



Original paper

Exploring Implementation Gaps between Policy and Practice for Disaster Management in Bangladesh

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Abstract There has been much effort to formulate a national plan for improved and effective disaster management in Bangladesh, all of which have used strategies matching international charters and declarations. However, whether such a policy has been adequately implemented into practice at the community level is a major concern. The purpose of this study is to explore the gaps in implementation between what is instructed at the policy level and what takes place on the ground. The authors have reviewed relevant literature, conducted focus-group discussions with individuals in disaster-risk and disaster-affected areas, interviewed professionals from international non-governmental organizations (INGO) of mainstreaming disaster management activities, prepared a Geographic Information System (GIS) map of non-governmental organizations (NGO) and INGO implementation areas, and conducted interviews with member secretaries and members of local disaster-management committees at Cyclone Komen affected areas. Results showed that knowledge and coordination gaps, the functionality of the disaster management committee, monitoring systems, and invalid and unreliable data were the major drawbacks for further achievement in disaster management. In this conclusion, we suggested the urgent tasks for improvement of the present disaster management (DM) systems: building capacity of disaster management committees at local level; making them accountable; and encouraging other organizations/institutions who contribute to reduce death toll and damage from disasters. Furthermore, we discussed that Department of Disaster Management should be an independent administering, monitoring and coordinating body to oversee activities by various agencies and ensure robust disaster management in Bangladesh.

Key words Disaster management; Implementation gaps; NGO; GIS; Independent administering and monitoring body.

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1. INTRODUCTION

Bangladesh is a south Asian country that covers 147,570 square kilometers and has a population of 160 million. It is a low-lying deltaic country formed by the Ganges, Brahmaputra, and Meghna rivers. Bangladesh is located between mountain and sea, with the Himalayan range to the north and the Bay of Bengal to the south. More than 310 rivers and tributaries have made this country a land of rivers.

The geographical location, land characteristics, multiplicity of rivers, and monsoon climate render Bangladesh highly vulnerable to natural hazards (DMB 2010a). Floods occur annually and affect 20% of the country, increasing up to 68% in extreme years. The country is also a frequent victim of tropical cyclones from the Bay of Bengal accompanied by storm surges (DMB 2008). The International Panel Committee on Climate Change (IPCCC) regards Bangladesh as one of the most vulnerable to natural disasters and the effects of climate change (ARROW 2008). The World Disasters Report 2003 showed that Bangladesh was among the top three disaster-prone countries in the world, and the World Risk Report 2012 considered Bangladesh the fifth most natural-disaster-prone country among 173 countries in the world (Audhuna et al. 2016). The losses incurred by natural disasters are innumerable. For example, in 2007, almost the entire country (46 out of 64 districts) was inundated due to flooding. In 2007 and 2009, about ten districts were destroyed due to Cyclones Sidr and Aila, respectively (Rahman 2013). Since 1980, the country has experienced over 200 natural disasters, leaving a total death toll of almost 200,000 people and causing economic damage of approximately USD 17 billion (MoDMR 2013).

The initial focus of disaster management (DM) undertaken by Bangladesh's central government was on relief and rehabilitation activities. However, the preventive measures of disaster risk reduction (DRR) and resilient building approaches or initiatives were largely absent. Hence, the magnitude of damage and death toll from disasters has not been reduced and remains tremendously high. More recently, however, DM in Bangladesh has undergone a process of significant reform. Following the devastating floods of 1988 and the cyclone of 1991, the central government enacted a series of national and international charters, plans, strategies, and frameworks for the sake of causing a paradigm shift from the conventional response and relief practice to a more comprehensive system of DM. In this regard, the regulative framework for DM that was necessary to provide relevant legislative, policy, and best practice frameworks was created and has been coordinated and implemented for DRR and emergency management (DMB 2008). Although significant change was established through this framework, it is not yet clear to what degree these changes have helped to foster effective DM in Bangladesh. Recently, the Comprehensive Disaster Management Program (CDMP) has evaluated the performance of the Union Disaster Management Committees (UDMC) concerning their regulated roles, which is called a functionality assessment. This assessment revealed that none of the UDMCs are rated at a good status, 36% are rated moderate, and 64% are rated weak (CDMP-II 2013).

Therefore, the purpose of this study is to explore implementation gaps between what is instructed at the policy level and what takes place on the ground in DM and to discuss the reasons behind such gaps. This paper includes seven sections: a) introduction; b) brief summary of the current structure of DM and the roles of relevant DM institutions; c) methodologies for the study; d) problems found in institutional and government agencies; e) problems found in implementation; f) discussion; g) conclusion. The introduction provides general features about DM, its effects, and the conceptual transformation of DM in Bangladesh. DM structure modification over time and its function have been discussed in the second section. The third section explains the methodologies and the fourth section discusses the problems found in policy-level instructions and in DM agencies at the local level. Meanwhile, the fifth section discusses what kind of DM problems are faced at the implementation level, and other contributing factors for DM and how to improve DM systems are the main issue of discussion in the sixth section. The final section presents conclusions from the study's findings, limitations of this study, and ways forward for future DM improvement.

2. CURRENT STRUCTURE FOR DISASTER MANAGEMENT

DM in Bangladesh has undergone a significant transition since the devastating floods of 1988 and the cyclone of 1991. After the establishment of the Disaster Management Bureau (DMB) in April 1993 (DMB website n.d.), significant changes have been made to key regulatory frameworks as well as a coordinating and implementing authority at the national level. DM system in Bangladesh has been structured on two levels: a national level and a local level, as shown in Figure 1.

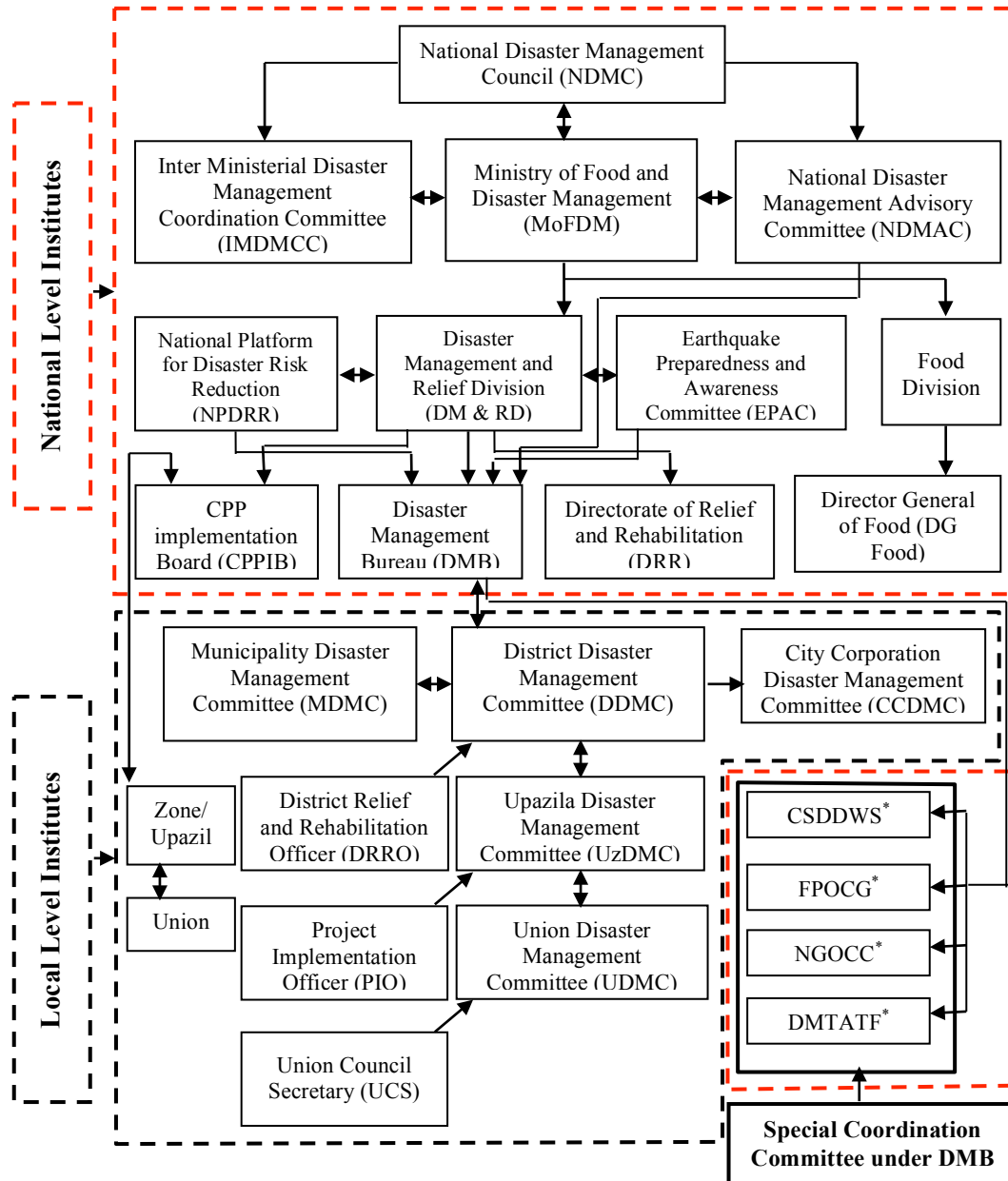


Figure 1. Older institutional structure of disaster management in Bangladesh. (DMB 2010a)

