DRR/ DMB/DMCs</p> <p>MoFDM/ Relevant Ministries/DRR/ DMB/DMCs</p> <p>MoFDM/ Relevant Ministries/DMB/ DMCs</p> <p>MoFDM/ /DMB/DMCs</p> <p>MoFDM/ Relevant Ministries/DMB/ DMCs</p> <p>MoFDM/ Relevant Ministries / DRR/ DMB/DMCs</p> <p>MoFDM//DMB/ DMCs</p>	<p>Relevant Ministries /Dept.</p> <p>Relevant Ministries /Dept.</p> <p>Relevant Ministries /Dept.</p> <p>Relevant Ministries /Dept.</p> <p>Relevant Ministries /Dept.</p>

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
	5.4 Preparedness for Earthquake and Tsunami risks	5.4.1 A heightened level of preparedness to the earthquake and tsunami risks	<p>5.4.1.1 Conduct earthquake and tsunami Vulnerability assessment and prepare:</p> <ul style="list-style-type: none"> • Earthquake vulnerability and risk maps for mega cities • Tsunami vulnerability maps for all the coastal districts • Map out critical vulnerable infrastructure and communities within the high risk zones <p>5.4.1.2 Introduce Contingency Planning for Non Seasonal Disaster Risks in city corporations response plans</p> <p>5.4.1.3 Develop and implement an extensive education and awareness programme for the earthquake and tsunami risk</p> <p>5.4.1.4 Use of earthquake risk maps in urban planning and development</p> <p>5.4.1.5 Update and ensure compliance of the Bangladesh National Building Code</p> <p>5.4.1.6 Review and revise building safety codes on evacuation of people with</p>	<p>MoFDM /DMB</p> <p>MoLG&RD</p> <p>DMB</p> <p>MoH&PW MoLand MoLG&RD</p> <p>MoH&PW</p> <p>MoH&PW</p>	<p>Ministry of Local Government and Rural Development; Ministry of Home Affairs; Armed Forces Division; Ministry of Housing and Public Works; Ministry of Science and Technology; Ministry of Power, Energy and Mineral Resources; Ministry of Defence; Ministry of Communication; Ministry of Education; Academic Institutions;</p> <p>MoFDM</p>

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Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
		SARS, Ebola, Anthrax, etc.	facilities (according to Bio Safety Levels) to deal with biological hazards		
		5.5.6 Reduce the landslide hazard risks	5.5.1.8 Develop and Implement a broad-based and cooperative landslide risk reduction programme comprising review and revision of relevant policy and legislation, field-based studies of landslides, mapping, laboratory investigations of soil properties, computer modelling of slope stability and movement, and studies of the impacts of groundwater on the stability of potentially unstable slopes	MoEF	Ministry of Land, Ministry of Local Government, Rural Development and Cooperative, Ministry of Science and Technology, Ministry of Agriculture, Academic and Research Organizations
		5.5.7 Reduce casualties			
		5.5.8 Ensure updated list of casualties and deaths			
			5.5.1.9 Prepare plan and execute accordingly in reducing casualties and deaths	MoLG&RD / MoH&FP/ MoSW	MoF&DM/ Relevant Dept.
			5.5.1.10 Maintain register of death and casualties regularly and forward it concerned authority.	MoLG&RD / MoH&FP/ MoSW	MoF&DM/ Relevant Dept.
	5.5 Strengthen national capacity for erosion prediction and monitoring	5.5.1 Erosion prediction information used in	5.5.1.1 Identify organizations conducting erosion predictions, and	MoWR	MoFDM, MoLG&RD

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
		the local level response and recovery plans, and policy decisions	<p>assess the utility of the generated information</p> <p>5.5.1.2 Identify resource requirements and probable source of funding to further capacity strengthening and information generation on a continuous basis</p> <p>5.5.1.3 Disseminate the information for utilization in development planning and resettlement of vulnerable communities</p>		
	<p><u>Across Sectors:</u></p> <p>5.6 Develop and establish policy and planning frameworks to incorporate all hazard risk reduction perspectives into sectoral policies and development plans, such as:</p> <ul style="list-style-type: none"> • Agriculture, livestock and fishery • industry • education (primary, secondary and Madrasha) 	5.6.1 Building disaster resilient community elements including population, infrastructure, utility services, life and livelihood support system, etc.	<p>5.6.1.1 Develop guidelines and templates for inclusion of DRR in sectoral policies and plans</p> <p>5.6.1.2 Include Disaster Risk Reduction in policies and development plans of various relevant sectors as described in section 2.1 and section 2.2 of the Action Matrix</p>	<p>MoFDM/DMB</p> <p>Relevant Ministries</p>	Ministry of Agriculture, Ministry of Industry, Ministry of Housing and Public Works; Ministry of Science and Technology; Ministry of Power, Energy and Mineral Resources; Ministry of Defence; Armed Forces Division; Ministry of Communication; Ministry of Education; Academic Institutions;

