

**EFFECTIVENESS OF UNION DISASTER MANAGEMENT
COMMITTEE FOR FLOOD DISASTER MANAGEMENT
: A comparative study**



*Dissertation submitted in partial fulfillment of the requirements for the Degree
of MA in Governance and Development*

Submitted by
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MAGD, Batch IV
ID-12172013
MA in Governance and Development

Date of submission: February, 2013

**Institute of Governance Studies
BRAC University**

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February, 2013

DECLARATION

I hereby declare that this dissertation entitled "*Effectiveness of Union Disaster Management Committee (UDMC) for Flood Disaster Management: A comparative study*" is the result of my own research, under the supervision of Dr. Shitangsu Kumar Paul, Associate professor, Department of Geography and Environmental Studies, University of Rajshahi, Rajshahi, Bangladesh.

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February, 2013


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CERTIFICATE

I hereby recommend and certify that this dissertation entitled "*Effectiveness of Union Disaster Management Committee (UDMC) for Flood Disaster Management: A comparative study*" is a research work conducted by Shah Mujahid Uddin, MAGD ID-12172013, under my supervision for partial fulfillment of the requirements for the Degree of MA in Governance and Development, BRAC University, Dhaka, Bangladesh.

A handwritten signature in dark ink, appearing to be 'Shitangsu', followed by the date '26/2/2013' written below it.

26/2/2013

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Supervisor
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ACKNOWLEDGEMENT

Above all, I would like to thank Almighty Allah for his untold and all time grace that gave me enthusiasm to start and accomplish this dissertation work. I would like to express my gratitude to my supervisor, Dr. Shitangsu Kumar Paul, Associate Professor, Department of Geography and Environmental Studies, University of Rajshahi, whose generous guidance and precious advice always kept my bewildered thoughts towards an appropriate focus.

My sincere gratitude goes to Dr. Rizwan Khair, Director, MAGD Program, IGS, BRAC University; Dr. Md. Zohurul Islam, Academic Coordinator, IGS, BRAC University ; Md. Khorshed Alom, Assistant Admin Officer, IGS, BRAC University for their valuable guidelines and providing resources to do literature review. I would like to offer my earnest thanks to Mr. Iftekhar Uddin Shamim, UNO, Bera, Pabna, who provide me necessary support to collect data. I would like to express my deepest gratitude to Md. Nazir Hossain, student of M.S., Dept. of Geography and Environmental Studies, University of Rajshahi, whose cordial support helped me to complete the dissertation.

I also would like to express gratitude to my mentors, my ideals, my beloved parents, for their unconditioned love, affection and invaluable guidance throughout my life. I would like to extend inner thanks to my beloved sisters and brothers for their love and encouragement. I would like to give special thank to my wife Jahan Ferdous for her unconditional support and encouragement during my studies and obviously to my daughter Protiti.

Last but not the least I would like to thank all of the inhabitants of my dissertation's study areas, who helped me to do the study.

The Author

ABSTRACT

Bangladesh is arguably the world's most disaster prone country. Almost every year, millions of people and the huge infrastructure of the country are seriously affected by flood. The impacts and vulnerabilities to disasters could be minimized through proper disaster management planning and by integrating disaster management activities with local and national development plan. Government of Bangladesh (GOB) has a well recognized disaster management institutional framework that extends from the highest level of government to Union level. Standing Orders on Disaster (SOD) issued by the Government of Bangladesh clearly defines the roles and responsibilities of UDMCs. UDMC bears the overall responsibilities of execution of SOD at grass root level. In reality most of the UDMCs are not functional due to various reasons such as lack of awareness, lack of resources, lack of proper training, lack of budget, decision making authority and absence of proper monitoring and follow up etc. The main objective of this study is to examine the effectiveness of Union Disaster Management Committee for flood disaster management. The research method adopted in this study is exploratory, descriptive and analytical in nature. Two types of data -primary and secondary, have been used to reach the research goal. The primary data are collected from a flood prone union of Bera Upazila in Pabna district, through questionnaire survey and key informants interview and the secondary data are collected from various types of books, journals, articles, published and unpublished documents and Government offices and official websites. Various statistical/computing softwares such SPSS, Excel have been used to process and analyze raw data.

The major findings of the study are UDMC members do not have adequate knowledge on the SOD. Most of them work in a traditional manner rather than following the standings order. The study also finds that regular meeting related to preparation in the disaster action plan are more or less absent in practice. The members of UDMC are found less active in enhancing public awareness on flood disasters, imparting training. The relief operations and programs for victim's rehabilitation are inadequate in fact and possible flood shelters were not properly earmarked. The warning system limitedly helps the flood prone people indeed due to the lack of limited lead time. Side by side newly appointed member of UDMC are not aware about their responsibilities. There exist poor follow up and monitoring mechanism for effective flood management. Finally, it is found that UDMC of Haturia Nakalia is more effective than Chakla Union. The reason is Haturia Nakalia is more vulnerable to frequent flood disasters that's why the stockholders experienced different response and rehabilitation works in past and came to know about SOD by working with NGOs. Experiencing from this study, it can be recommended that in order to make SOD fully functional and strengthening effectiveness of UDMCs, members should be trained up for local disaster risk reduction planning. The study also recommend for allocation of sufficient resources, establishing proper monitoring and follow up system and disaster management rule should be formulated immediately to execute the proper effectiveness of UDMCs at Union Level.

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LIST OF ABBREVIATIONS

ADRC	Asian Disaster Reduction Center
AMDI	Asian Management and Development Institute
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
BNBC	Bangladesh National Building Code
BPATC	Bangladesh Public Administration Training Centre
BWDB	Bangladesh Water Development Board
CCDMC	City Corporation Disaster Management Committee
CCDR	Cabinet Committee on Disaster Response
CCFSC	Central Committee for Flood and Storm Control
CDMP	Comprehensive Disaster Management Programme
CDO	Chief District Officer
CDRC	Central Disaster Relief Committee
CPP	Cyclone Preparedness Programme
CPPIB	Cyclone Preparedness Program Implementation Board
CRA	Community Risk Assessment
DDMA	District Disaster Management Authority
DDMC	District Disaster Management Committees
DDRC	District Disaster Relief Committees
DM	Disaster Management
DMB	Disaster Management Bureau

DMC	Disaster Management Centre
DMCs	Disaster Management Committees
DMIN	Disaster Management Information Network
DMRD	Disaster Management and Relief Division
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction/Directorate of Relief and Rehabilitation
EPAC	Earthquake Preparedness and Awareness Committee
FFWC	Flood Forecasting and Warning Centre
FGN	Federal Government of Nigeria
FPOCG	Focal Point Operation Coordination Group of Disaster Management
GEJE	Great East Japan Earthquake
GIS	Geographic Information Systems
GoB	Government of Bangladesh
GSB	Geological Survey of Bangladesh
HSC	Higher Secondary Certificate
HFA	Hyogo Framework for Action
ICCR	International Cooperation for Child Rights
ICT	Information and Communication Technology
IDNDR	International Decade for Natural Disaster Reduction
IFRC	International Federation of Red Cross
IGCDM	Intergovernmental Committee on Disaster Management
IMDMCC	Inter-Ministerial Disaster Management Coordination Committee

LDO	Local development Officer
LEMA	Local Emergency Management Authority
MoFDM	Ministry of Food and Disaster Management
NCDA	National Civil Defense Administration
NCDM	National Council for Disaster Management
NDCC	National Disaster Coordinating Council
NDMAC	National Disaster Management Advisory Committee
NDMA	National Disaster Management Authority
NDMC	National Disaster Management Council
NEC	National Executive Committee
NERA	National Emergency Relief Agency
NIDM	National Institute of Disaster Management
NGOs	Non-Government Organizations
NGOCC	NGO Coordination Committee on Disaster Management
NPDM	National Plan of Disaster Management
NPDRR	National Platform for Disaster Risk Reduction
OCD	Office of Civil Defense
ONS	Office of National Security
PIO	Project Implementation Officer
PDMA	Provincial Disaster Management Authority
PDMC	Provincial Disaster Management Commission
PDMC	Pourashava Disaster Management Committee

SAARC	South Asian Association for Regional Cooperation
SDMA	State Disaster Management Authority
SEC	State Executive Committee
SEMA	State Emergency Management Agency
SOD	Standing Orders on Disaster
SPSS	Statistical Package for Social Science
SSC	Secondary School Certificate
UDMCs	Union Disaster Management Committees
UEWIC	Union Early Warning Information Centre
UISC	Union Information Service Centre
UN	United Nations
UNO	Upazila Nirbahi Officer
UP	Union Parishad
UzDMC	Upazila Disaster Management Committee

GLOSSARY

Aman	Main monsoon rice crop
Aus	Late dry season, early monsoon rice crop
Boro	Rabi season rice crop
Char	Land newly-formed by accretion of river
Mauza	A revenue village with a jurisdiction list number and defined area is called Mauza. There may be more than one village in a Mauza.
Nor'westers	Local seasonal storms in Bangladesh, popularly known as kalbaishakhi.
Parishad	Council
Pourashava	Municipality
Taka	Currency of Bangladesh.
Thana	Police station, Sub-District administrative area.
Union	Smallest administrative unit of local government.
Upazila	Administrative unit under District administration.

INTRODUCTION

1.1 Background of the study

Bangladesh is one of the most disaster prone countries in the world (SOD, 2010; Rashid, 1977). Geological configuration of Bangladesh is formed by the three big rivers such as the Ganges, the Brahmaputra and the Meghna (Rashid, 1977). Along with these, more than 230 rivers, waterways and tributaries flow through this country for which this country is called a land of rivers (ICCR, 2010). The mountains and hills bordering almost three-fourths of the country, along with the funnel shaped Bay of Bengal in the south, have made the country a meeting place of disasters (SoE 2001). Due to geographical location, typical monsoon climate and others environmental reasons the country is frequently encountered with various kinds of disasters (Elahi 1991; Paul 2009; Paul and Routray 2010). The major disasters apprehensive here are the occurrences of flood, cyclone and storm surge, flash flood, drought, tornado, earthquake, riverbank erosion, and landslide (NPDM, 2010). In Bangladesh, flood is the most repeated natural hazard and is considered to be the main threat. Roughly 60 per cent of the country's land mass is less than six meters above the mean sea level (USAID, 1988; GOB, 1992; Paul and Routray 2010) and floodwater inundates around 20.5 per cent of the country (3.03 million hectares) every year (Chowdhury, 2000; Mirza et al., 2001; Paul and Routray 2010). Besides this, flood causes enormous loss of life to livelihoods, property and crop (Paul, 1984, 1997; Rasid, 1993; Few, 2003; Paul and Routray 2010).

Subsequent the devastating floods of 1988 and the cyclone of 1991, Government of Bangladesh (GOB) has recognized a well disaster management institutional framework that extends from the highest level of government through to Union level. Bangladesh government has adopted a holistic approach taking up the processes of hazard identification and mitigation, community preparedness and integrated response efforts, Relief and recovery activities are now planned within an all-risk management framework seeking enhanced capacities of at-risk communities and thereby

lowering their vulnerability to specific hazards (Rashid, 2008). The Standing Orders on Disaster (SOD) was first published in 1997 in Bangla. It was modified and translated in English in 1999. Since then, many events have taken place at national, regional and global levels. Nationally, three catastrophic disaster events have taken place in Bangladesh: 1) the 2004 flood, 2) the 2007 flood and 3) Cyclone SADR in 2007. As well as Considering the adverse impact of climate change and the recommendation of the World Conference on Disaster Reduction 2005 and as a signatory of Hyogo Framework for Actions, 2005-2015, the GOB has been published revised SOD in 2010 (SOD, 2010; NPDM, 2010). There is a provision for preparing separate plans for disaster management at Union, Upazilla and District levels. These plans are prepared and implemented by the disaster management committees formed at these levels with both government and non-government representatives. The guidelines are provided by the government through the Department of Disaster Management (old Disaster Management Bureau) under the Ministry of Disaster Management and Relief (old Ministry of Food and Disaster Management). Tasks and responsibilities of the citizen, public representatives, ministries, agencies and non-government organizations have been clearly spelled out with clarity in SOD. Union Disaster Management Committee (UDMC) is the grass root level organization. UDMC is supposed to preparedness includes assessment of disaster risk, preparation of management plan; undertake awareness activities, identification of shelter etc. during normal time. During any disaster, UDMC is responsible for disseminating of early warning, evacuation of affected people, proper distribution of relief etc. During post disaster, UDMC assist affected people for rehabilitation (SOD, 2010). UDMC bears the overall responsibilities of execution of Standing Orders on Disasters (SOD) at field/community level. The effectiveness of UDMC mostly depends on the awareness, sincerity and competency regarding responsibilities execution by the members of UDMC and proper monitoring and coordination by Upazilla Disaster Management Committee (UzDMC).