CSDDWS*: Committee for Speedy Dissemination of Disaster Related Warning/Signals

FPOCG*: Focal Point Operation Coordination Group of Disaster Management

NGOCC*: NGO Coordination Committee

DMTATF*: Disaster Management Training and Public Awareness Building Task Force

However, for further improvement of the DM system major organizational transformation has been carried out in 2012. Nevertheless, this transformation does not require any change of responsibilities/guidelines mentioned in the SOD. Rather, existing responsibilities/guidelines as it were in the SOD for previously available organizations have been given to the newly formed organizations. Accordingly, the previously existing Disaster Management and Relief Division under the Ministry of Food and Disaster Management appeared as the full Ministry of Disaster Management and Relief (MoDMR) on September 13, 2012 (Cabinet division 2012). After enactment of the Disaster Management Act (DMA), the DMB was replaced by the Department of Disaster Management (DDM) in November 2012 (BNA 2012). Figure 2 depicts the updated DM structure based on the organizational transformation and shows that all changes have been made at the national level whereas the local level remains the same.

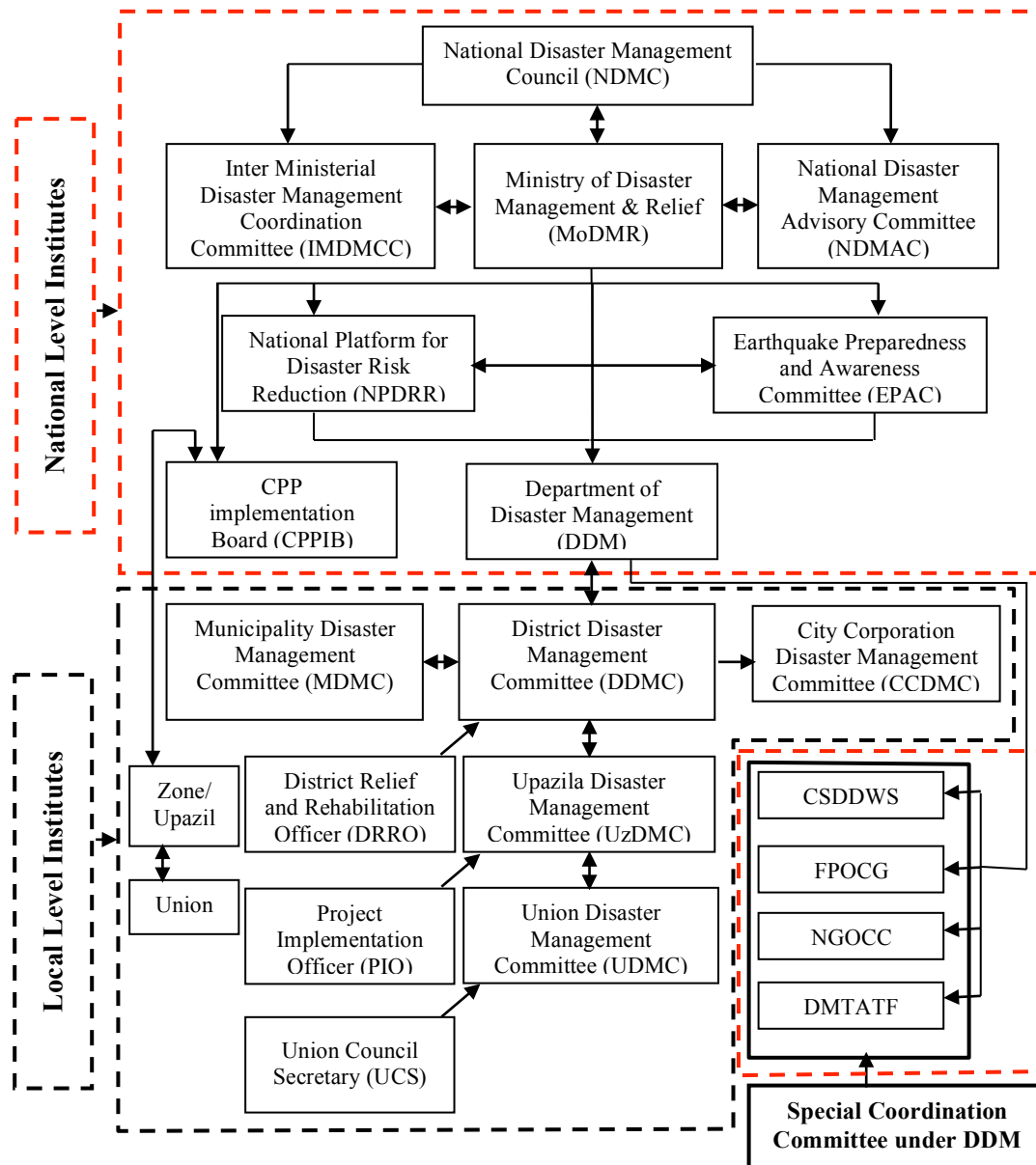


Figure 2. Updated institutional structure of disaster management in Bangladesh (Source- DMB 2010a, Cabinet division 2012 & BNA 2012)

As Figure 2 shows, there are 12 committees at the national level (8 committees are placed at the top of the figure and 4 committees are placed below at the right side of the figure as a special coordination committee), and the MoDMR is the focal point in DM system. The ministry has been given the mandate to carry out tasks for issues related to DRR and emergency response. The ministry provides information to the National Disaster Management Council, the Inter-Ministerial Disaster Management Coordination Committee (IMDMCC), and the National Disaster Response Coordination Group (NDRCG) to assist in decision-making (DMB 2010b). The DDM has the mandate to implement the objectives of the DMA by reducing overall vulnerability to the effects of different disasters by undertaking risk reduction activities. They are also responsible for executing the directions and recommendations of the government in connection with DM as well as all relevant national principles and planning (DDM web site n.d.). It is necessary to mention that NDRCG will be activated as and when required to support for disaster stricken communities at national level (DMB 2010b) but not placed in the DM institutional figure.

At the national level, disaster management committees (DMCs) are clearly directed to hold meetings according to defined frequency and need. Every committee has their specific responsibilities, which range from reviewing DM systems and policies, promoting dialogue, evaluating disaster preparedness, reviewing response and recovery measures, facilitating coordination, and approving guidelines and plans for risk reduction and emergency response. These committees are also required to coordinate national- and field-level activities of the DMC and to ensure the coordination of DM and relief work between GO and NGO agencies (DMB 2010b).