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
	<ul style="list-style-type: none"> • rural and urban housing, • construction of roads, bridges and culverts • water transportation • Health • Water resources • Power, energy and mineral resources • Environment and forestry • Science and Technology • Tele-communication • Water Supply and Sanitation • Food Security • Land Use • Women, Children, elderly and disable people 		<p>5.6.1.3 Include disaster risk reduction perspectives at primary, secondary and tertiary levels of educations as described in section 3.2 of the Action Matrix</p> <p>5.6.1.4 Promote action research in relevant sector</p> <p>5.6.1.5 Risk based design of projects and ancillary structure</p> <p>5.6.1.6 Design and implement Social Safety Net Programmes as described in section 4.5 (of the Action Matrix) to ensure food security of the most vulnerable</p> <p>5.6.1.7 Identifying and converting existing public buildings into multi-purpose disaster shelters</p> <p>5.6.1.8 Promote food security as an important factor in ensuring the resilience of communities to hazards</p>	<p>MoED, MoPME</p> <p>Relevant Ministries</p> <p>DMB</p> <p>MoFDM/DMB</p> <p>MoFDM/DMB</p> <p>MoFDM/DMB</p>	

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
			<p>5.6.1.9 Establish a dependable national food security system.</p> <p>5.6.1.10 Develop and implement a School Safety Programme including a national school safety plan and school building-level emergency response plans</p> <p>5.6.1.11 Harmonise and co-ordinate all land use related policies, legislation as well as promote effective protection and enhancement of land quality with the aim of ensuring sustainable utilisation of land so that it can provide optimal production to foster socio-economic development and maintenance of land quality for long-term productivity.</p> <p>5.6.1.12 Develop plan and implement accordingly for women and Children.</p> <p>5.6.1.13 Prepare and upgrade data on women, children, elderly and disable people</p>	<p>MoFDM/DMB</p> <p>MoEd MoPME</p> <p>Ministry of Land</p> <p>MoW&CA</p> <p>MoW&CA/ MoSW</p>	<p>Relevant ministries</p> <p>MoFDM/ Relevant Ministries</p> <p>MoFDM/ Relevant Ministries/NGO Affairs Bureau / DMCs/NGOs</p>

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
			5.6.1.14 Provide special arrangement for women, children, elderly and disable people in cyclone shelters	MoSW/DMCs	DMCs
6.0 Strengthening Emergency Response Systems	6.1 Strengthen and improve an all Hazard Early Warning Systems through <ul style="list-style-type: none"> •technical, technological and physical capacity strengthening of BMD and FFWC •establishment/strengthening regional networks for real time data/information sharing 	6.1.1 Ensure accuracy in the early warning information generation	6.1.1.1 Technical and technological capacity building of BMD, FFWC and other related organisations to a) improve the accuracy of early warning information generated and b) increase the lead time for flood forecast 6.1.1.2 Use SAARC, RCC and other available frameworks and platforms to establish regional networks for real time data/information sharing	MoFDM/ Ministry of Defence/ MoWR	Armed Forces Division; Ministry of Post and Telecommunication; MoHA/ MoFA/ SMRC NGO Affairs Bureau/ NGOs Development Partners

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
	<p>6.2 Establish and operate a National Disaster Management Information Centre with an internet connection with all the 64 districts and high risk upazila DMCs</p> <ul style="list-style-type: none"> •to archive and share disaster risk reduction information •to produce and share policy briefs •to receive and disseminate early warning information •to receive and disseminate information on emergency need assessments and management 	<p>6.2.2 An effective 24/7 information hub including early warning dissemination system</p> <p>6.2.3 An effective information management system that is providing on-time adequate and necessary information during emergency situations</p>	<p>6.2.1.1 Establish and make operational the National Disaster Management Information Centre including emergency operation centres (EOC)</p> <p>6.2.1.2 Design the information products</p> <p>6.2.1.3 Produce and disseminate regular information products in time intervals</p>	MoFDM / DMB	Ministry of Defence; Armed Forces Division; MoWR/ DMCs/NGO Affairs Bureau/ NGOs; Development Partners
	6.3 Establish an effective Community Alerting System through capacity strengthening of CPP and DMCs at District, Upazila and Union levels	<p>6.3.1 An effective communication network to timely disseminate all hazard warning messages to the communities</p> <p>6.3.2 A disaster management information network is operational and demonstrated down to household level</p>	<p>6.3.1.1 Develop and establish an all hazards community alerting system and impart training to enhance its operational capability.</p> <p>6.3.1.2 Organize regular drills to improve the efficiency of the system</p>	MoFDM/DMB	MoWR/ MoD/ DMCs/ NGO Affairs Bureau/ NGOs/ BDRCS

