

Chapter 3

National Perspectives of Disaster Risk Reduction in Bangladesh

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Abstract According to Climate Risk Index, Bangladesh is one of the most disaster-prone countries in the world. Bangladesh is highly vulnerable to different types of disaster because of climatic variability, extreme events, high population density, high incidence of poverty and social inequity, poor institutional capacity, inadequate financial resources, and poor infrastructure. Bangladesh initiated its actions for disaster preparedness immediately after the cyclone of 1991. At present Bangladesh has National Disaster Management Act-2012, National Disaster Management Policy, Standing Order on Disaster and National Plan for Disaster Management 2010–2015 as key documents guiding the disaster management works in Bangladesh. To implement the documents in ground works Bangladesh has Disaster Management and Relief Division, Disaster Management Bureau (DMB) and Comprehensive Disaster Management Programme (CDMP) under the Ministry of Food and Disaster Management (NPDM, National Plan for Disaster Management 2010–2015, Disaster Management Bureau, Disaster Management & Relief Division, Ministry of Food and Disaster Management, Dhaka). The country also has disaster management mechanism at both national and sub-national levels. 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 that 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 (both thematic level and different levels of administrative structure). Furthermore, the Disaster Management

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Act is enacted by Act No. 34 of 2012 that forms the legislative basis to desirable, integrate, and strengthen the disaster management related activities and to establish an effective institutional framework for disaster management to deal with all types of disaster in Bangladesh.

Keywords Comprehensive disaster management program (CDMP) • Disaster management plan • Disaster policy • National disaster management act • Standing order

3.1 Introduction

Bangladesh is one of the most disaster vulnerable countries in the world. With adverse effects of climate change Bangladesh is expected to lose one-third of its mainland into the Bay of Bengal due to rise in sea level. Along with this rising temperature may reduce crop production significantly. Since the 1990s disaster management has become an issue of importance to the policy makers. As a result many international and local drivers have been introduced to mitigate threats of disaster.

The country is overwhelmingly an agricultural, one of the densely populated country occupying world's eighth and Asia's fifth position with 160 million people. Agriculture is the life force of the economy as it has the potential to produce multiplier effects on the growth of other sectors of the economy. Its contribution to gross domestic product (GDP) is 23.5 % of total GDP of the country (BBS, 2006 and Handbook Agricultural Statistics, Ministry of Agriculture). Almost 48 % of the populations are still dependent on agriculture for their livelihoods. Therefore, any fluctuations in agricultural productivity influence the food security and potential stability of the country (Habiba 2012; Habiba et al. 2010, 2011).

Straddling the Tropic of Cancer, Bangladesh has a tropical monsoon climate characterized by heavy seasonal rainfall, high temperatures and high humidity. Regional climatic differences in this flat country are minor. Three seasons are generally recognized: a hot, muggy summer from March to June; a hot, humid and rainy monsoon season from June to November; and a warm-hot, dry winter from December to February. In general, maximum summer temperature ranges between 38 °C and 41 °C (100.4 °F and 105.8 °F). April is the hottest month in most parts of the country. January is the coolest month, when average temperature for most of the country is 16–20 °C (61–68 °F) during the day time and around 10 °C (50 °F) at the night time.

According to Climate Risk Index, Bangladesh is one of the most disaster-prone countries in the world (Harmeling 2009). Bangladesh is highly vulnerable to different types of disaster because of climatic variability, extreme events, high population density, high incidence of poverty and social inequity, poor institutional capacity, inadequate financial resources, and poor infrastructure (Ahmed 2004). Almost every year, the country experiences disasters of one kind or another, such as tropical cyclones, storm surges, coastal erosion, floods, tornadoes and droughts, that causes heavy loss of life and property and jeopardizing development activities (Ali 1996). During the period of 1991–2000, Bangladesh has suffered from 93 large scale

natural disasters which killed 0.2 million people and caused loss of properties valued about US\$59 billion in the agricultural and infrastructure sector (Climate Change Cell 2009). Therefore, the international community considers Bangladesh as the country most threatened by disasters.