1.2. Statement of the problem

Bangladesh occupies the greater part of what is popularly known as the Bengal Delta formed by the three rivers the Padma, the Meghna and the Jamuna. The large land areas are adjacent to the rivers. The rivers are not only eroding land but also create new lands through which is called char (Mahamud, 2011).

Flood is the most frequent natural hazard and is considered to be the main threat in Bangladesh and also an unavoidable phenomenon in different parts of Bangladesh (Paul, 1994; Paul and Routray 2010). During the last 40 years Government has invested approximately USD 4 billion in the water sector, mainly for FCDI projects. Annually about USD 200 million are disbursed for water and flood management (BWDB, 2010). A view generally held by climatologists is that due to global climate change, catastrophic floods in Bangladesh will appear more frequently and with increasing severity (IPCC, 2001). Consequent the shocking floods of 1988 and the cyclone of 1991, the Standing Orders have been prepared with the affirmed objective of making the concerned persons understand their duties and responsibilities regarding disaster management at all levels. All Ministries, Divisions/Departments and Agencies shall prepare their own Action Plans in respect of their responsibilities under the Standing Orders for efficient execution. The National Disaster Management Council (NDMC), Inter-Ministerial Disaster Management Coordination Committee (IMDMCC) and Cabinet Committee on Disaster Response (CCDR) will ensure the coordination of disaster-related activities at the National level. Coordination at District, Upazila and Union levels will be done by the respective District, Upazila and Union Disaster Management Committees. The Disaster Management Bureau will render all assistance to them by facilitating the process (SOD, 2010). UDMC is theoretical to prepare the management plan, undertake awareness activities, and identify the shelter etc. during normal time. During any disaster, UDMC is responsible for disseminating of early warning, evacuation of affected people, proper distribution of relief etc. As well as UDMC assist affected people for rehabilitation during post disaster (SOD, 2010). Bangladesh utilises structural (embankment, levee, polder, for instance) and non-structural (awareness raising, flood warning, for example) measures for flood prevention and mitigation (Paul, 1997). Yet, it has become evident in recent years that structural methods are neither economically viable, requiring extensive financial investment, nor environmentally

friendly (Custers, 1992; Wescoat and Jacobs, 1993; Haque and Zaman, 1993; Paul, 1997; Hutton and Haque, 2004). Moreover, the country's top-down approaches to planning have repeatedly failed to deliver timely and effective flood mitigation (Ali, 1987; Adnan, 1991; John, 1998; Mirza et al., 2001; Paul and Routray 2010). But, a well prepared organization will be aware of the fact the range of extreme event may be growing and will enhance its strategies to reduce people's vulnerability (Aalst and Helmer, n.d.). In Bangladesh, it is known that UDMC are not effective in respect of SOD execution. There is also having lack of coordination, proper monitoring and gaps between theory and practice. Connection of gaps between theory and practice, the researcher aims to explore the possible ways of making SOD functional at union level. In Bangladesh, a lot of research has been carried out but this kind of study has not yet been undertaken in good number.

1.3. Rationale of the research

Researchers and international community have marked Bangladesh as high vulnerable country to the effect of flood disaster. Country's socio-economic development is facing challenges posed by the unpleasant impact of flood. So flood disaster is treated as threat to growth and development. A prominent portion of these disaster induced challenges are also posing strain on the local level like union parishad regular activities. The attentiveness of local level organization is very important (Ahmmad, 2012). The government of Bangladesh has given remarkable attention on disaster issues in her policy directions. According to SOD, there is a provision for preparing and implementing separate action plans for disaster management at national and local level. UDMC is close to the community and it bears the overall responsibilities of execution of Standing Orders on Disasters (SOD) at field/community level. So, fully functional of UDMC can play an important role to reduce the vulnerability of any kind of disaster. But the people of flood prone areas are suffering a lot from flood disaster, on the other hand government spend huge amount of money to such ineffective flood management. The pre-disaster preparation, warning and forecasting, rescue operation and relief and rehabilitation processes are ineffective in many cases (Shajahan and Reja, 2011).

In Bangladesh, numbers of researches has been carried out on flood related issues which mostly paid attention to the structural measures of flood mitigation. Besides,

few literatures are also available on human adjustment to flood (Rashid and Paul, 1987; Rashid, 1993; Haque and Zaman, 1993; agricultural coping pattern and adjustment strategies (Islam,1980; Paul, 1984; Rashid and Mallik,1995); coping with riverbank erosion hazard (Haque and Zaman, 1990; Mamun, 1996); agricultural and non agricultural adjustment and mitigative measures to droughts (Brammer, 1987; Paul, 1992; Rahman, 1995); can Bangladesh be Protected from flood? (Brammer, 2004) and indigenous practices for flood mitigation (Paul and Routray 2010) but this kind of study has not yet been undertaken in good number.

In this study, the researcher aims to find out the gaps between theory and practice and explore the possible ways of making SOD functional at union level. Finally, findings of the study may help policymakers, planners and researchers to formulate effective strategy to minimize the adverse impacts of flood disaster.

1.4 Objectives of the research

The main objective of this study is to examine the effectiveness of Union Disaster Management Committee for flood disaster .To achieve the main objectives, there has been set the following objectives:

1. To assesses the execution of SOD at union level.
2. To explore the possible ways of making SOD functional at union level.
3. To identify gaps between execution and responsibilities of SOD.

1.5 Research Questions

The study seeks answers to the following questions:

- Does the UDMC functional as per direction of SOD?
- What are the possible ways to make SOD more functional?
- What gap exists between what it is expected and what happens in practice?

1.6 Scope of the study

Bangladesh is a disaster prone country and their management is a vast subject. Various ministries and departments are involved in the management of disasters. In the system of management there are three stages e.g. preventive and precautionary activities both long run and short run, operational measures, and post operational relief and rehabilitation matters. According to SOD, there are two levels of organizational structure such as national and local level. UDMC is local level committee. Union Disaster Management Committee is the main focus of the study. The effectiveness of UDMC is the main scope of this study. In this connection, the research intends to assess the execution of SOD and to explore the possible ways of making SOD functional at union level. This study will be helpful for policy guide line or further research.

1.7 Limitations of the study

Any kind of research naturally does have some limitations. The limitations arise from time requirement, nature of data collection, data collection technique, sampling or findings of data etc. Union Disaster Management Committee is the main focus of the study. The researcher has recognized some limitations for the present study. The study has been undertaken only in two Unions. There are huge number of research has been taken on disaster management but has not been undertaken in good number on UDMC. The accuracy of information is one of the limitations. The local people, and local representative felt hesitate to disclose their current situations and problems. Limited time and resources have been allotted for the completion of this study also. Many of women denied to give any interview and those who were not reluctant were found hesitant in their responses.

CHAPTER TWO

REVIEW OF LITERATURES

2.1 Operational Definition

Adaptation – The adjustment in natural or human systems in response to actual or expected climactic stimuli or their effects, which moderates harm and exploits beneficial opportunities (SOD, 2010).

Alert and Warning Phase – The period from the issuing of an alert or public warning of an imminent disaster threat to its actual impact, or the passing of the threat and the lifting of the warning. The period during which pre-impact precautionary or disaster-containment measures are taken (SOD, 2010).

Capacity Building: This strategy has targeted a complete review of the roles and responsibilities of disaster management committees (DMCs) at all levels to ensure they reflect risk reduction as well as emergency response functions. A national training curriculum is being developed to ensure that committees receive capacity building training to ensure they understand and can fulfill their functions effectively (NPDM, 2010).

Coordination – The bringing together of agencies and resources to ensure an effective disaster response. It is primarily concerned with the systematic acquisition and application of resources (organizational, personnel and equipment) in accordance with the requirements imposed by the hazard or impact of an emergency. It operates vertically within agencies as a function of the authority (SOD, 2010).

Disaster – A serious disruption to a community caused by the impact of an event that requires a significant coordinated response by the Government and other entities to help the community to recover from the disruption. Disasters are usually associated with severe damage to infrastructure and utilities, death, injuries and homelessness, and can be widespread or contained within a particular sector or subsector (SOD, 2010).

Disaster Management – Arrangements for managing the potential adverse risks and includes defining the risk environment, managing the risk environment and responding to the threat environment (SOD, 2010).

Mitigation – The process of implementing measures that eliminate or significantly reduce the risks associated with potential hazards (SOD, 2010).

Normal Phase (Normal Time) – A period when there is no immediate threat but long term actions are required in anticipation of the impact, at some unknown time in the future, of known hazards (SOD, 2010).

Post-Disaster Phase – The period following the emergency phase, during which actions are to be taken to enable victims to resume normal lives and means of livelihood, and to restore infrastructure, services and the economy in a manner appropriate to long-term needs and defined development objectives. Recovery encompasses both rehabilitation and reconstruction, and may include the continuation of certain relief (welfare) measures in favor of particular disadvantaged, vulnerable groups (SOD, 2010).

Preparedness – Measures that are designed to ensure that communities will have the knowledge and understanding of their risk environment to enable them to better cope with potential hazard impacts (SOD, 2010).

Recovery – Measures that are designed to develop the systems required to support affected communities in the reconstruction of their physical infrastructure and restoration of their emotional, economic and physical well being (SOD, 2010).

Relief – Includes money, food, medicine, shelter, clothes or any other public or private assistance provided to people and communities to overcome the effects of a disaster event (SOD, 2010).

Risk – The measure of the likelihood of harmful consequences arising from the interaction of hazards, vulnerable community elements and the environment (SOD, 2010).

Standing Orders on Disaster – Refers to standing orders issued by the National Disaster Management Council under the direction of the Government (SOD, 2010).

Vulnerability – A measurement of community elements at risk that are exposed to specific hazards, both natural and human-induced, and that have a low level of resilience to cope with the impacts of that hazard or characteristics of that hazard (SOD, 2010).

2.2 Concept of Effectiveness

The degrees to which objectives are achieved and the extent to which targeted problems are solved. In contrast to efficiency, effectiveness is determined without reference to costs and, whereas efficiency means "doing the thing right," effectiveness means "doing the right thing" (Business dictionary, 2012). Effectiveness is the capability of producing a desired result. When something is deemed effective, it means it has an intended or expected outcome, or produces a deep, vivid impression (Wikipedia, 2012). The degree to which something is successful in producing a desired result; success: the effectiveness of the treatment (Oxford Dictionary, 2012).

The study entitled "*Measuring the Effectiveness of Disaster Management Organizations*" proposes introducing the 'client stakeholder' as a partner in measuring public sector disaster management effectiveness. Combining multiple constituency and goal attainment theories, an analysis was made of Israel's Home Front Command. Combining responses of key managers in this disaster agency along with those of a representative national sample of Israel's urban population, effectiveness was measured by matching stated organizational goals against the perception of their provision by client-stakeholders. Effectiveness is evaluated in both ways such as organizational effectiveness based on internal performance measures and client-stakeholder perception about disaster management organization (Kirschenbaum, 2004).

In Turkey many problems in organizing a proper disaster management and response system are institutional and organizational. Absence of a single organizational structure paying attention on disaster management, including all disaster management aspects, considerably exacerbated the impacts of disasters. The disaster risk reduction system of Turkey is mainly centralized. The legal regulations do not specify any administrative role for the municipalities, NGOs, professional organizations, headmen (muhtars) and citizens, but holds them responsible for carrying out the duties assigned by the central authority. As a result of the current fragmented and poorly coordinated approach to disaster management, there is no integrated national disaster management strategy or plan that supports local level responses to emergencies and disaster mitigation in the long-term. To overcome the problem, DM Trainings should be included in the National Education Program. NGOs can be the executive

organizations for some community-based programs. Also the disaster management system should be introduced to related fields of university degrees and should be a National Disaster Management Plan (Baris, 2009).

Most of the UDMCs are not functional due to various reasons like lack of awareness, lack of resources, and absence of proper monitoring etc. In order to make SOD fully operational and strengthening UDMCs, UDMC members should be trained up for local risk reduction planning. Political commitment, allocation of resources, establishing proper monitoring system and Disaster Management Act are the issues which need to be addressed immediately for implementing Standing Orders on Disaster (SOD) at Union Level (Rashid, 2008).

Effectiveness of the committee system depends upon the extent of expertise of the committee in a given policy area tough stable membership; the ability of the committee to represent diversity and reconcile differences to identify concrete recommendations; The significance of the area at responsibility of the committee; The degree of other legislators and the people to influence the legislative outcomes of the committee (Cheema, 2006).