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
	<p>6.4 Establish and improve Search and Rescue Mechanism by</p> <ul style="list-style-type: none"> • Preparing a potential search and rescue scenario • Strengthening S&R capability of first responding institutions by providing training and equipments support • Establish an all hazard volunteer groups for S&R operations • Establish an effective command and control system 	<p>6.4.1 An effective search and rescue mechanism to provide timely operations</p> <p>6.4.2 First Responding Institutions are fully equipped to efficiently handle the S&R operations</p> <p>6.4.3 A well-trained standby volunteer workforce to assist in S&R operations</p>	<p>6.4.1.1 Identify potential rescue scenarios and determine appropriate search and rescue equipment needs</p> <p>6.4.1.2 Strengthen BFS&CD and other first responding institutions with required training and equipment support</p> <p>6.4.1.3 Establish and strengthen the community based institutional mechanism for disaster volunteering , such as CPP, BNDV, Bangladesh Scouts and Ansar and VDP</p> <p>6.4.1.4 Develop and implement a training programme to establish the all hazard volunteer workforce at city corporations level</p> <p>6.4.1.5 Prepare SOPs for specific hazard based disasters incorporating command, control and coordination mechanism for emergency response</p> <p>6.4.1.6 Design and integrate disability guidelines within search and rescue training system</p>	<p>MoHA/ Armed Forces Division/ Local Government Bodies/</p> <p>MoHA</p> <p>DMB BDRCS BS MoHA</p> <p>LGD</p> <p>MoFDM/DMB</p>	<p>MoFDM/ MoH&PW/MoLG&RD/ MoD/ MoPE&MR/NGO Affairs Bureau/ DMCs / NGOs</p>

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
	6.5 Develop and establish emergency response plans	<p>6.5.1 An all hazard response plan is established at all levels</p> <p>6.5.2 Emergency response operations during disaster are well coordinated</p>	<p>6.5.1.1 Review the existing emergency response plans at all levels</p> <p>6.5.1.2 Develop and establish emergency response plan for all hazards at all levels as per the guideline described in section XI (pp. 64-)</p> <p>6.5.1.3 Develop and implement a standard relief management procedure</p> <p>6.5.1.4 Strengthen the District and Upazila DMCs to prepare their respective response plans</p> <p>6.5.1.5 Administration, coordination and monitoring of emergency relief and rehabilitation programmes, such as design, approval and distribution of relief materials, gratuitous relief etc.</p> <p>6.5.1.6 Promote planning and practicing of emergency evacuation routes for persons with disability</p>	MoFDM/DMB/ DRR	Relevant ministries, Armed Forces Division/ NGO Affairs Bureau/ DMCs/ NGOs/ development partners, CBOs and the Private sector

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
	6.6 Develop and establish post disaster recovery and reconstruction mechanism		<p>6.6.1.1 Review existing damage and needs assessment systems and strengthen where necessary</p> <p>6.6.1.2 Establish a standard sector specific damage and loss assessment methodology</p> <p>6.1.1.18 Incorporate disaster risk reduction measures into post-disaster recovery and rehabilitation processes and use opportunities during the recovery phase to develop capacities that reduce disaster risk in the long term, including through the sharing of expertise, knowledge and lessons learned</p> <p>6.1.1.19 Enhance recovery schemes including psycho-social training programmes in order to mitigate the psychological damage of vulnerable populations, particularly children, the elderly and the disabled, in the aftermath of disasters</p>	<p>MoFDM/DMB/ DRR</p> <p>MoFDM</p> <p>Relevant Ministries</p> <p>Relevant Ministries</p>	Relevant Sectoral Ministries and departments/ Armed Forces Division/NGO Affairs Bureau/ DMCs

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
7.0 Developing and Strengthening regional and global Networks	7.1 Establish public and private partnerships for disaster risk reduction.	7.1.1 To create a working interface with and between the technical and scientific community	7.1.1.1 Identify national disaster management players 7.1.1.2 Establish formal and informal partnerships through signing of Memorandum of Understandings and Letter of Agreements	MoFDM/DMBinst itutionalized	Relevant Ministries/ Departments, NGO Affairs Bureau, NGOs, Academic Institutions