3.2 Disaster Scenario: Goal, Objectives and Principles

Bangladesh regularly suffers worst disaster that is tropical cyclones, often comes with storm surges. The cyclone of 1961, 1963, 1965, 1970, 1985, 1988, 1991, 1994, 1995, 1997, 2007 and 2009 were of severe in nature (Habiba 2012). Among them, cyclone in 1970 is the deadliest cyclone that hits Bangladesh coastline and took away the lives of over 300,000 people and damaged of about US\$2.5 billion equivalent crops and property. In 1991, the catastrophic cyclone killed over 150,000 people and property damages were more than US\$ two billion. Most recently, in 2007 cyclone “Sidr” struck in Bangladesh that killed and injured over 3,363 and 55,282 people, respectively. It is also reported that 563,877 houses were totally destroyed and 955,065 houses were partially damaged. In terms of agricultural sector, it was accounted for fully damaged of 186,883 ha of crop areas and partly damaged of 498,645 ha area (NPDM 2010). Likewise, in 2009, cyclone “Aila” caused death of 330 lives, made one million people homeless and total damage of US\$40.7 million. Estimation depicts that 20 million people of Bangladesh were at risk of post disaster diseases due to Aila.

In addition, flood is a regular phenomenon in Bangladesh and tends to occur between April–May and September–November (NAPA 2005). Annually an average of 15 % of the total geographical area is inundated by floods. Even, in extreme years, two-thirds of the country can be inundated by floods (Mirza 2002). Approximately, 37 %, 43 %, 52 % and 68 % of the country is inundated with floods of return periods of 10, 20, 50 and 100 years, accordingly (NPDM 2010). The severe floods of 1822, 1854, 1922, 1955, 1966, 1974, 1987, 1988, 1998, 2002, 2004 and 2007 are worth mentioning. It has wreaked havoc in Bangladesh throughout the history. The flood of 1988 during August–September inundated 89,000 km² areas of 52 districts in Bangladesh and caused loss of 1,517 human lives. The 1998 flood in Bangladesh with unprecedented duration of 65 days inundated 53 districts covering about 100,000 km² areas and it took lives of 918 people. The 2004 flood in Bangladesh inundated 40 districts and it took lives of 747 people. According to the government statistics, 298 people died and a total of 10,211,780 people were badly affected by recent 2007 flood (Habiba 2012).

Other disaster such as drought, earthquake, tornado etc. appears in Bangladesh. But, the details of drought disaster will be mentioned in the next section. Considering earthquake, it is an emerging risk for the country, the capital Dhaka and other major cities such as Sylhet and Chittagong are extremely vulnerable. Earthquakes of 1869, 1885, 1897, 1918, 1930, 1934, 1959, 1997 and 1999 are noteworthy. River erosion is no less dangerous than other sudden and devastating calamities. Around 10,000 ha of land is eroded as a result of river bank erosion per year in Bangladesh.

3.3 National Disaster Management Plan

Bangladesh initiated its actions for disaster preparedness immediately after the cyclone of 1991 (before introduction of many of the international drivers) At present Bangladesh has National Disaster Management Act-2008, National Disaster Management Policy, Standing Order on Disaster and National Plan for Disaster Management 2010–2015 as key documents guiding the disaster management works in Bangladesh. To implement the documents in ground works Bangladesh has Disaster Management and Relief Division, Disaster Management Bureau (DMB) and Comprehensive Disaster Management Programme (CDMP) under the Ministry of Food and Disaster Management (NPDM 2010).

National Disaster Management Plan 2010–2015 has been prepared in light of the Hyogo Framework for Action 2005–2015 and SAARC framework on Disaster Management. The plan prepared to help address the disasters in a comprehensive way. The plan is prepared with the aim to reduce vulnerability of the poor to natural, environmental and human induced disaster to a manageable and acceptable level. To achieve the aims, the concerned authorities have adopted strategies like:

- (a) Bringing a paradigm shift in disaster management from conventional response and relief practice to a more comprehensive risk reduction culture.
- (b) Strengthening the capacity of the Bangladesh disaster management system in improving the response and recovery management at all levels.