According to Collegiate Project Services, 2006, Effectiveness of the committee system depends upon the eight factors such as results , commitment/morale, a clear charter (written), internal communication (ground rules, open communication, trust) and external communication (e.g., the committee develops and implements a communication plan to various stakeholders) , leadership sharing, group processes(meetings, group decision making, group problem solving, and conflict reduction) ,structure of the committee (i.e., committee size, committee member) and support includes a budget, discretion to act on its own (within boundaries), release from other duties, a supportive management sponsor, appropriate extrinsic and intrinsic rewards, a meeting space, access to needed resources, psychological encouragement etc (Collegiate Project Services, 2006).

Typically committees don't work well for many of the same reasons boards don't function effectively: the lack of long-term agendas, reliance on poor or incomplete information, and the failure to distinguish between board level and operational issues. Therefore committees can benefit from many of the same approaches that make board meetings more effective: an overview by the committee chair at the beginning of each meeting, a strategic focus for discussions, prioritized agendas, annual calendar of committee meetings and major decisions, consent agendas, and evaluation of committee meetings. (Richard, C., 1996)

According to the above discussion, it is found that the effectiveness of UDMC depends on some factors. From the reviewed literature the researcher find out the following factors, such as-awareness level of committee members, performance level of SOD execution; especially on responsibilities, meetings and commitments etc. It also tries to analyze of the stakeholders perception about UDMC.

2.3 Major Disaster in Bangladesh

Bangladesh is exposed to natural disaster, such as, floods, river erosion, cyclones, droughts, tornadoes, cold waves, earthquakes, drainage congestion/water logging, arsenic contamination, salinity intrusion etc (NPDM, 2010).

Outline of Most Severe Disasters

2.3.1 Cyclones and Storm Surges

Tropical cyclones from the Bay of Bengal accompanied by storm surges are one of the major disasters in Bangladesh. The country is one of the worst sufferers of all cyclonic casualties in the world. The high number of casualties is due to the fact that cyclones are always associated with storm surges. The 1970 cyclone is the deadliest cyclone that has hit Bangladesh coastline. Yet another worst cyclone which hit Bangladesh coast on April 1991 killed 0.14 million people and property damages were more than two billion US dollars. The cyclone of 1876, 1919, 1961, 1963, 1965, 1985, 1988, 2007(SIDR) and 2009 (Aila) were also of severe nature (NPDM, 2010).

Table-2.1: Major Cyclones and Storm Surges

Date		Maximum Wind speed (km/hr)	Storm Surge height (meters)	Death Toll
11 May	1965	161	3.7-7.6	19279
15 December	1965	217	2.4-3.6	873
01 October	1966	139	6.0-6.7	850
12 November	1970	224	6.0-10.0	3000000
25 May	1985	154	3.0-4.0	11069
29 April	1991	225	6.0-7.6	138882
19 May	1997	232	3.1-4.6	155
15 November(SIDR)	2007	223	--	3363
25may (AILA)	2009	92	--	190

Source: NPDM, 2010

2.3.2 Droughts

Bangladesh faces unpredictable drought hazard in the dry monsoon due to inadequate and uneven rainfall. It varies from place to place, however, and the northwestern region suffers most from the drought. As much as 17% of the Aman crops, the main paddy crops in the wet season, may be lost in a typical year due to drought. Though this is an annual phenomenon, the last severe drought faced by Bangladesh was in 1994. Between 1949 and 1991, droughts occurred in Bangladesh 24 times. Very severe droughts hit the country in 1951, 1957, 1958, 1961, 1972, 1975, 1979, 1981, 1982, 1984 and 1989. In 1979 the country was hit by a severe drought, which was termed by many as the worst in the recent past (NPDM, 2010).

2.3.3 Tornado

Tornadoes during pre-monsoon period hit Bangladesh and cause localized devastation, both in terms of lives and properties. There are severe local seasonal storms, popularly known as Nor'westers (kalbaishakhi). Severe Nor'westers is generally associated with tornadoes. The frequency of devastating Nor'westers usually reaches the maximum in April, while a few occur in May, and the minimum in March. Nor'westers and tornadoes are more frequent in the afternoon (NPDM, 2010).

Table-2.2: Major Nor'westers and Tornadoes

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

Source: NPDM, 2010

2.3.4 Earthquake:

Bangladesh and the northeastern Indian states have long been one of the seismically active regions of the world, and have experienced numerous large earthquakes during the past 200 years. A seismic zoning map of Bangladesh has been proposed in 1979 by Geological Survey of Bangladesh (GSB) dividing the country into three seismic zones which was accompanied by an outline of a code for earthquake resistant design. Later, a new updated seismic zoning map and detailed seismic design provisions have been incorporated in Bangladesh National Building Code (BNBC 1993). A seismicity map of Bangladesh and its adjoining areas has also been prepared by BMD and GSB (NPDM, 2010).

Table-2.3: Major Earthquakes

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

Source: NPDM, 2010

2.3.5 Salinity Intrusion

Saline water intrusion is mostly seasonal in Bangladesh; in winter months the saline front begins to penetrate inland, and the affected areas rise sharply from 10 percent in the monsoon to over 40 percent in the dry season. Coastal districts such as Satkhira, Khulna, Bagerhat, Barguna, Pataskala, and Barisal are the victims of salinity intrusion. Agricultural production, fisheries, livestock, and mangrove forests are

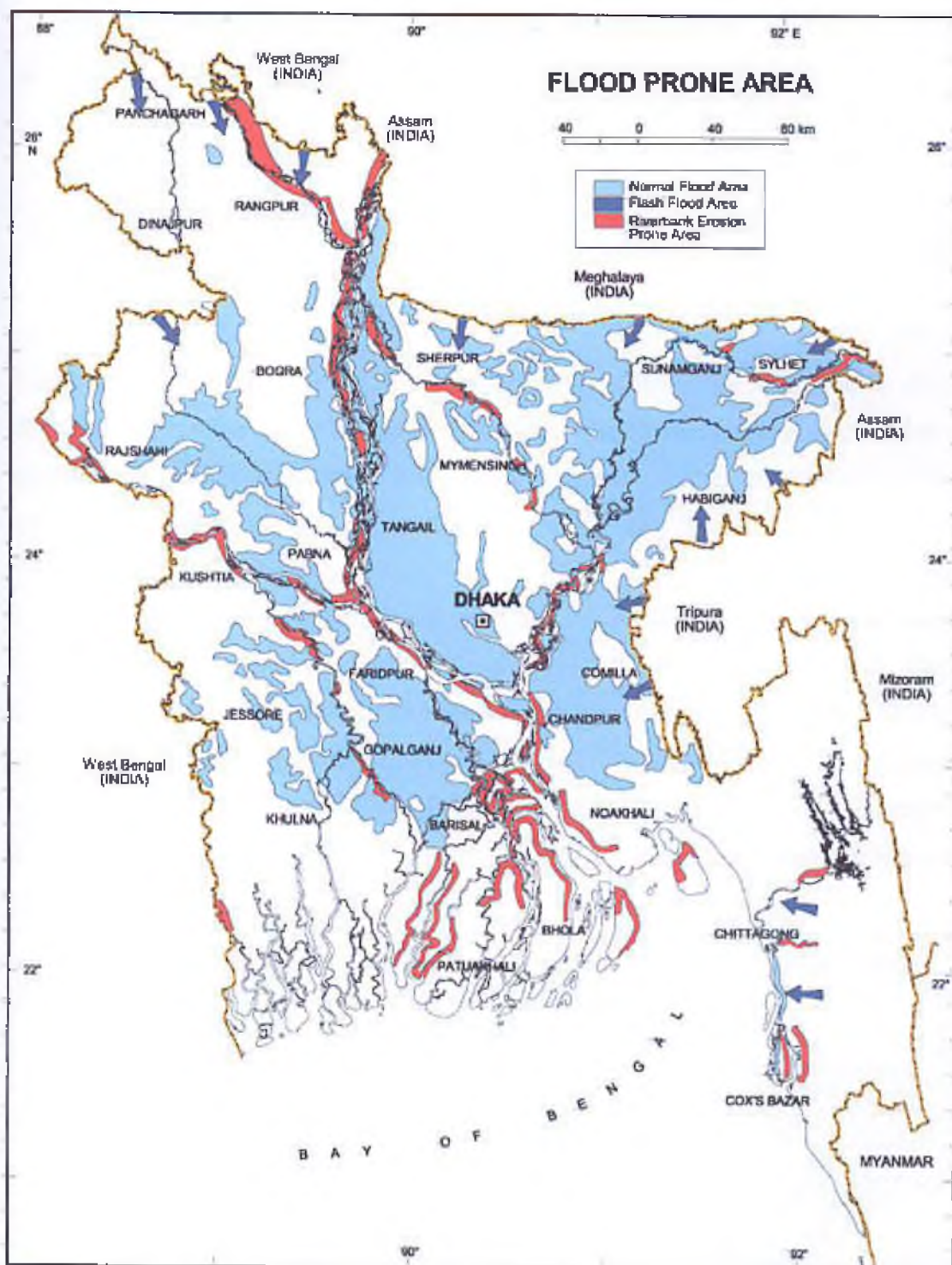
affected by higher salinity in the dry season. It is observed that dry flow trend has declined as a result of which sea flow (saline water) is traveling far inside the country resulting in contamination both in surface and ground water (NPDM, 2010).

2.3.6 River Bank Erosion

This is an ongoing disaster and there is no specific indicator to measure the extent of damage. So the extent of damage caused by river erosion in most cases is based on various reports/information. Needless to say whatever the difference in ascertaining the extent of damage river erosion causes huge loss of property throughout the year. According to "World Disaster Report 2001" published by IFRC every year about 10,00,000 people are affected by river erosion and 9,000 hectare cultivable lands are banished in river. Among these only a few affected people are able to find new shelters while others become homeless for uncertain period (NPDM, 2010).

2.4 Floods in Bangladesh

Flood in Bangladesh is almost an annual feature of peoples' life due to its geographical locations to a large extent. The major river systems, including the Ganges, the Brahmaputra and the Meghna, pass through Bangladesh to reach the Bay of Bengal. Floods inundate a substantial part of Bangladesh every year from July to September. In a "normal" year about 20 percent of the country is affected but under extreme conditions as much 60-70 percent of the country would be inundated. Frequent flooding exacts a heavy toll especially on poor families in low-lying areas, who either lose their lives or lose what few assets they have carefully accumulated (Hassan 2004). During the last half-century, at least eight extreme flood events occurred affecting 50% of land area (Brammer, 2000). These extreme events are generated by excessive rainfall in the catchments. Duration of these extreme events normally extends from 15 days to 45 days (Miah, 1989). This was observed during the flooding of the past two decades, extensive flooding has occurred in Bangladesh (in 1987, 1988, 1998, 2004) leading to colossal damages to private and public assets, infrastructure and the destruction of crop yields (Paul and Routray, 2010).



Map 2.1: Flood prone areas of Bangladesh. (Source: Banglapedia, 2004).

2.4.1 Flood Types

Classification: Floods can be classified in four main types. These are

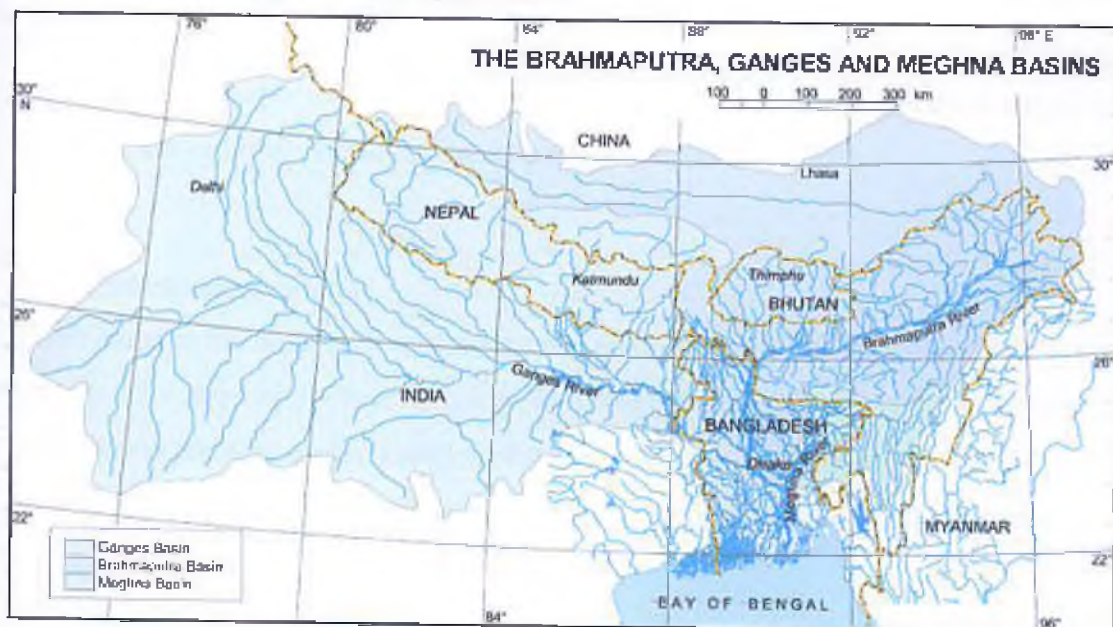
- Flash floods
- River floods
- Rainwater floods
- Storms-surges floods