Strategic Goal	Key targets	Expected Outcomes	Action Agenda for 2008-2015	Lead Agency /dept.	Supporting Agency/ dept.
1	2	3	4	5	6
	7.2 Support regional and global initiatives and ensure representation that is consistent with the government integrated all sector risk reduction approach at all levels	<p>7.2.1 To establish formal and informal partnerships with regional organizations for enhanced information exchange and mutual support</p> <p>7.2.2 Facilitate information sharing and more effective cross border mutual support programmes including early warning mechanisms.</p> <p>7.2.3 Timely cross border early warning.</p> <p>7.2.4 Appropriate representation at regional and international forums.</p> <p>7.2.5 Formalized public private partnerships</p>	<p>7.2.1.1 Identify key regional collaborating organizations and develop systems for coordination, and knowledge sharing.</p> <p>7.2.1.2 Negotiate on cross border information to enhance early warning.</p> <p>7.2.1.3 Use SAARC, ASEAN and RCC platforms to establish regional networks for real time data/information sharing as well as sharing of new knowledge and technology.</p> <p>7.2.1.3 Prepare a guideline for international assistance for disaster emergencies</p> <p>7.2.1.4 Actively involve in activities of ADRC, Japan and ADPC, Thailand</p> <p>7.2.1.5 Liaise and cooperate with Global Disaster Alert and Coordination System (GDACS) and International Search and Rescue Advisory Group (INSARAG)</p> <p>7.2.1.6 Support and collaborate with UNISDR</p> <p>7.2.1.7 Liaise and cooperate with SAARC Disaster Management Centre (SDMC)</p>	<p>MoFA /MoFDM /DMB</p> <p>MoFDM</p> <p>MoFDM/DMB</p> <p>MoFDM</p> <p>MoFDM/DMB</p> <p>MoFDM/DMB</p> <p>MoFDM/DMB</p> <p>MoFDM/DMB</p>	MoFDM/MoD/ / MoWR/ MoP&T/NGO Affairs Bureau/NGOs/ / Regional and International Organisations

XIII. IMPLEMENTATION AND FOLLOW-UP

1. Disaster management which includes disaster risk reduction and emergency response management will be viewed holistically and the strategic goals and priorities for action presented in Section XII should be addressed by various stakeholders in a multi-sectoral approach, including the development sector.
2. All relevant organizations and agencies will integrate disaster risk reduction considerations into their sustainable development policy, planning and programming at all levels. MoFDM as the focal agency for disaster management will provide the guidelines to be developed with the participation of sectoral experts to ensure its compatibility.
3. Civil society, including volunteers and community-based organizations, the scientific community and the private sector are vital stakeholders in disaster management. MoFDM/DMB will ensure contribution of all actors in the development and implementation of the plan to build disaster resilient nations and communities.
4. Following the broader guideline described in the National plan and the specific guidelines to be provided by MoFDM, DMB, the district, upazila, union, City Corporation and paurashava disaster management committees will prepare their respective plans for the area of responsibility of the committee.
5. MoFDM with the assistance from sectoral experts will develop a general guideline to mainstream disaster risk reduction within their respective sectoral development plans.
6. The planning process at all levels should be completed by December 2010.

XIV. MONITORING AND EVALUATION

The National Plan is a dynamic document and will be reviewed and evaluated annually to ensure consistency with national initiatives and Government priorities. Key performance indicators will be monitored and reported annually to assess the progress of the implementation of the Framework. The key indicators will:

- Measure the expected outcomes of the Plan.
- Set benchmarks.
- Measure the effectiveness of policies, strategies and programs and inform policy development.
- Identify agency accountability and responsibility for each performance indicator.
- Identify opportunities for improvement that lead to enhancement of the Disaster Management System

The IMDMCC will guide MoFDM for monitoring progress of implementation of this plan at the national level. The MoFDM through Disaster Management Bureau will be responsible for monitoring at the local level.

XV. FINANCING OF THE PLAN

15.1. National Disaster Response and Recovery Fund

The Government will constitute a fund called the “National Disaster Response and Recovery Fund” from its own resources and donations from home and abroad. The fund shall be used for response, relief and recovery. The allocation and utilization of the fund shall be governed as per rules and guidelines laid down by the Government. Ministry of Food and Disaster Management, in consultation with Ministry of Finance, will take initiative to establish the fund by consolidating the existing relief funds.