The plan is expected to accommodate effective intervention by DM&RD for coordinating all disaster management activities within the country. The plan is also expected to contribute towards a cohesive and well-coordinated programming framework, incorporating GoB, NGOs and the private sector. Thus the key focus of the document is to establish institutional accountability in preparing and implementing disaster management plans at different levels of administration. 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. The plan is prepared in a participatory way, having several consultations with stakeholders and established a road map of effective partnership with the organizations working at local, national and regional levels. It is expected that this plan will contribute towards developing and strengthening regional and national networks.

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.

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.

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

- **Goal 1:** professionalizing the disaster management system
- **Goal 2:** mainstreaming risk reduction
- **Goal 3:** 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

3.4 Disaster Management Structures

Bangladesh has disaster management mechanism at both national and sub-national levels. A figure illustrating the position, activity and authority is given below. Disaster Management Structure of Bangladesh (at the national level) is as follow (Fig. 3.1):

1. **National Disaster Management Council (NDMC)** headed by the Honorable Prime Minister to formulate and review the disaster management policies and issue directives to all concerns.
2. **Inter-Ministerial Disaster Management Co-ordination Committee (IMDMCC)** headed by the Hon'ble Minister in charge of the Disaster Management and Relief Division (DM&RD) to implement disaster management policies and decisions of NDMC/Government.
3. **National Disaster Management Advisory Committee (NDMAC)** headed by an experienced person having been nominated by the Honorable Prime Minister.
4. **National Platform for Disaster Risk Reduction (NPDRR)** headed by Secretary, DM&RD and DG, DMB functions as the member secretary. This

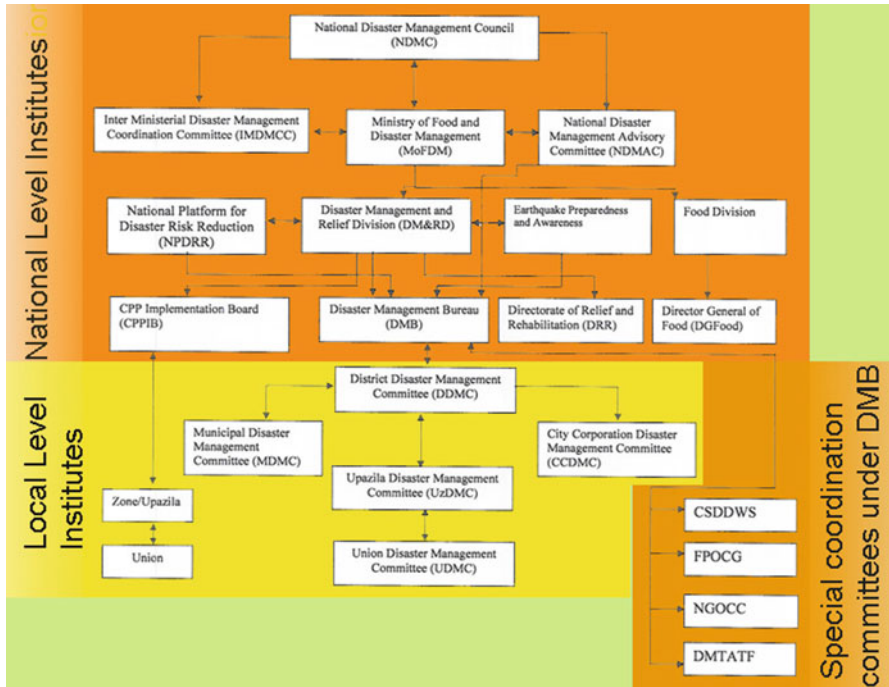


Fig. 3.1 Disaster management institutions in Bangladesh

platform shall coordinate and provide necessary facilitation to the relevant stakeholders.