2.4.1.1 Flash Floods

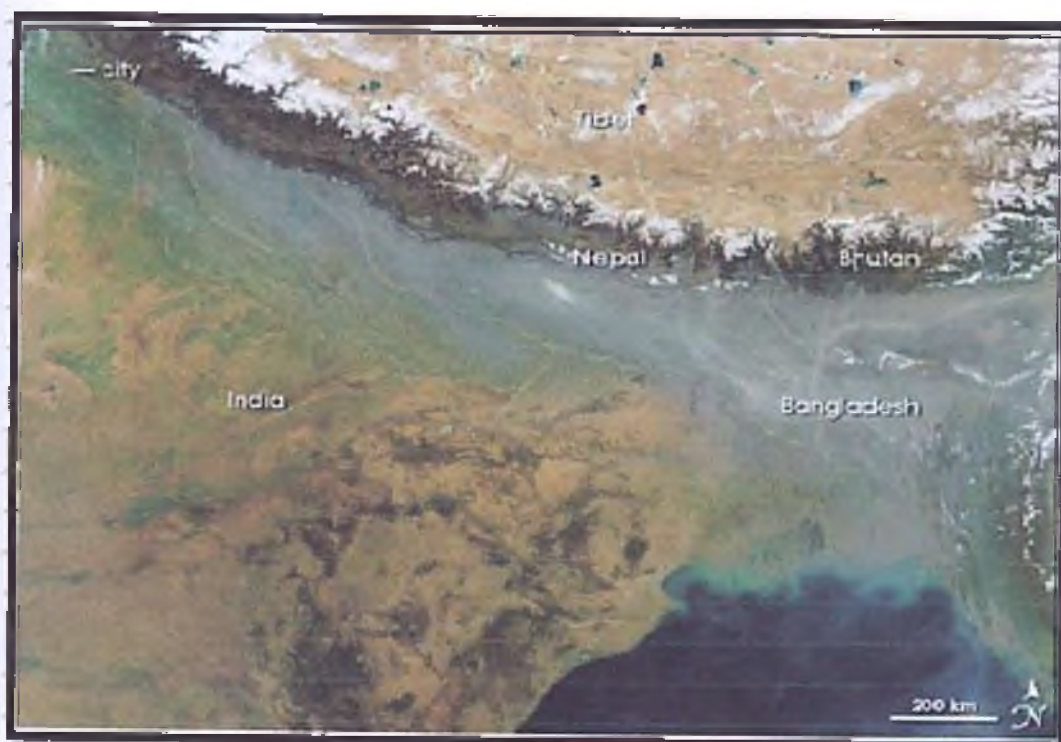
Flash floods rise and fall rapidly, usually within a few days. They occur both in river channels and on some floodplain and valley land. Water levels in some eastern rivers can rise by several meters within 24-48 hours. They can occur at any time during the rainy season, mainly between April and October. (Brammer, 2004)

2.4.1.2 River Floods

River floods are floods occur (except flash floods) which take place when rivers overflow their banks damages crops or property on adjoining flood plain land. They consequence from snow-melt in Himalayas and heavy monsoon rainfall over the Himalayas, the shilling plateau, the Asam-Tripura Hills, and the upper Brahmaputra and Ganges Floodplains outside Bangladesh (Brammer, 2004). The peak flood levels in the Brahmaputra-Jamuna river normally occur about end-July. Those in the Ganges occur about end-August or end-September.



Map-2.2: The Brahmaputra, Ganges and Meghna basins. *Source: Banglapedia, 2004*



Photograph-2.1: Main features of the Bangladesh delta (Source: Google image, 2012).

2.4.1.3 Rainwater Floods

Rainwater flooding and flooding are caused by heavy rainfall occurring over floodplain and terrace areas within Bangladesh. Heavy pre-monsoon rainfall (April-May) causes local run-off water to accumulate in floodplain depressions and in the lower parts of valleys within the Madhupur Tract. Later (June-August), the rising water –levels in major rivers and their distributaries increasingly block the drainage of rainwater run-off from the adjoining floodplains (Brammer, 2004).

2.4.1.4 Storm-surge Floods

Storm surge is the term used to describe the raised sea-level which occurs during the passage of a tropical cyclone. The rise in sea-level is caused partly by reduction in atmospheric pressure on the ocean surface near the center of a cyclone, and partly by the piling up of water near the coast by the force of on-shore winds (Brammer, 2004).

2.4.2 Impacts of major floods

During the rainy season every year an average of 15% of the total geographical area is inundated by floods. Floods in 1988, 1998 and 2004 caused huge damage of resources amounting 10.6 billion dollars. Only in 2007 flood a total of 46 districts were affected to varying degrees. The flood inundated about 32000 Sq Km including the char areas of 6000 sq km affecting almost 16 million people in around 3 million households (ICCR, 2010).

Floods are devastating recurring phenomena in Bangladesh. Flood scenario Bangladesh from 1954 to 2007 is presented below:

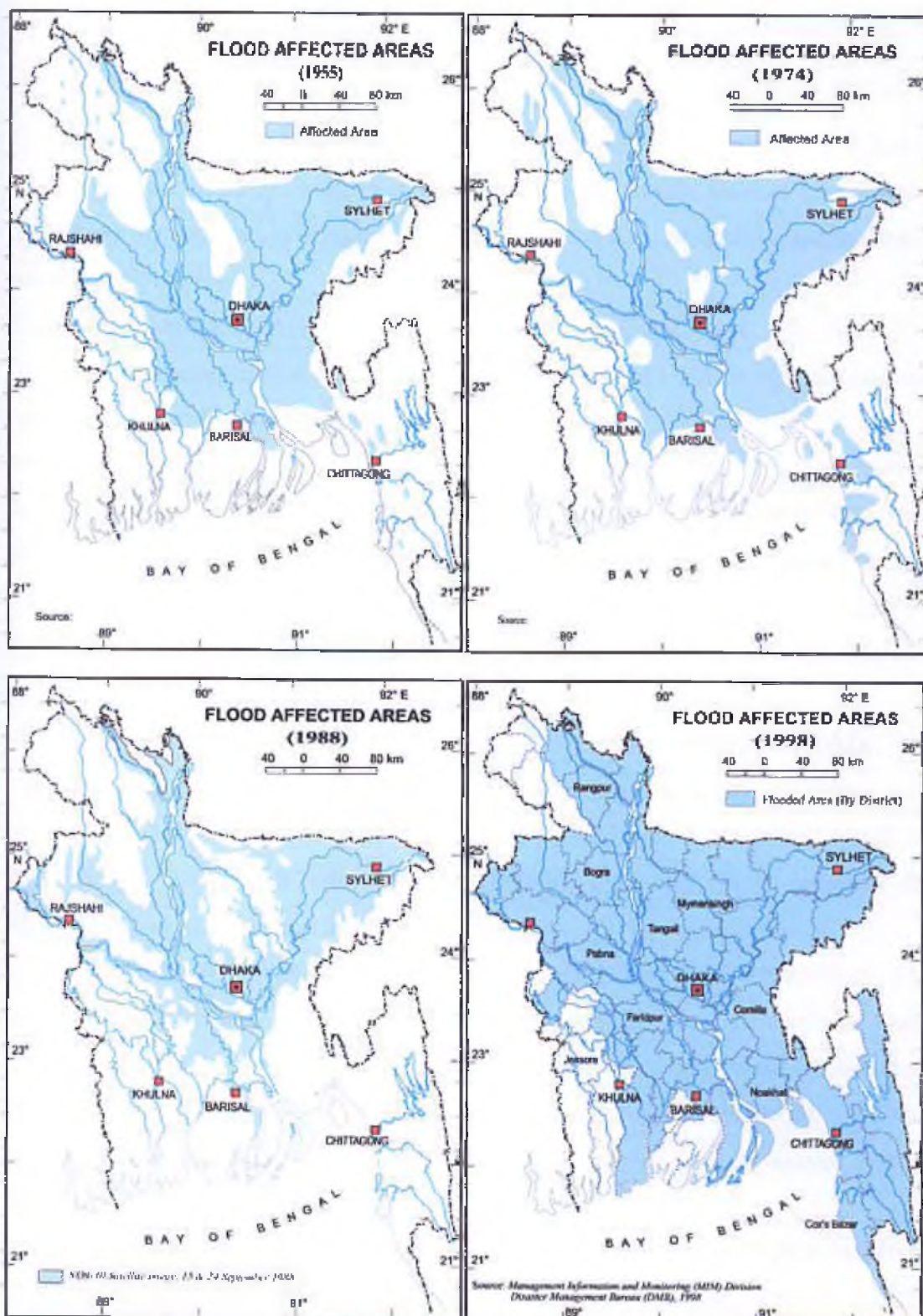
- The flood of 1988 during August-September inundated 90,000 sq. Km. Areas of 52 districts of the country.
- The 1998 flood in Bangladesh with unprecedented duration of 65 days inundated 53 districts covering about 100,200 sq. Km. Areas and it took lives of 918 people;
- The severe floods of 1922, 1954, 1955, 1974, 1984 and 1987 are worth mentioning.
- Flood 2007 claimed lives of 970 persons.

Table-2.4: Affected by Flood from 1954-2007

Year	Area flooded (sq.km)	No of Dead people	Year	Area flooded (sq.km)	No of Dead people	Year	Area flooded(sq.km)	No of Dead people
1954	36800	N/A	1971	36300	N/A	1987	57300	1470
1955	50500	N/A	1972	20800	N/A	1988	90000	1621
1956	35400	N/A	1973	29800	N/A	1989	6100	23
1957-59	N/A	N/A	1974	52600	N/A	1990	3500	41
1960	28400	N/A	1975	16600	N/A	1991	28600	818
1961	28800	N/A	1976	28300	N/A	1992	2000	
1962	37200	N/A	1977	12500	N/A	1993	28700	162
1963	43100	N/A	1978	10800	N/A	1994	400	10
1964	31000	N/A	1979	N/A	N/A	1995	32000	246
1965	28400	N/A	1980	33000	N/A	1996	35800	76
1966	33400	N/A	1981	N/A	N/A	1997	N/A	125
1967	25700	N/A	1982	3100	N/A	1998	100200	918
1968	37200	N/A	1983	11,100	N/A	1999	32900	15
1969	41400	N/A	1984	28200	N/A	2000	35700	37
1970	42400	N/A	1985	11400	N/A	2004	N/A	747
--			1986	6600	57	2007	32000	970

Source: Adapted from Brammer, 2004; ICCR, 2010.

*N/A- Data not available



Map-2.3: Flood affected areas of Bangladesh in different years. Source: Banglapedia, 2004.

2.5 Asian Countries Disaster Management Legal and Institutional Framework

2.5.1 Disaster management framework of India

The vision of National Policy on Disaster Management 2009 is to build a safe and disaster resilient India by developing a holistic, proactive, multi-disaster oriented and technology driven strategy through a culture of prevention, mitigation, preparedness and response.

Disaster Management Act, 2005, lays down institutional, legal, financial and coordination mechanisms at the National, State, District and Local levels. Institutional Framework under the Act is given below:

National Disaster Management Authority (NDMA) as the apex body for disaster management is headed by the Prime Minister. NDMA has the responsibility for laying down policies, plans and guidelines for DM and coordinating their enforcement and implementation for ensuring timely and effective response to disasters. It will approve the National Disaster Management Plans and DM plans of the Central Ministries/Departments.

National Executive Committee (NEC) is the executive committee of the NDMA. The NEC is to coordinate the response in the event of any threatening disaster situation or disaster. The NEC will prepare the National Plan for Disaster Management based on the National Policy on Disaster Management. The NEC will monitor the implementation of guidelines issued by NDMA.

State Disaster Management Authority (SDMA) is headed by the Chief Minister, will lay down policies and plans for DM in the State. The State Government shall constitute a State Executive Committee (SEC) to assist the SDMA in the performance of its functions. The SEC will be headed by the Chief Secretary to the State Government and coordinate and monitor the implementation of the National Policy, the National Plan and the State Plan.

District Disaster Management Authority (DDMA) is headed by the District Collector, Deputy Commissioner or District Magistrate as the case may be, with the elected representative of the local authority as the Co- Chairperson. The DDMA act as the planning, coordinating and implementing body for DM at the District level and take all necessary measures for the purposes of DM in accordance with the guidelines laid down by the NDMA and SDMA. It will, inter alia prepare the District DM plan for

the District and monitor the implementation of the National Policy, the State Policy, the National Plan, the State Plan and the District Plan(NPDM,2009).