15.2. National Risk Reduction Fund

The Government will constitute a fund called the “National Risk Reduction Fund” for projects which are designed for the purpose of prevention, mitigation and preparedness. The allocation and utilization of the fund shall be governed as per rules and guidelines laid down by the Government. Ministry of Food and Disaster Management, in consultation with Ministry of Finance, will take initiative to establish the fund by consolidating the existing risk reduction funds.

15.3. Financing Sectoral Plans

Relevant Ministries/ Divisions/ Directorates and departments will make provisions in its annual budget to fund the activities and programmes set out in the Disaster Risk Reduction component of its Sectoral Development Plans.

15.4. District/Upazila/Union/Paurashava/City Corporation Disaster Management Fund

Disaster Management Committees at the district, upazila, union, city corporation and paurashava levels will constitute its Disaster Management Fund to implement programmes and activities as set out in Disaster Management Plans. This fund will make up of the following: a) contribution from the government, b) contribution from local government and c) local donation. The government will formulate guideline for operating the fund.

15.5 Reporting

The authority/authorities responsible for the utilization of funds shall submit specific report(s) to the Governments regarding executions of, and expenditures of funds along with an audit certification. The period of time not for such reports shall be as prescribed by the rules and guidelines for the use of funds.

ANNEXURE 01

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
খাদ্য পরিকল্পনা ও পরিধারণ ইউনিট
খাদ্য ও দুর্যোগ ব্যবস্থাপনা মন্ত্রণালয়
১৬, আব্দুল গণি রোড, ঢাকা।

নং-খাদ্যম/এফপিএমইউ-১(৪৪৫)/২০০৫/ ২৯৯ (৫)

৩১/০৪/১৪১৩ বাং
তারিখঃ -----
১৫/০৮/২০০৬ খ্রিঃ

কমিটি গঠন

সার্ক পরিবেশ মন্ত্রীদের ৭ম সভায় ইতোপূর্বে প্রণীত Regional Comprehensive Framework on Disaster Management & Disaster Prevention বাস্তবায়নের নিমিত্তে “National Plan of Action” প্রণয়নের সিদ্ধান্ত গৃহীত হয়। সে প্রেক্ষিতে বাংলাদেশের জন্য “National Plan of Action” প্রণয়নের নিমিত্তে নিম্নলিখিত কর্মকর্তাদের সমন্বয়ে একটি কমিটি গঠন করা হলো :

- | | | |
|--|---|------------|
| ০১) মহা পরিচালক, এফপিএমইউ, খাদ্য ও দুর্যোগ ব্যবস্থাপনা মন্ত্রণালয় | - | সভাপতি |
| ০২) পরিবেশ ও বন মন্ত্রণালয়ের একজন প্রতিনিধি | - | সদস্য |
| ০৩) পানি সম্পদ মন্ত্রণালয়ের একজন প্রতিনিধি | - | সদস্য |
| ০৪) সিডিএমপি-এর একজন প্রতিনিধি | - | সদস্য |
| ০৫) দুর্যোগ ব্যবস্থাপনা ব্যুরো এর একজন প্রতিনিধি | - | সদস্য |
| ০৬) জনাব মোঃ রুহুল আমিন তালুকদার, অতিরিক্ত পরিচালক (খাদ্য), এফপিএমইউ | - | সদস্য সচিব |

কমিটির কার্য-পরিধিঃ

- কমিটি আগামী ১৫-১১-০৬ তারিখের মধ্যে বর্ণিত National Plan of Action প্রণয়ন করে সরকারের নিকট পেশ করবে।
- এ কাজে কমিটি প্রয়োজনে সিডিএমপি হতে কারিগরী সহায়তা নিতে পারে।
- কমিটি প্রয়োজনে এক বা একাধিক সদস্য কো-অপট করতে পারবে।

- যথাযথ কর্তৃপক্ষের নির্দেশক্রমে জনস্বার্থে এ আদেশ জারী করা হলো এবং অবিলম্বে তা কার্যকর হবে।

(এম এ খালেদ)
গবেষণা পরিচালক(উপ-সচিব)
ফোন-৯৫৫৮৯৭১

বিতরণ কার্যার্থেঃ (জ্যেষ্ঠতা অনুযায়ী নহে)

- সচিব, পরিবেশ ও বন মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
- সচিব, পানি সম্পদ মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
- মহা-পরিচালক, দুর্যোগ ব্যবস্থাপনা ব্যুরো, ৯২-৯৩, মহাখালী বা/এ, ঢাকা।
- মহা-পরিচালক, এফপিএমইউ, খাদ্য ও দুর্যোগ ব্যবস্থাপনা মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
- চীফ টেকনিক্যাল এ্যাডভাইজার, সিডিএমপি, ৯২-৯৩, মহাখালী বা/এ, ঢাকা- কমিটিতে একজন উপযুক্ত প্রতিনিধি মনোনয়ন এবং বর্ণিত National Plan of Action এর একটি খসড়া প্রণয়নের জন্য অনুরোধ করা যাচ্ছে।