5. **Earthquake Preparedness and Awareness Committee (EPAC)** headed by Honorable minister for MoFDM and DG, DMB act as member secretary.
6. **Cyclone Preparedness Program Implementation Board (CPPIB)** headed by the Secretary, Disaster Management and Relief Division to review the preparedness activities in the face of initial stage of an impending cyclone.
7. **Cyclone Preparedness Program (CPP) Policy Committee** headed by Honorable Minister, MoFDM and Secretary, DM&RD act as member secretary. Disaster Management Training and Public Awareness Building Task Force (DMTATF) headed by the Director General of Disaster Management Bureau (DMB) to coordinate the disaster related training and public awareness activities of the Government, NGOs and other organizations.
8. **Focal Point Operation Coordination Group of Disaster Management (FPOCG)** headed by the Director General of DMB to review and coordinate the activities of various departments/agencies related to disaster management and also to review the Contingency Plan prepared by concerned departments.
9. **NGO Coordination Committee on Disaster Management (NGOCC)** headed by the Director General of DMB to review and coordinate the activities of concerned NGOs in the country.

10. **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.

Disaster Management Structure of Bangladesh (at sub-national levels) is as follow:

1. **District Disaster Management Committee (DDMC)** headed by the Deputy Commissioner (DC) to coordinate and review the disaster management activities at the District level.
2. **Upazila Disaster Management Committee (UZDMC)** headed by the Upazila Nirbahi Officer (UNO) to coordinate and review the disaster management activities at the Upazila level.
3. **Union Disaster Management Committee (UDMC)** headed by the Chairman of the Union Parishad to coordinate, review and implement the disaster management activities of the concerned Union.
4. **Pourashava Disaster Management Committee (PDMC)** headed by Chairman of Pourashava (municipality) to coordinate, review and implement the disaster management activities within its area of jurisdiction.
5. **City Corporation Disaster Management Committee (CCDMC)** headed by the Mayor of City Corporations to coordinate, review and implement the disaster management activities within its area of jurisdiction.

3.5 Disaster Management Regulatory 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 (Fig. 3.2). The framework includes the following (NPDM 2010):

3.5.1 *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

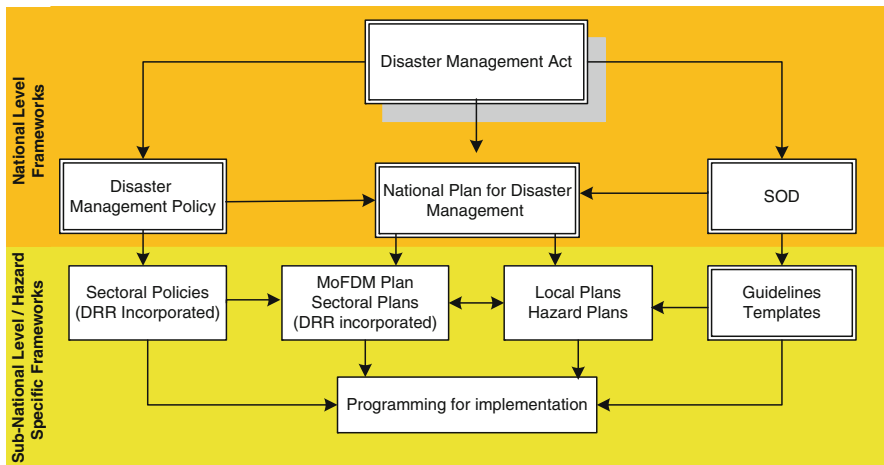


Fig. 3.2 Disaster Management Regulatory Framework

framework for disaster management; and (d) to establish risk reduction as a core element of disaster management.

3.5.2 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.

3.5.3 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, Thana and Union Disaster Management Committees. The Disaster Management Bureau will render all assistance to them by facilitating the process.