2.5.2 Disaster management framework of Pakistan

The NDMA, 2010 endow with comprehensive institutional system to deal with whole spectrum of disaster management at federal, provincial and district levels. National Disaster Management Commission (NDMC) headed by the Prime Minister of Pakistan is an apex body for policy making in the field of disaster management. National commission is a well representative body having members from all federating units, ministries, armed forces and civil society. National Disaster Management Authority (NDMA) acts as the secretariat to NDMC and is responsible for policy implementing, resources mobilization & allocation and coordination with UN/donors/other countries and organizations. National Institute of Disaster Management (NIDM) has been established to build capacities to prepare the disaster managers, at all levels, to effectively and efficiently respond to disasters. Provincial Disaster Management Commission (PDMCs) and Provincial Disaster Management Authority (PDMA) has the similar role at the provincial/regional level. District Disaster Management Authority is the lowest tier mandated to respond to all disaster on ground (NDMA, 2010).

2.5.3 Disaster management framework of Sri Lanka

Unprecedented destruction caused by the 2004 tsunami reconfirmed the need for multi-sectoral, inter-institutional and multi-disciplinary approaches to manage disaster risks in Sri Lanka. As a result, the government, civil society organisations and international agencies have acted collectively for a comprehensive and pro-active disaster risk management framework instead of post-disaster relief emphasis. In May 2005, the Sri Lanka Disaster Management Act No 13 of 2005 was enacted providing a solid legislative and institutional arrangement for Disaster Risk Management.

This Act establishes a powerful National Council for Disaster Management (NCDM) under the President, vice chaired by the Hon. Prime Minister with participation of the Leader of the Opposition, Ministers, Provincial Council Chief Ministers and five members of the opposition to provide direction for Disaster Risk Management (DRM) efforts of the country. The Disaster Management Centre (DMC) was established in July 2005 to implement the directives of NCDM. In November 2005, the Ministry of

Disaster Management was established under the Prime Minister to take the lead role in directing the strategic planning for disaster response, risk mitigation, preparedness planning and risk reduction. In December 2005, the Ministry of Disaster Management declared a comprehensive framework (Jayawardane.n.d).

2.5.4 Disaster management framework of Japan

In the 1940s and 1950s Japan was frequently ravaged by typhoons and earthquakes. In 1961 the Disaster Countermeasures Basic Act was passed due tremendous damage of Isewan Typhoon in 1959. In 1995 the occurrence of the Hanshin Awaji Earthquake forced a revision of the 1961 Act to focus more on countermeasures and prevention, resulting in a new Disaster Countermeasures Basic Act in 1995. The Expert Committee on Earthquake and Tsunami Disaster Management prepared a report to document facts and findings from the Great East Japan Earthquake (GEJE) experience. In response to this report, the Japanese government amended the Basic Disaster Management Plan on December 27, 2011, aiming to enhance countermeasures against multi hazard, high- impact events. It is the master plan and the basis for DRM activities in Japan. It is prepared by the Central Disaster Management Council in accordance with the Disaster Countermeasures Basic Act. The plan clarifies the duties of the central government, public corporations, and local governments in implementing measures. The plan also describes the sequence of disaster countermeasures such as preparation, emergency response, recovery, and reconstruction for various types of disasters. Based on the Basic Disaster Management Plan, every designated government organization and public corporation draws up a Disaster Management Operation Plan; and every prefectural and municipal disaster management council prepares a Local Disaster Management Plan (ADRC, 2012).

2.5.5 Disaster management framework of Philippines

There is a long tradition of formal disaster management systems and structures in the Philippines. Disaster management was considered an integral part of national defense so it was embedded there. This history is difficult to change, although there is consideration of moving the function to the Office of the President. In 1954 Republic Act RA1190 (the Civil Defense Act) came into being, establishing the National Civil

Defense Administration (NCDA), under the Office of the President. Act RA1190 also created civil defense councils at national and local levels. Executive Order EO159 (November 1968) required the establishment of a disaster control organization by all government offices including departments, bureaus, offices, agencies, instrumentalities and political subdivisions of government, including all corporations owned and/or controlled by government. President Marcos approved a Disaster and Calamities Plan in 1970. The Office of Civil Defense (OCD) was established in 1972, by Letter of Instruction LI19, which was mandated to coordinate national level activities and functions of the national government, private institutions and civic organizations. Presidential Decree PD1566, promulgated on 11 June 1978 is the current basis of the Philippines' disaster management arrangements. PD1566 provides for the National Disaster Coordinating Council (NDCC) as the highest policy-making body on matters pertaining to disasters, advising the President (NDRMP).

2.5.6 Disaster management framework of Vietnam

In 2007, the Prime Minister of Vietnam ratified the National strategy for disaster prevention and mitigation until the year 2020 with the goal to mobilize every resource to prevent and mitigate natural disasters, minimizing human and material loss, limiting the damage to the environment and cultural heritage, contributing to the sustainable development of the country. In implementation of this strategy, Viet Nam government continues to build and complete all the legal documents concerning disaster management; check and make necessary amendments. Viet Nam has also promulgated many policies concerning disaster prevention and mitigation such as:

- Policies for a forestation, protection; forest management and exploitation
- Policy on natural resources protection
- Policy on water resources management
- Policy on environmental protection and sustainable development
- Policies for flood diversion and retention and dredging riverbed for flood release
- Policy for disaster aftermath recovery in affected areas
- Policy for support of the victims and their families affected by disasters (3RD AIPA CAUCUS REPORT).

Natural disaster institutional structure in Vietnam

Central Committee for Flood and Storm Control (CCFSC) is the national standing agency for disaster risk management. However, this committee operates at ad hoc basis. It is composed of representatives (leaders) from ministries, mass organizations, media agencies (Vietnam Television and Voice of Viet Nam), and some technical agencies (Global Physics Institute, the Hydro-meteorological Services). It meets once a year to review the disaster risk management issues of the past year and to plan for the coming year. The Deputy Prime Minister is assigned to be in resident leader of the whole country's disaster risk management including: approve legal documents, order for response, call for support; mobilize military and policy, etc (AMDI, 2011).

The People's Committee is the body responsible for the prevention and mitigation of natural disasters in their management territory. Local committee for the Prevention and Flood and storm is established by the Chairman of the People's Committees, is responsible for supporting the People's Committees in implementation of the prevention of floods and storms in the local scope (VCR, 2012).

2.5.7 Disaster management framework of Nepal

The legal framework for disaster management has a long history in Nepal with the Natural Calamity (Relief) Act 2039 promulgated in 1982. This Act allocated the responsibility for preparing and responding to disasters in Nepal. The Act, for the first time in history of Nepal, provided for a disaster management administrative structure in the country. To effective disaster management, following initiatives have been taken.

- Disaster Relief Implementation Manual, Food and Agriculture Working Group, November 2001
- Disaster Relief Implementation Manual, Logistics Support, November 2001
- Hyogo Framework of Action 2005-2015

Natural disaster institutional structure in Nepal

At the central level, it constituted the Central Disaster Relief Committee (CDRC) with the Minister of Home Affairs as the Chair comprises of 27-member. CDRC has been meeting regularly at least twice a year - before the floods to take stock of the flood preparedness status and to augment it, and immediately after to evaluate the response.

During the 1988 earthquake affecting eastern Nepal and the 1993 floods in south-central Nepal, Regional Service Centre established respectively at Biratnagar and Simara provided relief coordination demonstrating the usefulness of setting up regional committees to coordinate relief activities related to more than one district. District Disaster Relief Committees (DDRC) is a permanent outfit at the district level to coordinate relief and preparedness. DDRC is chaired by the Chief District Officer (CDO) who is the main administrative functionary to maintain law and order at the district level. The Local development Officer (LDO) – the district level officer of the Ministry of Local development, who coordinates development works with the elected bodies at the district level, is the member-secretary of DDRC (NSDRMN, 2009)

2.6 Disaster Management Framework in African Countries

2.6.1 Disaster Management Framework in South Africa

Disaster management activities were governed by the Civil Protection Act No. 67 of 1977 till 1994. The 1996 Constitution of South Africa defines the role of the national, provincial governments and local governments. The first integrated policy on disaster management was the Green Paper on Disaster Management which was published as an extension of the Civil Protection Act. Next was the White Paper on Disaster Management which enshrines the cooperative, proactive and integrated approach to disaster risk management, training and awareness through participation of all relevant stakeholders. Specific goals of the White Paper included creation of the National Disaster Management Centre, improvement of disaster prevention in the poor and disadvantaged areas, creation of an adequate funding system; and information channels to communities. The guiding principles of disaster management were then summarized and responsibilities defined in the Disaster Management Act No. 57 of 2002. According to the DMA, President of the Republic of South Africa establishes the Intergovernmental Committee on Disaster Management (IGCDM). The IGCDM is accountable to the cabinet. The National Disaster Management Centre (NDMC) is established in terms of functions include monitoring of disasters, mobilization of resources and coordination and response to disasters; maintaining a repository of information on disasters, and database of relevant stakeholders. The NDMC is required to publish annual reports on its activities and submit this to the Minister. All

organs of state must submit disaster management plans to the NDMC according to the guidelines developed by the centre. Role of the Provincial government in disaster management is specified by the act. Premier of a given province puts one Provincial Minister in charge of disaster management in that province. District municipalities have a disaster management committee/centre. As with the provincial structures, the municipal disaster management structures and their responsibilities are analogical to the national counterparts, but have different jurisdictions (Zuma et al, 2012)

2.6.2 Disaster Management Framework in Nigeria

Disaster Management in Nigeria can be dated back to 1906 when the Fire Brigade was established. In the 1960s and 70s, this gracious and systematic approach was replaced with ad-hoc arrangements domiciled in the offices of the Head of State and the state Governors. In 1972/1973, Nigeria experienced a devastating drought which had negative socioeconomic consequences and cost the nation the loss of many lives and property. This event amongst others led to the establishment of the National Emergency Relief Agency (NERA) in 1976 with the mandate of collecting and distributing relief materials to disaster victims. An Inter-Ministerial body was set up by the Federal Government of Nigeria (FGN) in 1990 to address natural disaster reduction strategies in line with the UN International Decade for Natural Disaster Reduction (IDNDR) and to address the limited scope of NERA. In 1993, the FGN decided to expand the scope of managing disasters to include all areas of disasters. Recommendations of NERA on workshop in 1997 by the FGN led to the establishment of the National Emergency Management Agency (NEMA) in March 1999 by Act 12 of 1999 as amended by Act 50 of 1999 to manage disasters in all its ramifications. There also State Emergency Management Agency (SEMA) at the state level and Local Emergency Management Authority (LEMA) at the local government level (NDF).

2.6.3 Disaster Management Framework in Zambia

According to National Disaster Management Act, 2010, Institutional framework of Zambia comprises a national disaster committee, technical committees, specialized subcommittees, provincial disaster committees, and district disaster committees. The functions of this committee is coordination, vulnerability/ risk assessment,

training/capacity building, advocacy, stockpiling, and resource mobilization, needs assessment, impact assessment, and research.

2.6.4 Disaster Management Framework in Sierra Leone

The most specific legal instrument dealing with disaster management is the National Security and Central Intelligence Act No. 10 of 2002, in which the Office of National Security (ONS) was established. The Disaster Management Department is one of seven departments within the ONS created by this act. This department has the mandate to coordinate all issues related to both natural and man-made disasters. It is the central agency responsible for disaster management. The Disaster Risk Reduction (DRR) Division of the Department of Humanitarian Affairs of ECOWAS, Sierra Leone has opted for the establishment of a National Platform on DRR, whose purpose is to mainstream disaster risk reduction into development (IFRC,2012).

2.7 Legal framework of Disaster Management in Bangladesh

The Disaster Management and Relief Division (DM&RD), Ministry of Disaster Management and Relief of Bangladesh have the responsibility for coordinating national disaster management efforts across all agencies. In January 1997 the Ministry issued the Standing Orders on Disaster (SOD) which is amended in 2010 to guide and monitor disaster management activities in Bangladesh.

2.7.1 Disaster Management Act, 2012

Disaster Management Act is enacted in 2012 with a view to create the legislative tool under which disaster risk and emergency management will be undertaken in Bangladesh. It provides mandatory obligations and responsibilities on Ministries, committees and appointments. The objectives of the Act is 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 provide for effective disaster management for Bangladesh; to establish an institutional framework for disaster management; and to establish risk reduction as a core element of disaster management.