কমিটিতে একজন করে উপযুক্ত প্রতিনিধি মনোনয়নের জন্য অনুরোধ করা যাচ্ছে।

নং-খাদ্যম/এফপিএমইউ-১(৪৪৫)/২০০৫/ ২৯৯/১ (৫)

অনুলিপি :-

- মাননীয় মন্ত্রীর একান্ত সচিব, খাদ্য ও দুর্যোগ ব্যবস্থাপনা মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
- মাননীয় উপ-মন্ত্রীর একান্ত সচিব, খাদ্য ও দুর্যোগ ব্যবস্থাপনা মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
- সচিব মহোদয়ের একান্ত সচিব, খাদ্য ও দুর্যোগ ব্যবস্থাপনা মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।
- মহা পরিচালক, এফপিএমইউ এর ব্যক্তিগত কর্মকর্তা, খাদ্য ও দুর্যোগ ব্যবস্থাপনা মন্ত্রণালয়, বাংলাদেশ সচিবালয়, ঢাকা।

(এম এ খালেদ)
গবেষণা পরিচালক(উপ-সচিব)

REGISTRATION	
Date	21/08/13 বাং
File No.	1009
Tarikh	15/08/2006 খ্রিঃ
CTA	
NPHE	
TARS	
NE (Coord)	
NE (M&E)	
NE (T&P)	
NE (S&P)	

ANNEXURE 02

Linkages of the Key Strategic Goals to Key International And National Drivers for Change

Elements of Drivers	Goal 1: <u>Professionalising the Disaster Management System</u>	Goal 2: <u>Mainstreaming Risk Reduction</u>	Goal3: <u>Strengthening Institutional Mechanisms</u>	Goal 4: <u>Empowering at Risk Communities</u>	Goal 5: <u>Expanding Risk reduction Program ming</u>	Goal 6: <u>Strengthening Emergency Response Systems</u>	Goal 7: <u>Developing and Strengthening Networks</u>
<u>United Nations Millennium Development Goals:</u>							
Eradicate extreme poverty and hunger			✓	✓		✓	
Promote gender equality and empower women		✓		✓		✓	
Ensure environmental sustainability		✓		✓	✓		✓
<u>Hyogo Framework for Action 2005-2015</u>							
Integration of disaster risk reduction considerations into sustainable development policies, planning and programming at all levels.	✓	✓	✓		✓		
Development and strengthening of institutions, mechanisms and capacities at all levels, in particular at the community level.			✓		✓		✓
Systematic					✓	✓	

Elements of Drivers	Goal 1: <u>Professionalising the Disaster Management System</u>	Goal 2: <u>Mainstreaming Risk Reduction</u>	Goal3: <u>Strengthening Institutional Mechanisms</u>	Goal 4: <u>Empowering at Risk Communities</u>	Goal 5: <u>Expanding Risk reduction Program ming</u>	Goal 6: <u>Strengthening Emergency Response Systems</u>	Goal 7: <u>Developing and Strengthening Networks</u>
incorporation of risk reduction approaches into the design and implementation of emergency preparedness, response and recovery programmes in the reconstruction of affected communities							
<u>ISDR Guiding Principles: National Platforms for Disaster Risk Reduction</u>							
Increase public awareness to understand risk, vulnerability and disaster reduction globally				✓	✓		✓
Commitment from public authorities to implement disaster reduction policies and actions	✓	✓	✓				
Stimulate interdisciplinary and inter-sectoral partnerships;					✓		✓

Elements of Drivers	Goal 1: <u>Profession- alising the Disaster Managem- ent System</u>	Goal 2: <u>Mainstr- eaming Risk Reducti- on</u>	Goal3: <u>Strengt- hening Instituti- onal Mechani- sms</u>	Goal 4: <u>Empowe- ring at Risk Communi- ties</u>	Goal 5: <u>Expand- ing Risk reduct- ion Program ming</u>	Goal 6: <u>Strengt- hening Emergen- cy Response Systems</u>	Goal 7: <u>Develop- ing and Streng- thening Netwo- rks</u>
include the expansion of risk reduction networks							
United Nations Framework Convention on Climate Change (UNFCCC)	✓	✓	✓	✓	✓		✓
Improve scientific knowledge about disaster reduction				✓	✓	✓	✓
PRSP Comprehensive Disaster Management towards Poverty Reduction and Growth: Policy Matrix key strategic goals:							
Mainstreaming Disaster Management and Risk Reduction into National Policies, Institutions and Development Processes		✓	✓		✓		✓
Strengthening disaster management and risk reduction capacity	✓				✓		✓
Ensuring	✓						✓