At the local level, there are five kinds of DMCs and four Local Disaster Response Coordination Groups (LDRCG). But similar to the national level, LDRCGs are not placed in the DM institutional figure. Among these, the five kinds of DMCs are responsible for the major roles, and these are established at each administrative zone of the five kinds: a) city corporation; b) district; c) upazila (sub-district); d) paurashava (municipality); e) union. Among these, the City Corporation, Paurashava, and Union DMCs are directly responsible for implementation. Meanwhile, the role of the District and Upazila DMCs is mainly one of supervision. Every committee at this level is also clearly directed to hold meetings according to a defined frequency and need. Roles and responsibilities of local-level committees are assigned based on the four different periods of disaster: a) normal/risk-reduction period; b) warning period; c) emergency-response period; and d) post-disaster period. Resilience building and preparedness are the main tasks of the normal/risk reduction period. Activities associated with the dissemination of warnings, evacuation of vulnerable people, engagement of trained individuals, and coordination and monitoring the entire system are the main tasks of the warning period. Furthermore, emergency rescue works, emergency measures toward the prevention of waterborne diseases, maintaining safety and security, and coordinating and distributing all relief activities are the main concerns at the emergency response and subsequent periods. After the disaster, the committees are responsible for statistics of damage and loss, the allocation and distribution of materials, and submitting distribution records (DMB 2010b). All of the main tasks of district, upazila and union DMCs covering different stages of disaster are listed in the appendix of this paper. There are many common tasks among the committees which are varied by mode of action and implementation at different committee levels.

3. METHODOLOGIES OF THE STUDY

The main sources of data for this study included policy literature review, interviews with various stakeholders at implementation and community levels, and Geographic Information System (GIS) mapping to analyze geographical features of NGO activities in Bangladesh. The specific methodologies applied to conduct this study are shown in Table 1.

Table1. Methodologies Used to Conduct This Study

Method	Information Sources		Study Duration
Literature review	National act, policy, plan guidelines, regulations, and other related documents		June 2014 to May 2015
Interview with member secretary of DMC at local level	Member secretary of district, upazila, and union DMC.	Three people (one from each committee)	August 11–15, 2015
Interview with DMC members at local level	DMC members of district, upazila, and union	Twelve people (from DDMC-3, UzDMC-4, and UDMC- 5)	August 11–15, 2015
Interview with NGO personnel	Personnel from international NGOs	Ten people	October 2014 and May 2015
NGO activities area mapping	Activities done by national and international NGOs	Seven national NGOs and 12 international NGOs	March–May 2015
Focus group discussion (FGD)	Local residents of disaster prone areas	Eight people in two FGD	June 19, 2014

3.1 Literature review

DM related policies and guidebooks in Bangladesh found their beginning in the aftermath of the cyclone in 1991. Apart from these measures, the Cyclone Preparedness Program (CPP) was established in 1972 and has continued its functioning until now in 13 coastal districts. All of the policy-related articles since then were reviewed, including the four following major articles: Disaster Management Act 2012, Standing Order on Disaster (SOD) 2010, National Plan for Disaster Management (NPDM) 2010–2015, and National Disaster Management Policy (draft) 2008. In addition to these, the Emergency Preparedness Plan for Cyclone 2013 and the District Disaster Management Plan were also reviewed.

3.2 Interview with member secretary of DMC at local level

At the local level, each administrative zone at each administrative level has a disaster management committee (DMC), as shown in Figure 2. These DMCs include the District Disaster Management Committee (DDMC), the Upazila Disaster Management Committee (UzDMC), and the Union Disaster Management Committee (UDMC). Each DMC has a member secretary who functions as the District Relief and Rehabilitation Officer (DRRO) at the district level, the Project Implementation Officer (PIO) at the upazila level, and the Union Council Secretary (UCS) at the union level. These individuals are key persons when it comes to disaster-related data and information. Therefore, we selected the committees under such administrative zone where Cyclone Komen passed through at the end of July and the beginning of August 2015. We constructed three different questionnaires for DMC member secretaries from three different levels, district, upazila and union, and among the DMCs we selected one committee from each administrative level. Thus, one DRRO, one PIO, and one UCS were interviewed from August 11–15, 2015.

3.3 Interview with DMC members at local level

Apart from the member secretaries of the district, upazila and union DMCs, we interviewed members of those DMCs with another separate questionnaire. Three members from DDMC, four members from UzDMC, and five members from UDMC were interviewed as per their availability in their offices or homes from August 11–15, 2015.

3.4 Interview with INGO personnel

International NGOs (INGOs) lead the charge of DM in NGO sectors in Bangladesh. We selected Ten INGOs purposively for their special interest in the study, and we interviewed key representative using an open-ended questionnaire. The questions used concerned the problems and opinions on the gap between policy and practice in DM. In the case when these individuals were not available, we requested them to answer the questionnaire (i.e., a self-administrated questionnaire) and return it to the investigator at a later time. The information was gathered between October 2014 and May 2015.

3.5 NGO activities area mapping

In Bangladesh, numerous NGOs are working in the area of DM where INGOs and national-level NGOs often work in partnership with local NGOs. Therefore, it is nearly impossible to obtain information from each one of them. Thus, this study aimed to reveal the trends associated with NGO activities in the area of DM, and so we identified seven major national NGOs and twelve INGOs who have many partner NGOs at the local/implementation level. Thus, for the NGO activity mapping, we initially attempted to gather DM-related information of all INGOs and national NGOS from the NGO Affairs Bureau (NGOAB). In Bangladesh, all NGOs and INGOs whose activities/projects are funded by foreign donors need to have approval from the NGOAB, and the NGOAB keeps a record of such activities/projects. In reality, however, it was not possible to obtain information about all of those organizations from the NGOAB itself because it was not easy to find the information in a paper-based filing system. Therefore, the authors contacted some of the INGO/national NGO offices to gather information. Hence, the information about the DM activities of those organizations has been collected both from NGOAB and INGO/national NGO offices wherever possible for the period of June 2014 to May 2015. The information we collected includes project objectives, activities, and data on project sites at the union/municipality level. The data on project sites of national NGOs and INGOs were compiled and entered into the GIS to formulate an activity map. It is necessary to mention that apart from NGO activities by foreign funds, there are other NGOs active in DM that are financed by the government, UN agencies, and development partner under a bilateral agreement—these activities are not considered in this study. Therefore, this map does not represent the entire scenario of DM implementation in Bangladesh. However, among the national and international NGOs, those who play mainstream role for DM in Bangladesh are reflected on this map. Thus, this map shows the trends of NGO activity as it pertains to DM in Bangladesh.

3.6 Focus group discussion (FGD)

To understand what activities have actually been implemented and how individuals in the community perceive them, two focus group discussions (FGDs) were held with local residences in high-disaster-risk villages in early June 2014. These coastal villages are at risk for cyclones, storm surges, and flash floods.

4. RESULTS

4.1 Institutional drawbacks

The SOD provides a series of well-defined directives and clearly delineates the roles and responsibilities of citizens, public representatives, ministries, agencies, and NGOs when it comes to DM (a sample is shown in the appendix). In addition, the National Plan for Disaster Management (NPDM) is another framework that guides the design and implementation of DM policies and programs and incorporates all players. However, the NPDM does not specify how the national-level DMCs will function to fulfill their assigned responsibilities. Furthermore, the NPDM does not specify how the multi-sectoral and multi-disciplinary committees accommodate these DM duties within their regular activities.

The SOD has guided huge tasks at different stages of DM at the local level. Yet, the District Relief and Rehabilitation Officer (DRRO) at the district level and the Project Implementation Officer (PIO) at the upazila level is the only executive staff of the DDM in each administrative zone. Their knowledge and capacity to respond to huge DM duties is too weak. In addition, the knowledge and capacity of the local DMCs are found also very weak although they have been guided to take parts in implementation of DM duties. In fact, without spontaneous and active support from local DMCs it is quite difficult for DRRO and PIO to execute DM duties at present DM system in Bangladesh.

Although local DMCs are supposed to execute DM-related activities at the local level, it is not clear to what extent the committees are ready and capable of taking on such responsibilities. Furthermore, regarding the direction to hold meetings, the frequency extent to which these meetings are held is not monitored. The IMDMCC is responsible for monitoring the progress of NPDM implementation, and the MoDMR through the DDM is responsible for monitoring at the local level. However, it is unclear how all of this monitoring takes place to ensure transparency and accountability at all levels. Although guidelines for government at all levels are developed as best-practice models, whether these guidelines are available to the relevant persons in management is not recorded. The cabinet division—the top administrative body of the Bangladesh government—has 23 committees, yet there is no committee regarding MoDMR (Cabinet division website n.d). It is also important to determine whether the defined roles of each agency are feasible to implement from the perspective of human resources and the budget.