2.7.2 The National Plan for Disaster Management, 2010-15

The National Plan for Disaster Management for 2010-2015 is a long desired document based on the global and regional commitment of the Government of Bangladesh and its vision on disaster management. The plan reflects the basic principles of the SAARC Framework on Disaster Management. The key focus of the National Plan for Disaster Management is to establish institutional accountability in preparing and implementing disaster management plans at different levels of the country. Development Plans incorporating Disaster Risk Reduction and Hazard Specific Multi-Sectoral Plans have made this plan an exclusive tool for reducing risk and achieving sustainable development. The plan also will act as basic guideline for all relevant agencies in strengthening better working relations and enhancing mutual cooperation.

2.7.3 Standing Orders on Disaster, 2010

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. 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 Department of Disaster Management will render all assistance to them by facilitating the process.

2.7.4 Bangladesh Climate Change Strategy and Action Plan 2009

The Government of Bangladesh's Vision is to eradicate poverty and achieve economic and social wellbeing for all the people. This will be achieved through a pro-poor Climate Change Strategy, which prioritizes adaptation and disaster risk reduction, and also addresses low carbon development, mitigation, technology transfer and the provision of adequate finance. Accordingly Government has

developed and enacted Bangladesh Climate Change Strategy and Action Plan (BCCSAP) 2009.

2.7.5 Disaster Management Organizational Framework in Bangladesh

The SOD has been prepared with the affirmed objective of making the concerned persons understand their duties and responsibilities concerning disaster management at national and local levels. A series of inter-related institutions, at both national and sub-national levels (Figure-2.1) have been created to ensure effective planning and coordination of disaster risk reduction and emergency response management (NPDM, 2010).

2.7.5.1 Organizational Structure at National Level

National Disaster Management Council (NDMC)

The NDMC is established to provide policy guidance towards disaster risk reduction and emergency response management. The Council is multi-sectoral and interdisciplinary in nature, with public, private and civil society participation involving all concerned entities within a country, including representation from the United Nations. It is headed by the Honourable Prime Minister to formulate and review the disaster management policies and issue directives to all concerns.

Inter-Ministerial Disaster Management Co-ordination Committee (IMDMCC)

IMDMCC is established at the national level to facilitate policy making, planning, programming and implementing measures connecting to disaster risk reduction and emergency response management. It is headed by the Hon'ble Minister in charge of the Minister of Disaster Management and Relief to implement disaster management policies and decisions of NDMC/ Government.

National Disaster Management Advisory Committee (NDMAC)

The National Disaster Management Advisory Committee was formed in 19 November 2009. It is headed by an experienced person having been nominated by the Honourable Prime Minister.

National Platform for Disaster Risk Reduction (NPDRR)

It is headed by Secretary, DM&RD and DG, DDM functions as the member secretary. This platform shall coordinate and provide necessary facilitation to the relevant stakeholders.

Earthquake Preparedness and Awareness Committee (EPAC)

Following the verdict of High Court Division of Supreme Court, dated 29 July 2009, in order to prepare the nation for earthquake risk management, the following Earthquake Preparedness and Awareness Committee was formed in December 2009. Earthquake Preparedness and Awareness Committee (EPAC) headed by Honourable minister for MoFDM and DG, DDM act as member secretary.

Cyclone Preparedness Program Implementation Board (CPPIB)

It is headed by the Secretary, Disaster Management and Relief Division to review the preparedness activities in the face of initial stage of an impending cyclone.

Coordination Committee of NGOs relating to Disaster Management

The Co-ordination Committee of NGOs relating to Disaster Management is headed by DG, Department of Disaster Management. Its main responsibilities are to ensure the co-ordination of disaster management and relief work between governmental and non-governmental agencies and ensure the transmission and preservation of disaster related information.

Cyclone Preparedness Programme (CPP) Policy Committee

It is headed by Honourable 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 Department of Disaster Management (DDM) to coordinate the disaster related training.

Focal Point Operation Coordination Group of Disaster Management (FPOCG)

It is headed by the Director General of DDM 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.

2.7.5.2 Organizational Structure at Local Level

District Disaster Management Committee (DDMC)

It is headed by the Deputy Commissioner (DC) to co-ordinate and reviews the disaster management activities at the district level. Concerned Honourable Member(s) of the Parliament will be the advisor of this DDMC.

Upazila Disaster Management Committee (UZDMC)

It is headed by the Chairmen Upazila Parishad to co ordinate and reviews the disaster management activities at the Upazila level. Concerned Honorable Member of the Parliament will be the advisor of this UzDMC.

Union Disaster Management Committee (UDMC)

UDMC is the grass root level committee in Bangladesh. It is headed by the Chairman of the Union Parishad to co-ordinate, review and implements the disaster management activities of the concerned union

City Corporation Disaster Management Committee (CCDMC)

It is headed by the Mayor of City Corporations to co-ordinate, review and implements the disaster management activities within its area of jurisdiction.

Pourashava Disaster Management Committee (PDMC)

It is headed by Chairman of Pourashava (municipality) to co-ordinate, review and implements the disaster management activities within its area of jurisdiction. Concerned Honourable Member of the Parliament will be the advisor of this Pourashava DMC.

Disaster management strategy of Bangladesh focuses on long term risk reduction, multi-sectoral and multi organizational coordination. It emphasizes on community involvement, but in practice, community level committees are not fully established. The Disaster management system of Bangladesh is not yet financially self reliant. The field level organizations depend on the decisions of the central authorities. Knowledge management is not strong enough. Disaster related training & awareness building and community level capacity building in Bangladesh is not up to the mark.

All the countries have almost same socio-economic condition which faces same types of natural disaster and have same institutional and technological capability. So, practices in these countries are replicable to Bangladesh. The entire successful disaster management framework gave special emphasize on strengthening local level

committee, inter agency coordination and cooperation, capacity building and financial stability. So these can be used as all examples for Bangladesh. Bangladesh Government is taken lots of initiatives to activate UDMCs and to create disaster resilient communities for more successful management of disaster situation.

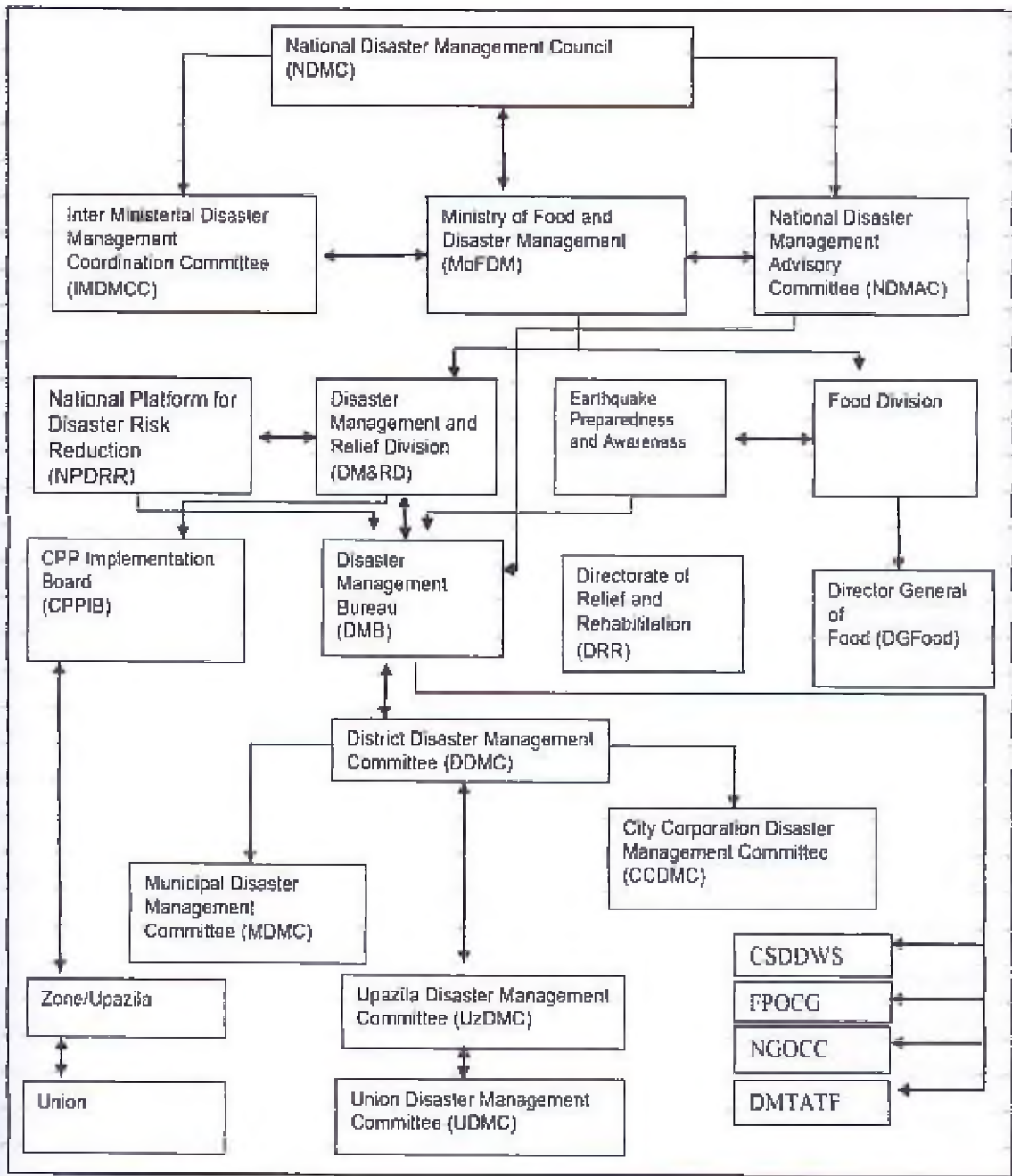


Figure -2.1: Disaster Management Institutions in Bangladesh.

Source: Adapted from NPDM, 2010

CHAPTER THREE

STUDY AREA AND RESEARCH METHODOLOGY

3.1 Research Design and Methods

Methodology describes the procedures to be followed to operationalize the research design for collection and analysis of the information data in conformation with research. In order to obtain the objectives a series of activities are performed. Among them literature review, questionnaire design and conducting survey, data collection and analysis are adopted to conduct the present study. This study is exploratory, descriptive and analytical in nature. Overall research design of this study is presented in Figure-3.1

3.2 Data Sources

3.2.1 Primary Data

Primary data has been collected through questionnaire from 60 Respondents from two unions .50% respondent are Union Disaster Management Committee (UDMC) members and 50% are service receiver. For this reason two separate questionnaires developed for Survey in study unions. Later on the questionnaires were tested as a pre survey in the study area. Based on the lesson learned from pre testing, the questionnaires were finalized and used for data collection. The questions were both open and close ended. Some parts of it were designed to get opinions and comments on specific issues from the research participants, to get in-depth knowledge and insight. A set of questionnaire have been used for interviewing Upazila Nirbahi Officer (UNO) and Project Implementation Officer (PIO) of Bera Upazila, Pabna. The required data has been collected completely through field visit. Field visits were made during the months of January 2013 in both the location simultaneously.