Elements of Drivers	Goal 1: <u>Professionalising the Disaster Management System</u>	Goal 2: <u>Mainstreaming Risk Reduction</u>	Goal3: <u>Strengthening Institutional Mechanisms</u>	Goal 4: <u>Empowering at Risk Communities</u>	Goal 5: <u>Expanding Risk reduction Program ming</u>	Goal 6: <u>Strengthening Emergency Response Systems</u>	Goal 7: <u>Developing and Strengthening Networks</u>
knowledge management on disaster risk reduction							
Enhancing community level capacity for disaster risk reduction				✓		✓	
Ensuring social protection of the most disadvantaged				✓		✓	

ANNEXURE 03

GLOSSARY OF TERMS

Adaptation- means the adjustment in natural or human systems in response to actual or expected climactic stimuli or their effects, which moderates harm and exploits beneficial opportunities.

Climate Change- means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

Community Elements- at risk include its structures, services, economic and social activities such as agriculture, commercial and service businesses, religious and professional associations and people.

Disaster – means a serious disruption to a community caused by the impact of an event which requires a significant coordinated response by the Government and other entities to help the community to recover from the disruption. Disasters are usually associated with severe damage to infrastructure and utilities, death, injuries and homelessness, and can be widespread or contained within a particular sector or sub sector.

Disaster Area – means a district, City Corporation, upazila, municipality, union or any part of Bangladesh declared to be a Disaster Area under this Act.

Disaster Management - means arrangements for managing the potential adverse risks and includes defining the risk environment, managing the risk environment and responding to the threat environment.

Emergency Response Operations – means activities undertaken immediately before, during or after an event which help to reduce loss of life, illness or injury to humans, property loss or damage, or damage to the environment. It may include, for example, planning, co-ordination and implementation of measures to lessen the effects of a disaster upon members of the public or to protect any property of the state.

Hazard – means an event which has the potential to cause a disaster, and can be either natural (e.g. flood, cyclone, tsunami), human induced (e.g. chemical spill, fire), biological (e.g. SARS, Bird Flu) or technological in nature (e.g. nuclear generator failure). Hazards are not by definition disasters. Hazards include:

- a. A cyclone, earthquake, flood, storm surge, nor'wester, tornadoe, tsunami, riverbank erosion, drought, landslide, hailstorm or other natural happening.
- b. An explosion or fire, a chemical, fuel or oil spill, or a gas leak.
- c. An infestation, plague or epidemic.
- d. A failure of, or the disruption to, an essential service or infrastructure.
- e. A process of organic origin or those conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances.

Mitigation – means the process of implementing measures that eliminate or significantly reduce the risks associated with potential hazards.

Natural Disaster –is a disaster (see definition of disaster) caused by the impact of a natural hazard.

Preparedness – means measures that are designed to ensure that communities will have the knowledge and understanding of their risk environment to enable them to better cope with potential hazard impacts.

Prevention – means activities undertaken to reduce or eliminate risk.

Relief – means money, food, medicine, shelter, clothes or any other assistance public or private provided to people and communities to overcome the effects of a disaster event.

Reconstruction – means the process of restoring affected infrastructure to its pre event condition.

Recovery - means measures that are designed to develop the systems required to support affected communities in the reconstruction of their physical infrastructure and restoration of their emotional, economic and physical well being.

Risk – means the measure of the likelihood of harmful consequences arising from the interaction of hazards, vulnerable community elements and the environment.

Risk Reduction – means the systematic process of defining and re-defining risk and managing risk.

Standing Orders on Disaster – means standing orders issued by the National Disaster Management Council under the direction of the Government.

Vulnerability – means a measurement of community elements at risk that are exposed to specific hazards, both natural and human induced, and that have a low level of resilience to cope with the impacts of that hazard or characteristics of that hazard.