At the local level, a DM plan is adopted every year. To execute this plan, budget allocation has been decided from upazila administration, union council, community, NGOs and INGOs working in that area (CDMP-II 2014). The expected benefit of budget allocation is to ensure locally available resources, its optimum & appropriate utilization, avoid duplication of implementation and maintain coordination among the role players. However, among the role players, the upazila administration and union council have a chance to receive a budget every year from the central government, and this may be used to execute the DM plan. NGO activities are based on the project budget from donor organizations, and although this budget is not regular and not certain, this is also one source of the government budget. However, we found that some NGOs remain uninformed and unaware about such budget collection. Otherwise, a DM budget collection mechanism from the community is not clear. Even during disaster situations, budget collection has been considered from the victim community. This means that the plan in place is not well operated and is not realistic.

4.2 Drawback of the government agencies

4.2.1 Malfunction of the DMC at local level

There are DMCs at the district, upazila, and union level. The roles and responsibilities of those local-level committees are assigned based on the different periods of disaster. Holding a regular meeting to prepare for each period of disaster is one of their key responsibilities in DM. Table 2 shows the number of members of each committee and the frequency of meetings that are held by each committee at each period of disaster. The frequencies of the meetings are clearly stipulated in the SOD, but they have not been held in many cases, even during disaster periods and when Cyclone Komen hit the region.

Malfunction during the normal/risk reduction period of disaster: Our survey showed that during the normal/risk reduction period, DDMC arranged five meetings while the UzDMC and UDMC arranged no meeting. Regarding this, the member secretary of the UzDMC said meetings are necessity based—there was no cyclone, and therefore no meeting was arranged in the normal/risk reduction period, despite the policy of monthly meetings. The member secretary of the UDMC said that their union is almost free from disaster because it is quite far from the sea, and so they do not feel the need to arrange meetings when there is no disaster. However, the more concerning issue is that the meetings arranged by the DDMC during the normal/risk reduction period did not focus on DM. Instead, they were combined with

other meetings at the district level where DM was one of the issues discussed. Among the five meetings arranged by the DDMC, we found the participant list of four meetings during our interview. The DDMC member secretary claimed the remaining list is existed, but we could not find it. From the obtained lists of participants of the DDMC meeting, we found that governmental officials appeared more frequently than the members with other affiliations, such as NGO, civil society people and others even among the available participant lists, there is no participation of NGO representatives in two of the meetings. Thus, the negative responses of member secretaries from the UzDMC and UDMC and the trend of participants from DDMC meeting infers that risk reduction and resilience building to cope with future disasters is still not getting priority at the local level during the normal/risk reduction period of disaster. The function observed at the local DMC is far from what is instructed in the SOD.

Table 2. Different Committees at Local Level, Members, and Number of Meetings Scheduled for each Period of Disaster

Name of the Committee	Number of Members of the Committee*	Meetings Scheduled for each Period of Disaster			
		Normal/risk reduction Period	Warning period and Pre-Disaster Period	During Disaster Period	Post Disaster Period
DDMC	49	Once every two months	More than once a week	Once daily or at least once a week	Once a week
UzDMC	50	Once a month	More than once a week	Once daily or at least once a week	Once a week
UDMC	36	Once a month	More than once a week	Once daily or at least once a week	Once a week

* The chairperson of each level committee can co-opt three additional members as per the local situation.

Malfunction during the warning period of disaster: Three member secretaries of the DMC at three levels have recognized a disaster forecasting period during Cyclone Komen. The DRRO, PIO, and UCS said that the duration was two days, four days, and five days respectively. This indicates that forecasting is not well recognized by those three committees. However, the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) showed a satellite image of Cyclone Komen over the Bay of Bengal on July 29, 2015. The Bangladesh Meteorological Department (BMD) released a weather bulletin from the night of July 29, 2015 which was updated and transmitted by print and electronic media until the morning of July 31, 2015. Nevertheless, separate opinions come from local-level responsible people about how long that forecasting was continued. We also found that these individuals have limited knowledge with which to differentiate the warning period and the disaster period—these two periods occurred very close to one another and were often mixed up. For this reason, the UCS categorized the meeting they arranged as a disaster-period meeting, and no meeting was arranged during the warning period. While the DDMC and UzDMC claimed to arrange one and two meetings respectively, the PIO was unable to present a participant list of one meeting. The available participant list represent that potential member participation was insignificant and total participation was observed low. Therefore, from the statements of member secretaries it can be concluded that their concentration about forecasting is not committed, knowledge to differentiate different period of disaster is not enough, holding meeting is not following the instruction in the SOD and participation is not well organized.

Malfunction during the disaster period: The study area faced two consecutive disasters within a one month period—one was a flash flood and the other was Cyclone Komen. The cyclone claimed was the latest disaster identified by the member secretaries of three levels DMC at the time of the interview. However, there was no consistency about the duration of this disaster. The DRRO, PIO, and UCS claimed the duration was six days, four days, and five days respectively. Nevertheless, Cyclone Komen hit the Bangladesh coast on July 30, 2015 in the afternoon, and the wind speeds weakened at about 9pm that same day. However, the consequences of a cyclone—heavy rain, flash floods, and tidal water inundating low-lying coastal areas—continued for about one week. Although there is no consistency about the duration of the disaster, all three levels of DMC secretaries claimed that they arranged one meeting each during the disaster period. The DRRO showed their list of participants, but the PIO and UCS failed to show the list during the interview. From the participant list of DDMC meeting, we found that only five categories of members participated from the requisite 14 categories. The total of all participants was 17, and 13 were district-level government officials. Among the absentee UNO (the chief of the upazila administration), the local government people and NGO representatives were mentioned. Concerning this absence of committee members, the DRRO claimed that they were busy with their own area's DM. Moreover, the UCS claimed that they did not know how to form their DMC; their committee was formed only by the order of the UNO. They also did not know who should be a member of this committee. At this point, unable to define a disaster period, there was either no meeting arrangement or irregular arrangement at best, low participation of committee members, the absence of a participation list, and a knowledge gap about committee formation. All of this easily indicates that the local committees are not adequately committed, prepared, and transparent about DM.

Malfunction during the recovery period of disaster: Recovery is an important period to revive holistic socioeconomic and environmental conditions that were damaged by a disaster. The recovery period of Cyclone Komen was reported by the DRRO to be 10 days, yet the PIO reported six months and the UCS said there was no defined period because it depends on the support received from GOs and NGOs. Thus, similar to the discussion in previous periods, there is no consistency when defining the recovery period. This means that there was also no well-defined and well-coordinated plan of recovery through any chain of command. Instead, recovery was carried out rather haphazardly. At this instance, only the DDMC and UzDMC claimed to arrange one and two meetings, respectively. At the DDMC meeting, we discovered that nine categories of participants attended the meeting (out of 14 prescribed categories), and there was no participation from NGOs. Otherwise, the UzDMC arranged two meetings only in the day when the honorable secretary of the MoDMR, a member of parliament (MP), and the director general (DG) of the DDM visited the upazila. In the presence of those high-level government officials, a meeting was arranged at 2pm. The subsequent meeting was held at 10 pm to make plans as per the directions of the first meeting. However, the PIO could not show the list of participants from those two meetings. Regarding UDMC meetings during the recovery period, the UCS said that they had no resources to support the victims, and so they did not arrange any meetings after the disaster. However, some NGOs contacted the union council to support the victims, and so they had planned to arrange recovery meetings in the future. This phenomenon infers that there is no unique definition of the recovery period, and the responsible people are not well acquainted, accountable, and committed to managing the recovery situation.

Malfunction in the DMC updates: The five local level DMCs are composed of government officials of different agencies and representative/s from NGOs, civil society, women, freedom fighters and some others. The committee members can be changed depending on different circumstances. For this sake, every committee is advised to update their member list and submit it to the higher DMC or authority every year. The list must be submitted irrespective of any changes in the composition of the committee. However, we found that the DDMC and UDMC had not updated their committee members. Only the UzDMC was been updated, according to the PIO, but he was not sure when it was going to be submitted to the DDMC.

4.2.2 Malfunction of the DMC members at the local level

We conducted interviews among 12 DMC members at three levels. These interviews included three members from the DDMC, four members from the UzDMC, and five members from the UDMC. Their functionality regarding DM is described below.