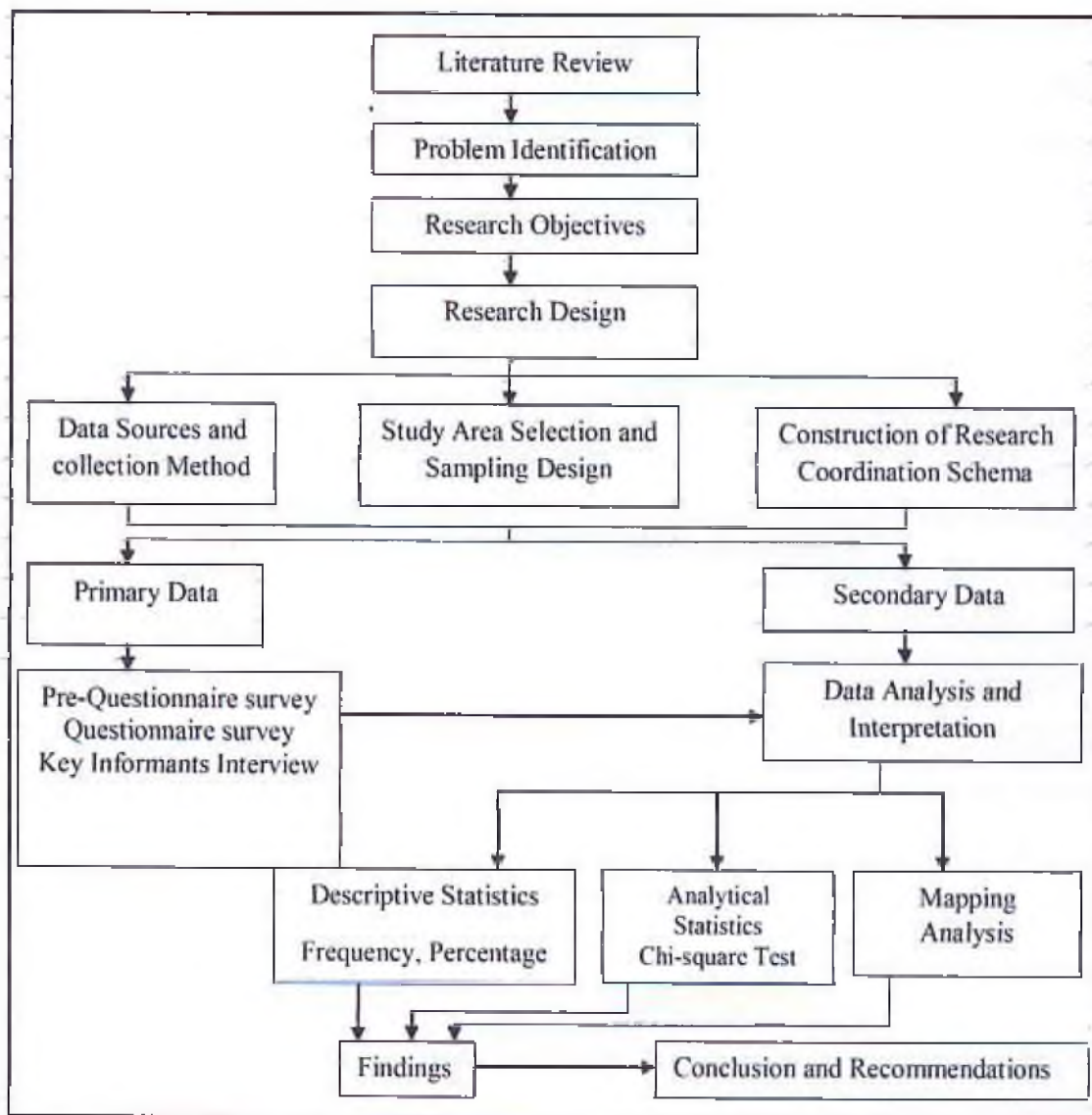


Figure-3.1: Research design

3.2.2 Secondary Data

To give good insight about the research topic, secondary data has been gathered through content analysis. It is used for the reanalysis of previously collected and analyzed data. Secondary data is collected from journal articles, published books, government documents, policy papers, manuals, maps, internet documents etc. The books and published documents relevant to the study were collected from various sources like from web-link, Institute of Governance Study's library, BPATC library, Bangladesh Civil Service Administration Academy library, JICA, World Bank and different national dailies.

3.3 Data Collection

In this study, data has been collected by questionnaire survey. Interview method has been followed also. The combination of both methods therefore, helps to collect reliable and valid data. The researcher uses qualitative and quantitative method for collecting data.

3.4 Data Processing

The collected data was accumulated, categorized and analyzed keeping in mind the objectives of the study. The analysis of quantitative data of the stated sources was done with the help of statistical tools like Statistical Package for Social Science (SPSS), MS Excel etc. and interpretations of data are likely to be based on statistical generalization. Descriptive statistics such as frequency, percentage are used to data analyzed as well as Chi-square is applied. The qualitative information is presented in a narrative form. Moreover, in some cases, charts and tabulation presentation have also been used to present the findings of the data in a graphic manner. In fact, Quantitative method was used to generalize and identify prevalence from the data provided by the informants. Qualitative method was used to explain the significant phenomenon, causalities, social realities and experiences.

3.5 Determination of sample size

Primary data has been collected from 60 Respondents from two unions. 50% respondent are Union Disaster Management Committee (UDMC) members and 50% are service receiver. As well as Upazila Nirbahi Officer (UNO) and Project Implementation Officer (PIO) of Bera Upazila, Pabna have been interviewing. NGO officials are taken from those NGOs who are member of UDMC.

3.6 Profile of the study areas

The study has been undertaken in two unions of disaster prone Pabna Districts. Two Unions are Haturia Nakalia and Chakla, both are under Bera Upazila. Most of the villages of Haturia are Char land and unprotected. Most of the areas of Chakla Union are flood protected area comparative to first one. Main occupation of the people both unions is agriculture. The unions have experienced major Floods in 1998, 2004, and 2007.

Table-3.1: Basic information of Study Areas

District	Pabna	
Upazila	Bera	
Union	Haturia Nakalia	Chakla
Area	30.50 sq.k.m**	13.17 sq.k.m**
Population	33749*	12255**
Total Number of villages	14**	8**
Total Number of families	6451*	3075**
Literacy rate	30.8%*	33%**
Main Occupation	Agriculture**	Agriculture**
Major Hazards	Flood, River Erosion**	Flood**
Main River	Jamuna and Hurasagar**	Jamuna and Hurasagar**

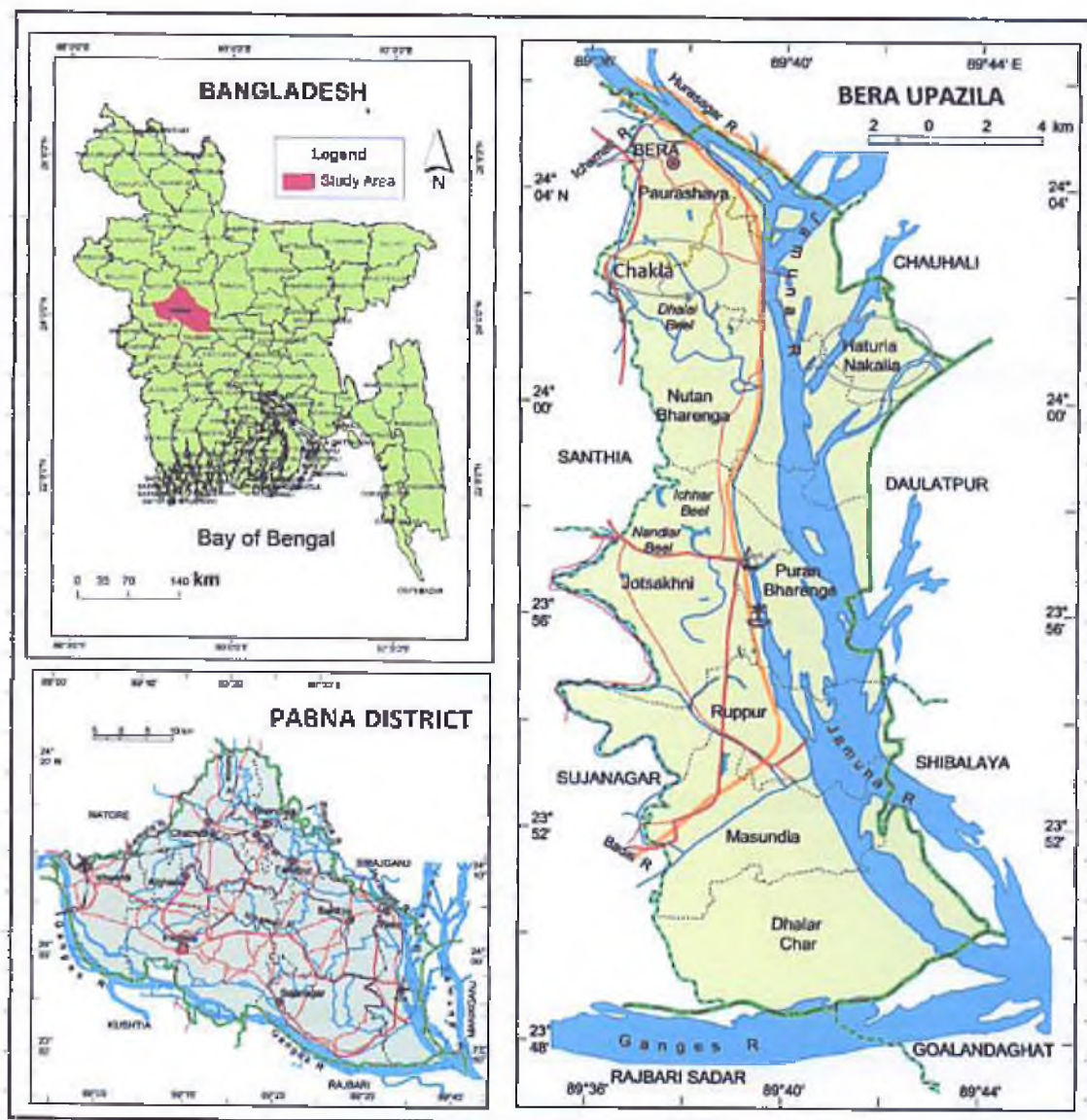
Source:

*BBS, 2001 (Population Census)

**Union Parishad of Studied Areas

3.7 Justification

The main objective of this study is to examine the effectiveness of Union Disaster Management Committee and explore how Union Disaster Management Committees (UDMCs) could be made more functional and proactive in implementing Standing Orders on Disaster (SOD). Unions have been selected which are prone to several natural disasters. The study areas are geographically vulnerable to floods and riverbank erosion which are major causes of selecting the study areas for the current study.



Map 3.1: Location of study area.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Data Analysis

The Chapter attempts to analyze the data collected for the study in combination with secondary literatures. The study intended to find the extent and state of effectiveness of UDMC. The effectiveness of UDMC is measures by execution level of SOD. In this context, following indicators are set:

- Level of Awareness about SOD
- Level of Holding Meetings
- Level of Warning Response Activities
- Level of Risk Reduction Activities
- Level of Activities During Disaster
- Perception of UDMC members and Service Receiver about UDMCs activities.

4.2 Analysis of Demographic Profile

4.2.1 Gender (sex) of the respondents

In terms of sex composition of the 60 respondents, it is found that 44 respondents are male and rests of the 16 respondents are female. The percentage of male and female are 73.3% and 26.6% respectively while in case of UDMC members, 80% of respondents of Haturia and 86.7% respondents of Chakla union are male. On other hand in case of service receivers 60% and 66.7% are male respectively in Haturia Nakalia Union and Chakla Union. The reason of high percentage of male respondents is that, they are easily available during survey. The chi-square result (Sig. value=.624, df=1, $\alpha=0.05$) confirms that there are significant difference in case of UDMC Members. Conversely the chi-square value (Sig. value=.705, df=1, $\alpha=0.05$) assures that there is also significant difference in case of service receivers between the two studied union.

Table-4.1: Respondent's gender or sex

Gender	Haturia Nakalia Union				Chakla Union			
	UDMC Members		Service Receivers		UDMC Members		Service Receivers	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Male	12	80.0	9	60.0	13	86.7	10	66.7
Female	3	20.0	6	40.0	2	13.3	5	33.3
Total	15	100.0	15	100.0	15	100.0	15	100.0
χ^2 - test	$\chi^2 = .240$, Sig. value=.624, df=1, $\alpha=0.05$ (UDMC Members) $\chi^2 = .144$, Sig. value=.705, df=1, $\alpha=0.05$ (Service Receivers)							

Source: Questionnaire survey 2013.

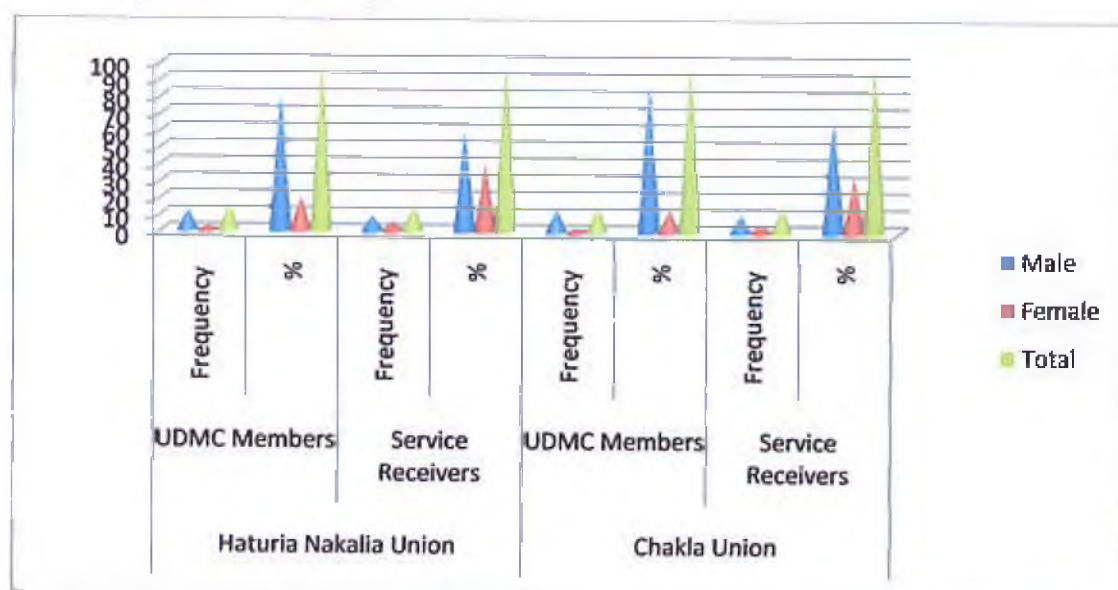


Figure -4.1: Respondents Gender or Sex

Source: Questionnaire survey 2013

4.2.2 Age level of the respondents

Table-4.2 reports the age distribution within the sample respondents. There have been four age groups. Among them the highest numbers of respondents 21 have been taken from 36-45 years group, 15 respondents from above 46-55 years group, and 13 respondents have been taken from 25-35 years group and only 11 respondents from above 55 years group.