3.6 Different Levels of 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 that 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 Disaster Management and Relief Division (DM&RD) 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 Pourashava and City Corporation of the country. A District Disaster Management Plan will be the compilation of the Upazila Disaster Management Plans of the District. Similarly an Upazila 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 Pourashava 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.

Bangladesh has various disaster management plans, aimed to work at different administrative strata (Fig. 3.3). The plans are:

1. National disaster Management Plan
2. District Disaster Management Plan (DDMP)
3. Upazila disaster Management Plan (UzDMP)
4. Union Disaster Management Plan (UDMP)
5. Pourashava/City Corporation Disaster Management Plan
6. Sectoral development plans incorporating risk reduction
7. Hazard Specific disaster Management Plan
 - (a) Earthquake management plan
 - (b) Cyclone Shelter Plan
 - (c) Disaster Resilient Cluster Housing
 - (d) Tsunami response plan etc.

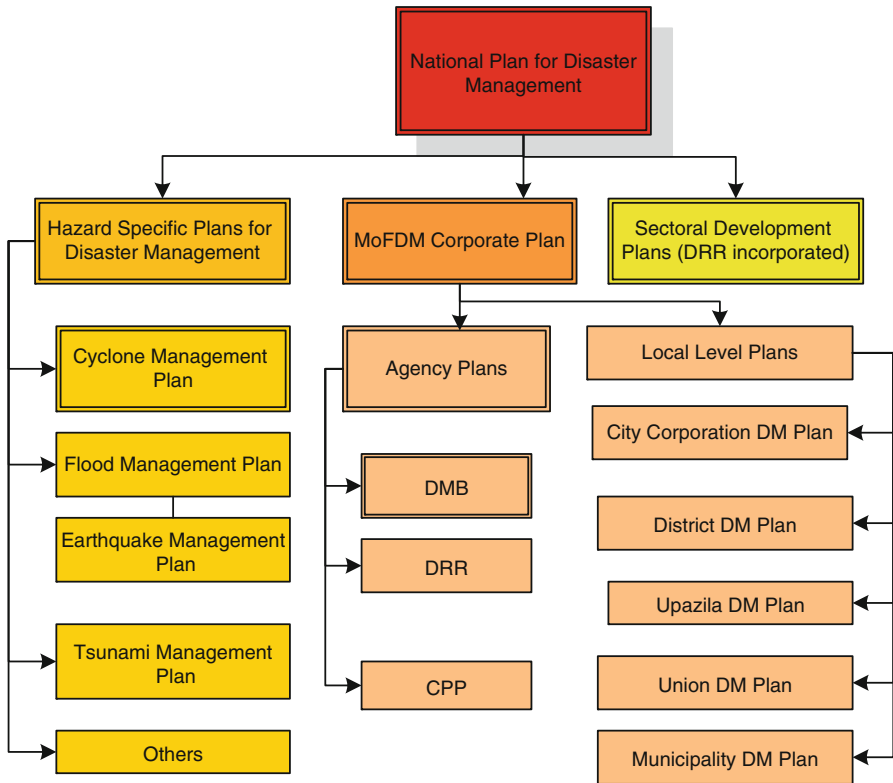


Fig. 3.3 Different levels of disaster management plans of Bangladesh

3.6.1 National Plan for Disaster Management

The National Plan for Disaster Management is prepared by the Disaster Management and Relief Division. The plan includes the following as minimum:

- Introduction
- GoB Vision for Disaster Management
- Hazards profile of Bangladesh
- Disaster development linkages: national and international drivers for change
- Aim of the plan
- Strategic goals of the plan
- Conceptualizing disaster management in Bangladesh
- Disaster management system in Bangladesh
- The roles and responsibilities of entities involved in emergency operations and risk reduction
- Disaster management regulative framework

- Action matrix for disaster risk reduction and emergency management in Bangladesh describing the priorities and the strategies
- Review and evaluation
- Implementation and follow-up
- Financing of the plan
- Other matters relating to disaster management as deemed necessary by appropriate authority for inclusion in the plan

The Plan is to be used to:

- Articulate the long-term strategic focus of disaster management in Bangladesh.
- 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.
- 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.
- Detail a road map for the development of disaster management plans by various entities.
- Guide the DM&RD in the development and delivery of guidelines and programmes.
- 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.
- Provide a framework within which to report performance and success in achieving goals and strategies.