Participation in DMC meetings at different periods of disaster: None of the DDMC, UzDMC and UDMC member participated in DMC meetings during the normal/risk reduction period of disaster. More precisely, no meeting held at UzDMC and UDMC during normal/risk reduction period of disaster. At DDMC level DRRO claimed to hold several meetings during normal/risk reduction period of disaster but that were not focusing on DM and thus all the members said that they were never called to participate in such meetings. However, the DDMC members may have participated eventually without knowing that the meeting was DM focused and they did not discuss DM much so that they answered that they did not participated in any meetings for DM during normal/risk reduction period of disaster. During warning period, five members claimed to participate in meetings. Among these five members, four participated regularly and one was sporadic. On the other hand, seven members participated in meetings during the disaster period. Among them, five members participated regularly while the remaining two were sporadic. While nine members among twelve claimed to participate in meetings during the recovery period, only two of them were regular participators whereas the participation of the remaining seven was not satisfactory. Those who did not participate mentioned the reasons such as not being called for the meeting, being outside of the duty place, information gap, and busy with self-evacuation. One person said that recovery work is mostly done by the local government and by NGOs, therefore they do not interested to participate.

Lead/participate in any activities assigned by the authority during the different periods of DM: Apart from the normal/risk reduction period, we found some members lead/participated in different activities during the warning period, the disaster period, and the recovery period. Among these three periods, the most participation was found during the disaster period, followed closely by participation in the warning and recovery periods. During disaster relief distributions, damage estimates on agriculture, maintenance of the emergency operation center (EOC), encouragement of people to cope with the disaster, and transfer of people to the safer place was carried out by the DMC members. Meanwhile, during the warning period, DMC members looked after shelters, coordinated with school teachers to open the shelters cum schools, operated the EOC, and ensured safety measures at shelters. However, the DDMC and UzDMC members did not participate at all during the recovery period. They said recovery work is mainly done by local government people, and so they do not need to be involved.

5. PROBLEMS FOUND WITH IMPLEMENTATION

5.1 Problems faced by DMC member secretaries and members during different periods of disaster

To determine the problems related to implementation of DM tasks, we interviewed member secretaries and members of the DDMC, UzDMC and UDMC. The SOD assigns the entire task of different periods of disaster to each level of DMC (see appendix). However, we found that none of the member secretary and members of DDMC, UzDMC and UDMC were aware of those tasks. They claimed that whatever they are doing for DM was completely planned at the local DMC or local administration. They have less awareness of the guidelines of the government. Therefore, when the interviewer began to identify

problems according to the tasks assigned to the DMC at each different level, the member secretaries honestly said that they were not accustomed at the local level to managing disaster as per the guidelines. Hence, they stated the problem against DM task what they normally do at local level, or they identified some problems against DM task from their idea or experiences as discussed below.

Regarding the identification of problems against the DM tasks for the normal/risk reduction period of disaster, the PIO and UCS stated that they did not have experience with this. However, the DRRO attempted to identify some problems from his level. Except in the normal/risk reduction period of disaster, all three levels of member secretaries recognized problems against the DM tasks in other periods of disaster.

We found that resources, logistics, sufficient manpower, non-cooperation among DMC members, skilled trainers and training modules, a lack of monitoring, evaluation, and coordination were common problems in all periods of disaster. The DRRO claimed that local funds creation for risk reduction and political biases to implement public or individual structures during the normal/risk reduction period of disaster were additional problems faced.

Moreover, the problem of evacuation message dissemination, the lack of sufficient places for humans and livestock to take shelter, and the unwillingness of people go to shelters due to crowded and filthy environments are the major problems in the warning period.

Otherwise, local biases including area selection, voting politics, nepotism, and corruption were the big problems facing the coordination of relief activities during and right after a disaster. Meanwhile, there was not sufficient support to ensure the security of women, pregnant women, newborns, children, and people with disabilities during a disaster. Safe water and sanitation problems appeared to be crucial issues.

DMC members also claimed that during disaster, land goes underwater and creates a problem for burying dead humans and livestock. Furthermore, there is no storage system for life-saving medicines at the local level, and no counseling to protect people from becoming upset due to rumors of fake message relating to disaster (embankment collapse, high tide water coming, and etc.) or human induced nuisance (robbery, theft, and etc.) at the time of disaster.

Also, after a disaster, the person or institution responsible for statistics of loss incurred takes a long time to complete this task. The PIO alleged that no exact damage list ever appears, the assigned person never goes to the affected area, or they prepare inflated damage list to get more recovery budget than it is actually required. Regarding this, the UCS told us that they prepare statistics depending on assumptions or ideas because the council members who are responsible for it are not capable of preparing real statistics.

Aside from all of this, no counseling facilities are available to address psychological trauma, health-related personnel are not available in sufficient numbers to provide appropriate and adequate care to disaster victims, and there was no practice to arrange educational workshops.

Finally, all the member secretaries claimed that NGO fund were not easier to collect and execute in the DM plans of all periods of disaster. Regarding GO-NGO coordination, we received mixed opinions from these stakeholders.

5.2 Gaps perceived by INGO personnel

The key professionals of INGOs claimed that although sufficient policies and guidelines had been adopted for DM in Bangladesh, they are not yet functioning well. These professionals brought up the coordination gaps among different departments of government at all levels of DM. There is no regular platform for NGO coordination, and so NGO activities are somewhat inefficient at the present time. For example, the village where the FGD was conducted has never received any DM-related support, although

this area is known as especially prone to cyclones. NGOs are reluctant to go beyond their predefined activity areas where new operational settings are required. Occasionally, donor prescriptions and resource limitations push NGOs to go beyond the decisions of coordinating meetings. Delayed or no declaration about a state of emergency is another problem of emergency response. Furthermore, political interference, bias, and the influence of the local elite are major factors that create overlapping and duplication in DM-related policy implementation.

5.3 Voice of the Local People

The participants of the FGDs claimed that the central government, local government, and NGOs provided no mentionable support right after the cyclone in 1994. However, a few families received housing materials, food, and cash support at that time. The FGD participants alleged that most of the support that came into the area was distributed to a neighboring upazila due to political interference. After the cyclone, no rehabilitation support or program came either from government, NGOs or from any other sources. They have not found any capacity-building or awareness-raising program from GOs or NGOs to face future disasters. Moreover, the cyclone damaged the embankment, the salt field was washed away, and they are always in risk. Yet, there has been no initiative to rebuild the embankment.

5.4 Findings from INGO/NGO activities mapping

Bangladesh is a low-lying deltaic country and particularly vulnerable to natural disasters. Floods, cyclones, and storm surges are known as common natural phenomena. Three big rivers and their tributaries spread over the country, and the south has about 580 km of coastline (BBS 2015), which make this country more vulnerable to disaster. Figure 3 shows the vulnerability of storm surge, flood, flash-flood and drought and while Figure 4 shows the affected areas of the Cyclones Sidr and Aila.

To cope with disasters in Bangladesh, INGOs and NGOs play a supplementary role with the government. There is a Co-ordination Committee of NGOs related to DM at national level that ensures the co-ordination of DM and relief work between GOs and NGOs, and all local-level DMCs have an NGO representative and have been instructed to maintain such coordination at every stage of DM (DMB 2010b). However, this kind of coordination does not seem to take place at the ground adequately according to the interviews. To investigate the success of such coordination, we used a GIS mapping approach to identify NGO activities in the area of DM. Figure 5 shows the activities of selected NGOs and INGOs from June 2014 to May 2015. Figure 5 reveals that most of the NGOs and INGOs are working in river basin areas, flash flood areas, and coastal areas. Meanwhile, the number of activities does not seem well coordinated, as anticipated by the SOD and pointed out by INGO personnel. Figure 5 shows that there are some unions in extreme coastlines in Bhola, Patuakhali, Noakhali, Chittagong and Cox's Bazaar districts as well as some low-lying unions in Mymensing, Kishorganj, Jamalpur, Netrokona, Sherpur, Sunamganj, Habiganj and Sirajganj districts without any NGO/INGO presence. However, more than one of NGO/INGO is present in the areas affected by floods and cyclones in 2014 that are located in northern, middle, and southwestern areas. NGOs/INGOs are less involved in other high-risk areas on the extreme coast (see Figure 3). This means that NGOs are overlapping in various areas during the emergency or rehabilitation period but absent in many areas during the normal/risk reduction period. This implies that whatever guidelines are found in the SOD for maintaining coordination have not yet been implemented.