ANNEXURE 04

REFERENCES

- ADB, 1991. Disaster Mitigation in Asia and the Pacific, Asian Development Bank (ADB), Manila, Philippines.
- ADRC, 2006. www.adrc.or.jp/BGD/2003/page2.html visited on July 11, 2006
- BBS, 1992. Bangladesh Population Census, 1991, Community Series, Cox's Bazar, Bangladesh Bureau of Statistics, Dhaka.
- BBS, 1993. Bangladesh Population Census, 1991, Community Series, Satkhira, Bangladesh Bureau of Statistics, Dhaka.
- BBS, 1996. Bangladesh Population Census, 1991, Community Series, Sunamganj, Bangladesh Bureau of Statistics, Dhaka.
- BBS, 1999. Statistical Year Book of Bangladesh, 1998, Bangladesh Bureau of Statistics, Dhaka.
- BBS, 2000. On the Road to Progress: Achieving the Goals for Children in Bangladesh, Bangladesh Bureau of Statistics, Dhaka.
- BBS, 2003. Population Census, 2001, National Report (Provisional), Bangladesh Bureau of Statistics, Dhaka.
- BBS, 2005. Bangladesh Population Census, 2001, Community Series, Lalmonirhat, Bangladesh Bureau of Statistics, Dhaka.
- BBS, 2005. Bangladesh Population Census, 2001, Community Series, Rajshahi, Bangladesh Bureau of Statistics, Dhaka.
- BBS, 2005. Bangladesh Population Census, 2001, Community Series, Sirajganj, Bangladesh Bureau of Statistics, Dhaka.
- BBS, 2005. Statistical Year Book of Bangladesh, 2004, Bangladesh Bureau of Statistics, Dhaka.
- BBS, 2006. www.bbsgov.org visited on July 11, 2006
- BNBC 1993, Bangladesh National Building Code, Ministry of Housing and Public Works.
- Carney, D. (ed.), 1998. Sustainable Rural Livelihoods: What Contributions Can We Make?, Department for International Development, London.
- CEGIS, 2001. Application of Agroecological Zones Database in Drought Management and Water Availability Assessment, Environment and GIS Support Project, Ministry of Water resources, Government of Bangladesh, Dhaka.
- CEGIS, 2005. Prediction for Bank Erosion and Morphological Changes of the Jamuna and Padma River, Center for Environmental and geographic Information Services (CEGIS), Dhaka.
- CEGIS, 2005. Report on Development of Arsenic Support System (ADSS), Center for Environmental and geographic Information Services (CEGIS), Dhaka.
- Choudhury, Jamilur Reza 2005, "Options for Urban Disaster Risk Management : The Bangladesh Experience", Paper presented at the National Workshop on "Options for

Urban Disaster Risk Management in Bangladesh” organized by the Comprehensive Disaster Management Programme, MoFDM, on 28th May, 2005 at Hotel Lake Shore, Dhaka.

- Chowdhury, M.H.K. and A. Hussain, 1981. Aridity and Drought COnditions of Bangladesh. Tropical Droughts (Meteorological Aspects and Implications for Agriculture). Journal of WMO Program on Research in Tropical Meteorology, pp 73-80, New Delhi, India.
- DMB 1997, Standing Orders on Disaster, Disaster Management Bureau, Dhaka.
- ESCAP, 1995. The State of the Environment in Asia and the Pacific, ESCAP, Bangkok.
- Karmakar, S., 1989. Natural Disasters in Bangladesh: A Statistical Review. Paper presented at the seminar on Impact of Information Towards Mitigation of Natural Disasters, held on January 7-8, 1989 at BANSDOC, Dhaka, Bangladesh.
- NWRD, 2001. National Water Resources Database, WARPO, Dhaka
- Siddiqui, K. U. and Hossain, A. N. H. A. (ed.), 2006. The Impact of Floods on Bangladesh and Options for Mitigation: An Overview, In: Options for Flood Risk and Damage Reduction in Bangladesh, The University Press Limited, Dhaka.
- UN/ISDR, 2004. Living with Risk: A global review of disaster reduction initiatives, Inter-Agency Secretariat of the International Strategy for Disaster Reduction (UN/ISDR).
- UN/ISDR, 2006. Disaster Statistics, International Strategy for Disaster Reduction (UN/ISDR), published at <http://www.unisdr.org/disaster-statistics/pdf/2005-disaster-in-numbers.pdf>, updated on July 21, 2006
- UNEP, 2001. Bangladesh State of the Environment, United Nations Development Programmes (UNEP), Thailand.
- WARPO, 2005. National Adaptation Program of Action (NAPA): Water, Coastal Areas, Natural Disaster & Health Sector, Water Resources Planning Organization (WARPO), Dhaka.
- World Bank, 2003. Towards a More Effective Operational Response: Arsenic Contamination of Groundwater in South and East Asian Countries, A Research Paper of World Bank