3.6.2 Sub-National Level Plans

DDMP, UzDMP, UDMP and Pourashava/City Corporation Disaster management plan has a few common key features which are given below.

1. The areas in the District vulnerable to different forms of hazards and risks.
2. Total resource requirements and the planned action for the District.
 - (a) To take measures for prevention and mitigation of disasters by government agencies, NGOs, CBOs and the private sector within the District.
 - (b) Capacity building and preparedness measures to be taken by government agencies, NGOs, CBOs and the private sector.
 - (c) Strengthening emergency response management system plans and procedures in the event of a disaster.
3. The response plans and procedures in the event of a disaster, providing for:
 - (a) Allocation of responsibilities to the departments of the government at District level and other DMC members

- (b) Procedure for mobilization of resources
 - (c) Prompt response to disaster and relief thereof
 - (d) Procurement of emergency supplies
 - (e) Operation of disaster shelters
 - (f) Restoration of emergency services, such as water supply, gas supply, power, telecommunication, road links
 - (g) Provision of emergency medical services
 - (h) Burial of dead bodies
 - (i) Trauma counseling
 - (j) The dissemination of information
4. 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.
 5. The DDMP shall be reviewed and updated annually.
 6. The copies of the DDMP shall be made available to all District level stakeholders, Divisional Commissioners, etc.
 7. A copy of the DDMP will be sent to the Disaster Management Bureau and all relevant ministries and divisions.
 8. The DMB/NDMTI will provide technical advice and capacity building services to all DMCs.

3.6.2.1 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 Upazila and Pourashava Disaster Management Plans of the District being received from the respective Upazila and Pourashava/City Corporation DMCs.

3.6.2.2 Upazila Disaster Management Plan (UzDMP)

Upazila is an important and vital administrative unit of Bangladesh. There is an Upazila Disaster Management Committee (UZDMC) at the Upazila level. The UzDMC consists of the Upazila Nirbahi Officer as the chairperson and members comprising all Upazila 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 Upazila Disaster Management Committee by compiling all the Union Disaster Management Plans of the Upazila being received from the respective Union DMCs of the Upazila.

3.6.2.3 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 DM&RD with the participation of vulnerable groups and the communities.

3.6.3 Sectoral Development Plans Incorporating Disaster Risk Reduction

Every Ministry/Division of the Government of Bangladesh prepares their respective Sectoral Development Plans. DM&RD with the participation of sectoral experts will prepare a general guideline to incorporate disaster risk reduction agenda for the sectors. DM&RD 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 programs.

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 DM&RD.
- (e) Submit a copy of its disaster management plan, and of any amendment thereto, the concerned authority.

3.6.4 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.

3.6.4.1 Earthquake Contingency Plan

It is feared that a high intensity earthquake in these cities may result in to serious devastation and collapse the cities. Thus, a well-designed and fully coordinated plan for optimum and efficient preparedness, response and early recovery, usually known as Contingency Plan, in a systematic manner so that their capacities and resources are best utilized to fulfill the need complimenting and supplementing other agencies. Realizing the need of coordinated and comprehensive emergency response, United Nations has been promoting its humanitarian response activities in a cluster approach. This approach is proved to be effective and efficient in responding to recent disasters, for instances, the response during the earthquake on 8 October 2005 in Pakistan. Hence, it has been decided that this concept of response operations in functional clusters be applied in Bangladesh also in case of possible earthquake disaster. In this approach, under National Earthquake Contingency Plan, all response activities are grouped into nine relevant operational functional clusters based on the similarity of works, normal and disaster time mandates of different relevant organizations and possible complementarily in the resources and capacities. The clusters are as follows:

- Emergency Operations Cluster 1—Overall Command and Coordination
- Emergency Operations Cluster 2—Search, Rescue and Evacuation
- Health Cluster
- Relief Services (Food, Nutrition and other Relief) Cluster
- Shelter (Including Camp Management) Cluster

- Water Supply, Sanitation and Hygiene Cluster
- Restoration of Urban Services Cluster
- Transport (Road, Rail, Air, Sea) Cluster
- Security and Welfare Cluster

3.6.4.2 Cyclone Shelter Plan

To face the challenges particularly cyclone and tidal surges, different governmental & non-governmental organizations have constructed about 2,852 (CDMP 2009) cyclone shelters in the coastal belts of 16 districts of the country. Out of 2,852 shelters, investigation reveals that 2,590 shelters are useable while 262 are not. 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 1,250 new cyclone shelter as priority no. 1 and 1,250 as priority no. 2 for providing shelters to the affected people during disasters. The report also mentioned that the total number of 2,500 cyclone shelters including primary school, madrasahs 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 be set up for supplying pure drinking water. In normal periods, 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, government policy and emergency management procedures;
- Development of Rescue, Relief and Rehabilitation Plan of Action based on Comprehensive Risk Assessment, and
- Existing Cyclone Preparedness Programme (CPP) should be strengthened in a way that they can prepare the community for tsunami as well as cyclone.

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 Masjid
- 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 ceremonies, meetings, training sessions 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.

3.6.4.3 Disaster Resilient Cluster Housing

In order to provide shelter to the people of the impacted areas to the shelters, Bangladesh needs a large numbers of new shelters. Government shall develop cluster housing for a group of households that are living in marginalized hazard prone lands, initially in Khas land with necessary utilities and infrastructures that are resilient to the hazards. This set up shall have the provisions for cattle and poultry shelter, seedbeds, and schools on raised land. The architecture shall be such that it will be in a position to accommodate the adversity of the hazard impacts. Comprehensive disaster management programme (CDMP) of the DM&RD shall design, develop, pilot such disaster resilient shelters and scale up upon seeing results.

3.6.4.4 Tsunami Response Plan

Following the 2004 Tsunami, and based on several exercises, workshops, seminars and meetings, a detailed draft plan of action is prepared for Bangladesh.

3.7 Disaster Management Act

Disaster Management Act is enacted by Act No. 34 of 2012 that forms the legislative basis to desirable, integrate, and strengthen the disaster management related activities and to establish an effective institutional framework for disaster management to deal with all types of disaster in Bangladesh (DMA 2012). It is approved by the Minister of Food and Disaster Management on 12 September, 2012. The Act thereby provides a major opportunity to improve the delivery and coordination of emergency aid in Bangladesh. The objectives of this Act are:

- 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
- To make provision for an effective disaster management system in Bangladesh
- To establish an institutional framework for disaster management, and
- To establish disaster risk reduction as a core element of disaster management in Bangladesh

This Act is generally administered by the Government or by authorized bodies constituted or officers appointed by the Government. To fulfill the objectives of this Act, “Disaster Management Bureau” under the Ministry of Food and Disaster Management is predominantly responsible for coordinating and monitoring compliance of the provisions of this Act. According to the Act, the functions of Disaster Management Bureau are:

- To minimize the overall disaster impacts by adopting various disaster risk reduction activities
- To conduct emergency response, recovery and rehabilitation activity efficiently for the affected and distressed people
- To integrate, strengthen and ensure effective coordination across government, NGOs, civil society and private sectors activities and programs related to disaster risk reduction and emergency response operations
- To implement recommendations and directions of the Government related to disaster management
- To implement National Disaster Management Policy and National Plan for Disaster Management
- To establish an effective framework for disaster management that covers all types of disaster that deems to be necessary within the strategic policy framework

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