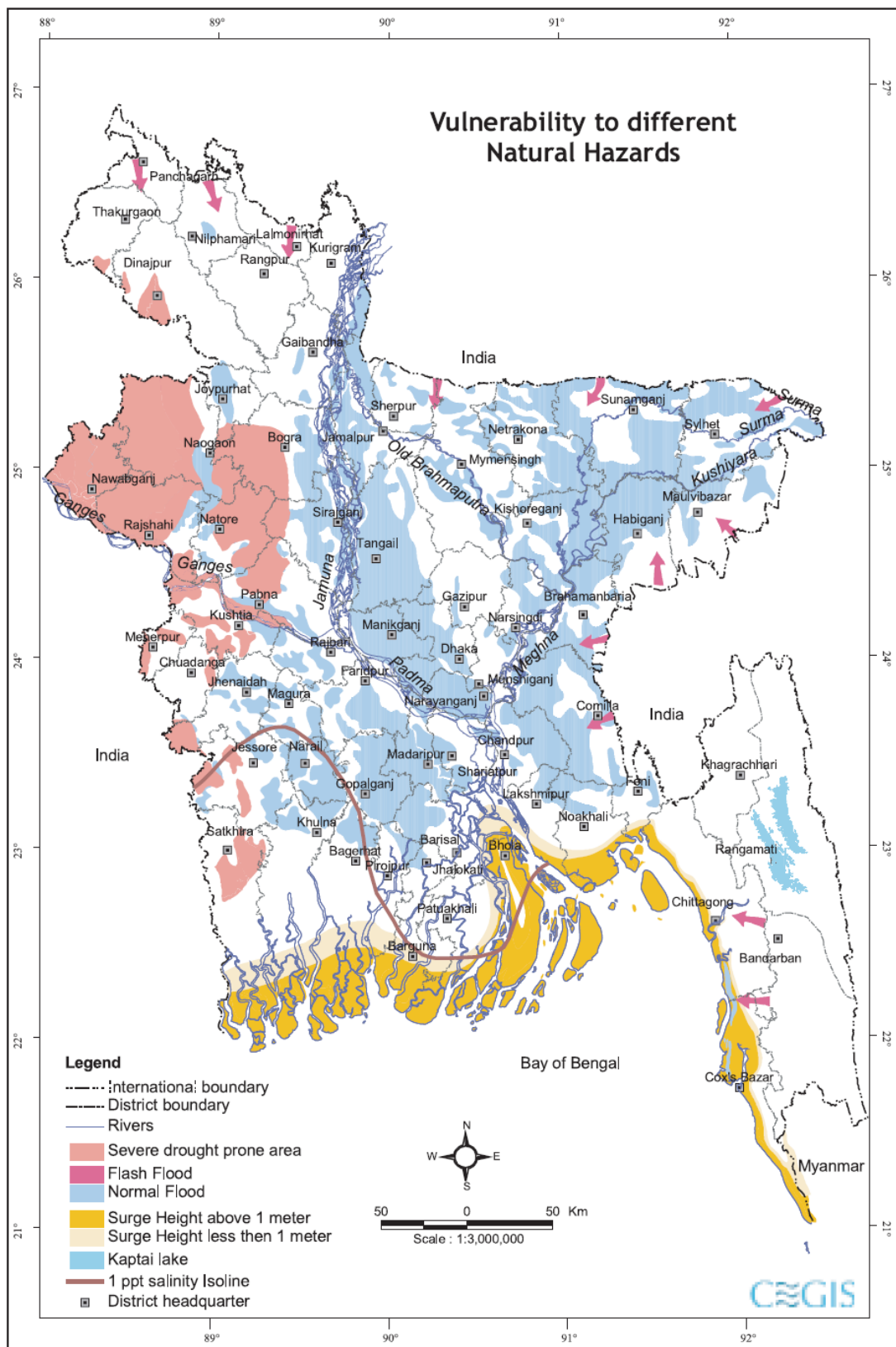


Figure 3. Vulnerability to different natural hazards in Bangladesh (source: (MoEF 2009))

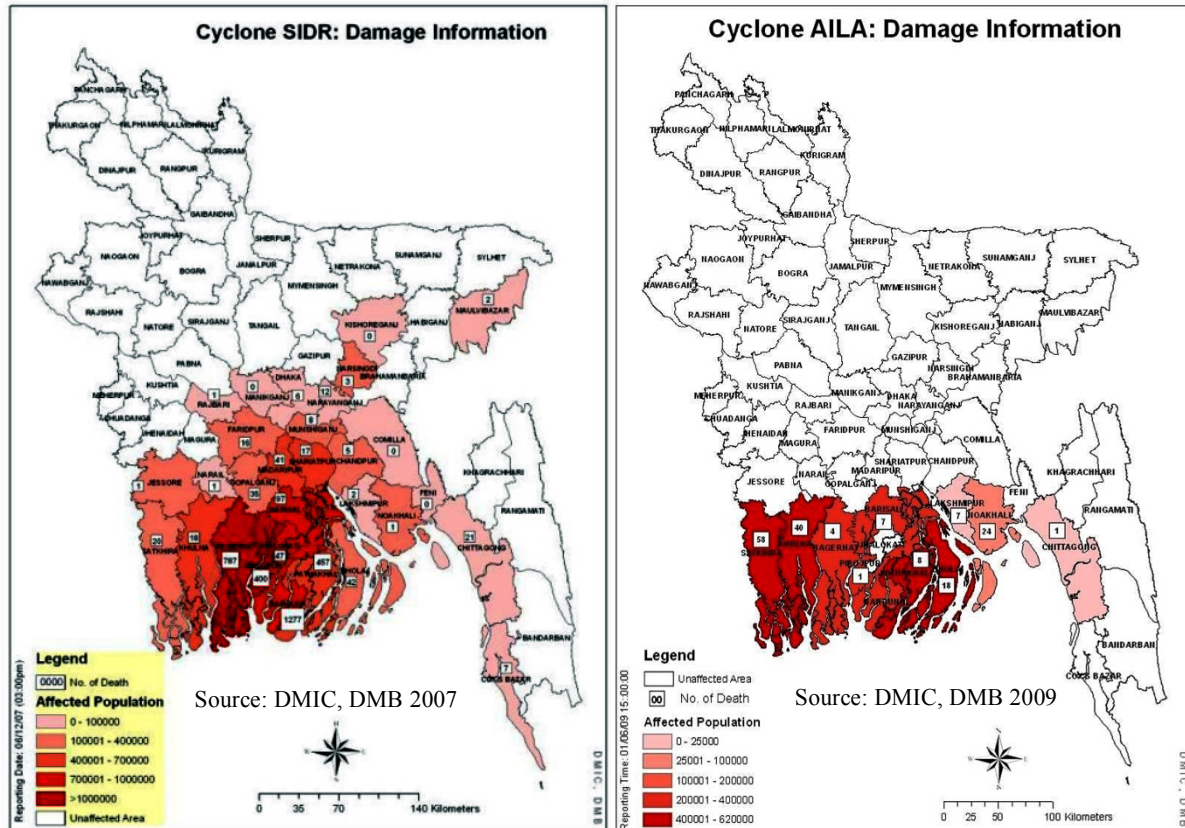


Figure 4. Cyclone Sidr and Aila affected area

6. DISCUSSION

Although there are many weakness and gaps found with the present DM structure in Bangladesh, the death toll during the recent disasters was significantly reduced. Bangladesh government has reported that death toll by cyclone was 138,882 in 1991 but 3,363 and 190 in 2007 (Sidr) and 2009 (Aila) respectively (DMB 2010a). How was this achieved? Although we found functionality problems in this study, there were other factors that played a role for the death toll reduction. They include the following. a) Basic/primary education facilities has been promoted up to grassroots levels since 1990, net enrolment rates increased from 61% in 1990 to 91% in 2008 (Unicef 2010). In addition to improvement of literacy rate, National Curriculum & Textbook Board (NCTB) has introduced the issues of natural and human induced hazards, vulnerability, risk and disaster preparedness in different chapters of the subjects on Disaster Management in different books of primary/elementary and secondary text books (Islam n.d.). This enables students to know/aware about disaster and its consequences. b) Information technology (mobile phones) has revolutionized the dissemination of information/messages. Due to the affordable cost of mobile phones, radios, televisions, etc., information is now available to poor people even in the most remote areas. Until August 2015 mobile phone users in Bangladesh were 130.843 million (BTRC website n.d.) which represents more than 81% of total population. Mobile services dramatically improve access to emergency services, and it enables families to stay in touch with each other in the event of natural disasters, communicate with relief providers and obtain information that will bring them more rapid relief (Bairagi et.al 2011); c) Satellite-based weather forecasting systems have been updated. Mokhlesur Rahman, Secretary, Ministry of Food and Disaster Management said that the reduced death toll is a

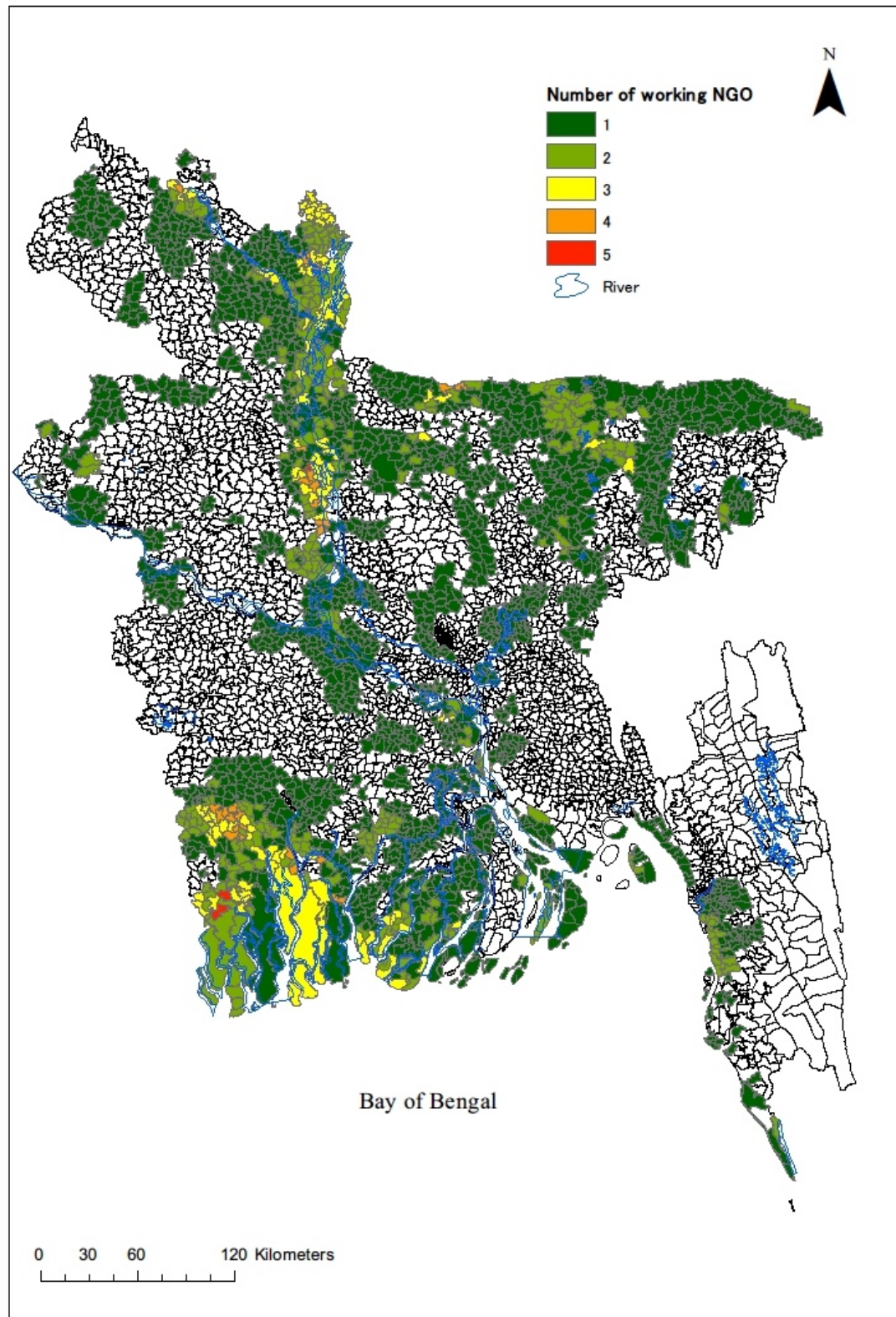


Figure 5. NGO/INGO presence for DM-related activities in Bangladesh.

consequence of improved preparedness. Early warnings help people to prepare, evacuate and take shelter at times of natural disasters (Daily star 2010); d) Weather forecasts are transmitted through all electronic and print media simultaneously during all disasters; e) By April 2011, 49% of the total population has been brought under electricity coverage and electricity production under solar energy, and bio-mass has been enhanced by means of individual and collective efforts in rural and sub-urban areas (MoF 2011). It creates the ability to use mobile phones, radios, televisions easily and to access information; f) Cyclone Aila, the last devastating cyclone, occurred during the daytime and during low tide that reduced casualties and damage many fold. "If Aila happened at night instead of during the day, you wouldn't have been able to write about us at all," says Amjad Hossain, Chairman of Padmapukur Union of Shyamnagar upazila in Satkhira (Daily Star 2010); g) Although the local DMC and administrations are not active during other periods of disaster, but they try to respond as much as possible to save people during in the emergency; h) Positive economic growth that enabled people to be resilient towards disaster. In Bangladesh average per capita GDP has increased from 406.53 US\$ in 2000 to 1,086.81 US\$ in 2014 (The Global Economy website n.d.). i) NGO intervention for socio-economic empowerment to underprivileged communities, and j) infrastructural development (cyclone shelters and embankments) also contributed to protecting life in the face of disaster.

Apart from these achievements, there seems to be much more needed to improve the institutional setups, education for government officials, coordination, monitoring, evaluation, transparency, and accountability at all level of DM. In the present DM system, the normal/risk reduction period of disaster almost ignored at the local level. At the same time, other periods of DM are not satisfactorily served. There are 12 DM committees at the national level for planning, guiding, coordinating, reviewing, and supervising. Every committee is comprised of many ministries and departments—even a single ministry or department is the member of many DM committees at a time. In addition, every ministry/department has their sole responsibility for the nation. Therefore, the responsibilities assigned by the DM committees are not getting priority equal to the sole responsibilities of the relevant ministry/department. This is a kind of bureaucratic problem at the national level, and for this reason the outcome from those committees is not effectively administered at the local level. Otherwise, interview results from the local-level DMCs indicate that their knowledge, capacity, and practice is not sufficient to respond to the DM duties that are assigned in the SOD. It seems that the national and local duties allocated in the SOD do not match the existing capacity and scope of work. This has created a complex situation at all levels.

From this perspective, one possible way to improve the situation would to allow the DDM under the MoDMR be the focal point of DM systems as one stop delivery service. Instead of involving several committees at the national level, DDM can assume the overall responsibilities of planning, guiding, capacity-building, administering, and monitoring all DM responsibilities. Within the present DM system, DDM is an agency under the MoDMR that has a mandate to implement the objectives of the Disaster Management Act in Bangladesh (DDM web site, n.d.). However, their capacity and functionality still seems too weak to assume all DM responsibilities. Therefore, to take the lead, the DDM should be empowered and strengthened to implement the tasks found in the SOD. At the same time, local DMCs are also necessary, and so it will be important to build up their capacity and make them accountable for their roles as laid out in the SOD. Moreover, to simplify the tasks laid out in the SOD, the DM system should be classified into two main clusters under the DDM. One cluster could involve preparedness, emergency response, and quick recovery while the other cluster could involve rehabilitation, risk reduction, and resilience-building. Then, every cluster could divide itself into three separate divisions according to a key period of disaster, such as a preparedness division or a rehabilitation division and so on. Furthermore, every division of both clusters should have different sections for planning, implementation, training, monitoring, and etc. The activities under cluster one can be implemented by local DMCs where the most immediate and comprehensive action is necessary, and the activities under cluster two can be implemented by root-level officials of different ministries as part of their regular duties over the year. In this way, all divisions and sections of the two clusters can play their role under DDM, and a chain of command could be established from the MoDMR to the DDM, then to the DMCs, and finally to local

staff of other ministries. Similarly, accountability from lower to higher levels of the DM system can be practiced. Therefore, we conclude that the authoritative DDM under the MoDMR should assume the role of effective DM rather than involving many committees at the national level.

7. CONCLUSION

A paradigm shift in DM from the conventional response and relief practice to a more comprehensive DM system is the new philosophy for DM in Bangladesh, which includes risk reduction and resilient building as proactive approaches. Regarding this, a detailed mechanism and work plan have been described in the SOD to identify crucial DM duties during the normal/risk reduction period of disaster. However, this study has found that risk reduction and the resilient building is not getting top priority at the implementation level. The UzDMC and UDMC have no activities for DM during normal/risk reduction period and they are not fully aware of their roles and responsibilities. The DDMC has claimed to arrange some meeting during normal/risk reduction period, but they did not focus on DM exclusively. Rather, DM was one of the agendas on the regular monthly meeting at the district level. Furthermore, if DM was on the agenda of the meeting, what was the result of the discussion? If there were any actionable items resulting from the DDMC meetings, the UzDMC and UDMC might be instructed to do something for risk reduction and resilient building in connection with that DDMC meeting. However, the member secretary of both the UzDMC and UDMC admitted that they do nothing in the area of DM during the normal/risk reduction period of disaster. This is the large gap between the policy and implementation levels for DM in Bangladesh.

Knowledge, capacity, resources, monitoring, and accountability are the key factors necessary for the functionality of the DMC at the local level. We found that policy and guideline-related books for DM were not readily available to the member secretaries and members of local DMCs. Moreover, they do not receive any formal training, particularly for DM, during their professional period. The same applies to members of DMC. None of the member secretaries recognized resources allocation for DM during the normal/risk reduction period of disaster, and they do not know what fund is for DM when there is no disaster. If there was accountability through a chain of command, this kind of gap would be minimized. Although NGOs are found more or less active in the normal/risk reduction period, they are not well distributed due to a coordination gap or NGOs own administrative problems. Except for in the normal/risk reduction period of a disaster, the local DMCs are found comparatively active but not in the ways instructed by the SOD. The UDMC did not hold any meeting during the warning and recovery periods, and the number of the meetings held so far during disaster period is less than what is prescribed by the SOD. Although the DRRO, PIO and UCS is not responsible to define any period of disaster but they should follow centrally disseminated messages consistently and maintain chain of command to execute the tasks in time. Meanwhile, organization, reporting, and data storage was inadequate; the participation of the members was not satisfactory and their knowledge of DM and ability to distinguish different periods of disaster was not clear. DMCs of every level are advised to update the committee and submit to the higher DMC or authority every year. However, this does not take place. Even the UDMC do not know who is supposed to be on their committee.

The SOD prescribes training on capacity building, information dissemination, rescue operations, relief distribution, medical services, operation of an emergency center, consultation for mental trauma, damage estimation, rehabilitation activities, and learning workshop. However, these training points are not taking place in satisfactory manner. Both member secretaries and a member of local-level DMCs identified the reasons for this as unskilled and unaware DMC at the local level, manpower crisis, resources limitations, political biases, and a lack of monitoring, transparency, and accountability.

Coordination among GO to GO, GO to NGO, and NGO to NGO is another key factor for effective DM in Bangladesh. All types of coordination are emphasized in the SOD, but they are not all being implemented. The complex structure of DM at the national and local levels, as well as the duties vested on multi-sectoral and multi-disciplinary committees, do not specify how they accommodate these DM duties within their regular activities.

This study results came from six different methods. The sample size for each method was small, and this is a limitation of this study. However, the knowledge and information acquired from this study is one of the most outstanding indicators of the weakness present in Bangladesh's DM system. Therefore, we recommended that a strong DM structure committed to proper functionality accompanied by other contributing factors can be effectively improved in Bangladesh. The problems and gaps identified through this study require further investigation to overcome, and to do this, specific and in-depth studies for each problem and gap are required. Furthermore, such studies should involve collaborative research of relevant experts, academicians, and practitioners. Along with research, best practices and successful models from other countries could be tested and applied as well. Robust institutions, necessary resources, groups of committed and skilled workers, and updated technologies are the key factors for the future of effective DM in Bangladesh.

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APPENDIX

Table-i. Different Tasks of Local Level DMCs during normal/risk reduction period of disaster

Tasks of local level DMCs during normal/risk reduction period		
DDMC	UzDMC	UDMC
1. To prepare a contingency plan, district disaster risk reduction action plan (RRAP), comprehensive report on hazard, vulnerability and risk assessment, the lists of vulnerable community and location map, short-medium and long-term risk reduction action plans. 2. To ensure activation of constitution of UzDMC and Pourashava DMCs, receipt of directives and information as well as draw benefits from available training facilities all risk factors and their reduction measure during planning, speedy and effective publicity of forecasts and warnings relating to disasters. 3. Regularly review the implementation status of the short, medium and long-term action plans. 4. Provide necessary support to UDMC, Pourashava DMC and UzDMC to create local level fund. 5. Inform the DDM on the progress of action plan and other activities at district level. 6. Disseminate forecasts and warnings regarding disasters. 7. Take all necessary measures to activate UDMC, Pourashava DMC and UzDMC. 8. Monitor the progress of the activities and implementation status of the action plans of Upazila and Pourashava DMCs.	1. To prepare a comprehensive DM action plan and relevant plans for rescue, primary relief operation, and restoration of communication. 2. To build the capacity of upazila officers, relevant persons and institutions, union and pourashava authorities and volunteers as well as union and pourashava DMC, local institutions and volunteers. 3. Assist Union and Pourashava DMC to form and activate a comprehensive DMC, increase their efficiency, hold a hazard-vulnerability and risk analysis, identify the most vulnerable area or people at high risk, prepare a short, medium and long-term vulnerability reduction and capacity building action plan, raise fund in legal way at local level, train the students, youths, local clubs and volunteers on community based water purification technology, plan for preparing some community based high land as shelter place, stock emergency life-saving medicines at Union and Pourashava level and arrange training and workshop. 4. To ensure DRR approaches during planning and implementation programs at Union, Pourashava and Upazila. 5. Facilitate coordination among the development agencies and service providers and take decision about implementation as well as review and update the progress of risk reduction action plan. 6. Monitor the activities and progress of implementation of action plans of union and Pourashava DMC.	1. To prepare a short, medium and long-term vulnerability reduction and capacity building action plan, a comprehensive DM action plan, relevant plans for rescue, primary relief operation, and restoration of communication, some community based high land, which can be used as shelter place during disaster period, risk reduction action plan (RRAP) and contingency plan. 2. To ensure that local people are kept informed and capable of taking practical measures for the reduction of risk. 3. To arrange training for the students, youths, local club members and volunteers on community based water purification technology. 4. To build the capacity of relevant persons, institutions, union authority and volunteers on forecasting, warnings, disaster resistant housing, agriculture and other livelihood options. 5. Identify the most vulnerable or people at high risk. 6. Facilitate coordination among the development agencies and service providers and take decision about implementation of the action plan and review/update the progress. 7. Raise fund at local level to implement the risk reduction action plan. 8. Stock emergency life-saving medicines at Union level.
Common Tasks of DDMC, UzDMC and UDMC during normal/risk reduction period		
1. To ensure supply of safe drinking water, and other essential services at the safe centers/shelters located at all levels. 2. To arrange training and workshops on disaster-related issues regularly. 3. To arrange occasional rehearsals or drills on the dissemination of warnings/forecasts, evacuation, rescue and primary relief operations. 4. Select specific safe centre/shelters, ensure their management at all levels.		

Common Tasks of DDMC, UzDMC & UDMC during Post Disaster Period

- | |
|--|
| <ol style="list-style-type: none">1. Collect and verify statistics relating to loss, needs and available resources then send to the higher authority.2. Prepare contingency plans for rehabilitation work then allocate and distribute the materials to Upazila /Pourashava/union and supervise the distribution of materials.3. Take necessary measures so that people can come back to their previous places.4. Take necessary measures so that people can come back to their previous places and arrange counseling for the psycho-trauma people.5. Instruct/ensure the health-related personnel to provide appropriate and adequate care to disaster affected people.6. Arrange workshop on the lessons learned during and after the disaster and Perform responsibility of overall coordination among various departments at district level. |
|--|