Table -4.2: Respondent's age group

Age (years)	Haturia Nakalia Union				Chakla Union			
	UDMC Members		Service Receivers		UDMC Members		Service Receivers	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
25-35	3	20%	3	20%	3	20%	4	26.7%
36-45	4	26.7%	6	40.0%	5	33.3%	6	40.0%
46-55	5	33.3%	3	20.0%	4	26.7%	3	20.0%
Above 55	3	20%	3	20.0%	3	20%	2	13.3%
Total	15	100.0	15	100.0	15	100.0	15	100.0
χ^2 - test	$\chi^2 = .222$, Sig. value=.974, df=3, $\alpha=0.05$ (UDMC Members) $\chi^2 = .343$, Sig. value=.952, df=3, $\alpha=0.05$ (Service Receivers)							

Source: Questionnaire survey 2013.

4.2.3 Educational Status of the respondents

Education is regard as one of the important determination of coping and adaptation for both promoting survival and enhancing quality of life (D'Oley et al.1994).Level of education is very important for building awareness regarding flood forecasting. However people's response to flood depends on appropriate dissemination and of flood forecasting information (Paul and Routray 2010). In the sample respondents, education level of respondents is also analyzed. From above table-4.3 it is observed that education level of 16 respondents are up to primary school, 14 respondents are below SSC, 12 respondents completed SSC , 11 respondents passed HSC and 7 respondents are graduate and above.

Table -4.3: Educational Status of the respondents

Education	Haturia Nakalia Union				Chakla Union			
	UDMC Members		Service Receivers		UDMC Members		Service Receivers	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Up to Primary school	3	20	4	26.7	3	20	6	40
Below SSC	4	26.7	3	20	4	26.7	3	20
SSC	3	20	4	26.7	3	20	2	13.3
HSC	3	20	3	20	2	13.3	3	20
Graduation and Above	2	13.3	1	6.7	3	20.0	1	6.7
Total	15	100.0	15	100.0	15	100.0	15	100.0
χ^2 - test	$\chi^2 = .400$, Sig. value=.982, df=4, $\alpha=0.05$ (UDMC Members) $\chi^2 = 1.067$, Sig. value=.900, df=4, $\alpha=0.05$ (Service Receivers)							

Source: Questionnaire survey 2013.

4.2.4 Occupational status of the respondent's

Occupation is one of the important variables which influence the adoption of coping strategy (Paul and Routray 2010). From the field survey of 60 respondents of two study unions (Table -4.4) it is found that 21.67% engaged in agriculture, 21.67% in Business, 16.67% in Service, 26.67% in House wife and rest 13.32% in other occupation.

Table -4.4: Occupational status of the respondent's

Occupation	Haturia Nakalia Union				Chakla Union			
	UDMC Members		Service Receivers		UDMC Members		Service Receivers	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Agriculture	3	20%	3	20%	4	26.7%	3	20%
Business	3	20%	2	13.3%	4	26.7%	4	26.7%
Service	3	20%	2	13.3%	3	20%	2	13.3%
House Wife	4	26.7%	6	40%	2	13.3%	4	26.7%
Others	2	13.3%	2	13.3%	2	13.3%	2	13.3%
Total	15	100%	15	100%	15	100%	15	100%
χ^2 - test	$\chi^2 = .952$, Sig. value = .917, df=4, $\alpha=0.05$ (UDMC Members) $\chi^2 = .1067$, Sig. value = .900, df=4, $\alpha=0.05$ (Service Receivers)							

Note: Agriculture includes Agriculture Farmer and Agriculture Labor.

Source: Questionnaire survey 2013.

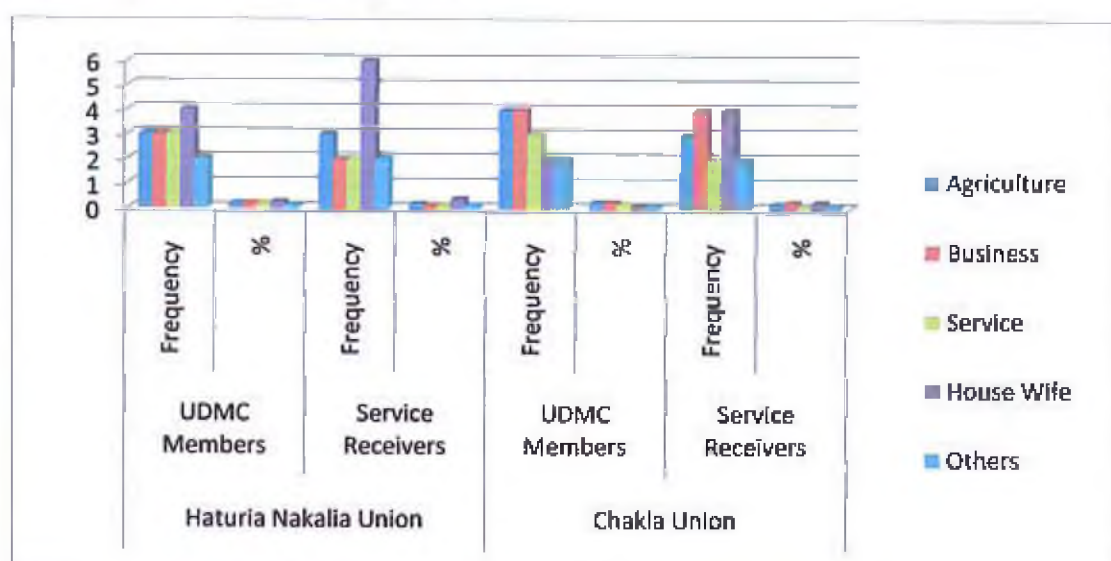


Figure -4.2: Respondent's Occupation

4.3 Analysis of Respondent's view profile

4.3.1 Awareness about SOD:

It is imperative that for implementing SOD to flood disaster management and making it effective, awareness about the disaster event and the role of all concerned should be clearly understood. The questions are designed to know whether members of UDMC have adequate Knowledge about SOD.

Table-4.5: Respondents' awareness about SOD

	Haturia Nakalia Union		Chakla Union	
	Frequency	Percent	Frequency	Percent
Have you ever heard about Standing Orders on Disaster (SOD)?				
Yes	7	46.7	6	40
No	8	53.3	9	60
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2= .136$, Sig. value=.713, df=1, $\alpha=0.05$			
Have you ever seen the book on Standing Orders on Disaster (SOD)?				
Yes	3	20	2	13.3
No	12	80	13	86.7
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2= .240$, Sig. value=.624, df=1, $\alpha=0.05$			
Do you know the Responsibilities of Union Disaster management Committee (UDMC)?				
Yes	5	33.3	3	20.0
No	4	26.7	3	20.0
Partial	6	40.0	9	60.0
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2= 1.243$, Sig. value=.537, df=2, $\alpha=0.05$			
How do you Know Responsibilities of Union Disaster management Committee (UDMC)?				
By SOD	5	33.3	2	13.3
Traditionally	10	66.7	13	86.7
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2= 1.677$, Sig. value=.195, df=1, $\alpha=0.05$			

Source: Questionnaire survey 2013.

In case Haturia Nakalia, it is found that 7 (46.7%) respondents have heard out of 15 while only 3 (20%) have seen the book on SOD. Only 5 (33.3%) respondents know the responsibilities, 6(40%) know partial and 4 (26.7%) respondents know nothing their responsibilities. It also found that only 5 (33.3%) respondents know their responsibilities by SOD and remaining 10(66.7%) came to know by traditional Knowledge. On the other hand in case of Chakla , it is found that 6 respondents have heard (40%) out of 15 while 2 respondents (13.3%) have seen the book on SOD. Only 3 (20%) respondents know the responsibilities, 9(60%) know partial and 3(20%) respondents know nothing their responsibilities. It also found that only 2 (13.3%) respondents know their responsibilities by SOD and remaining 13(86.7%) came to know by traditional Knowledge. The chi-square result of heard about SOD (Sig. value=.713, df=1, $\alpha=0.05$): of seen SOD (Sig. value=.624, df=1, $\alpha=0.05$) and of Responsibilities (Sig. value=.537, df=2, $\alpha=0.05$) confirms that there are significant difference in case of UDMC Members. Finally it is found that, Members of UDMC in Haturia Nakalia are more familiar with SOD than Chakla. The reason is Haturia Nakalia is more vulnerable to frequent disasters like, river erosion etc. Therefore, they experienced different response and rehabilitation works in past and came to know about SOD by working with NGOs.

4.3.2 Awareness about UDMC

From the above table4.6, it is seen that 8 (53.3%) respondents of Haturia Nakalia of service receiver aware about UDMC where 4 (26.7%) of respondents of Chakla aware about UDMC. The chi-square value (Sig. value=.136, df=1, $\alpha=0.05$) assures that there is significant difference between the two studied unions. Respondents of Haturia Nakalia is more familiar with UDMC because they are more vulnerable and get support or take awareness building activities from NGO, Char Livelihood Program etc.

Table-4.6: Respondents' awareness about UDMC

	Haturia Nakalia Union		Chakla Union	
	Frequency	Percent	Frequency	Percent
Do you know about Union Disaster Management Committee?				
Yes	8	53.3	4	26.7
No	7	46.7	11	73.3
χ^2 - test	$\chi^2=2.222$, Sig. value=.136, df=1, $\alpha=0.05$			

Source: Questionnaire survey 2013.

4.3.3 Meeting

According to SOD, UDMC is supposed to hold bi monthly meeting during normal time, it is found that meetings are not being held regularly during normal times. Only 3 meetings were held in Haturia Nakalia where Chakla is number zero during the past one year. Usual percentage of attendance at UDMC meetings ranges from 50-60%. Even they were not prepared resolution of the meeting. Personal interview of UNO and PIO, mention that last year none of UZDMC meetings were held. This scenario advocates that there is lack of proper monitoring.

4.3.4 Committee formation

According to SOD, an updated list of members of UDMC will have to be submitted to UzDMC by 15 January of each year duly signed by the chairperson of the UDMC. But it is found that none of UDMC prepared up-to-date list of UDMC members. Reason is that poor level knowledge of SOD.

4.3.5 Action plan/plan

The flood preparedness plan is a series of sub plans, including emergency response planning and training, raising awareness, flood forecasting and warning, setting development policy, land use regulation, flood proofing, setting alternative plans and local social structure strengthening (Siddiqui, and Hossain, (ed.), 2006c). As per SOD, UDMC prepare a Comprehensive Disaster Management Action Plan with a view to enabling local people, Union authority and local organizations to increase the capacity of poor and vulnerable people to enhance their income and other assets for risk reduction and also to take up security arrangement in the perspective of imminent danger related warnings. In field survey, UDMC members were asked about action plan regarding flood disaster management. Key informants of both unions informed that they have not prepare action plan but UDMC member prepared own jurisdiction action plan. The Chi-square results (Sig. value=.000, $df=2$, $\alpha=0.05$) confirms this significant difference between the two studied unions. From the table-4.7, it is found that most (93.3%) members of Haturia Nakalia and only 01(6.7%) members of Chakla prepared action plan. Again they were asked about action plan regarding transfer of essential resources, it is found that 5 (33.3%) members of Haturia Nakalia prepare action plan while 3(20%) members of Chakla prepare action plan in this regard.

Table -4.7 Existences of Action plans of UDMC members

	Haturia Nakalia Union		Chakla Union	
	Frequency	Percent	Frequency	Percent
Is there any Union Disaster Management Plan?				
Yes	14	93.3	1	6.7
No	0	0	12	80.0
Don't Know	1	6.7	2	13.3
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2=23.60$, Sig. value=.000, df=2, $\alpha=0.05$			
Do you have any action plan to help people to transfer their essential resources to safe place?				
Yes	5	33.3	3	20
No	8	53.3	11	73.3
Don't Know	2	13.3	1	6.7
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2=1.307$, Sig. value=.520, df=2, $\alpha=0.05$			

Source: Questionnaire survey 2013.

4.3.6 Awareness raising activities

Floods are a yearly phenomenon in our country .All concerned should remain adequately prepared at all times to face this challenge. But many were found not adequately prepared at different level (Siddiqui, and Hossain, (ed.), 2006b).By analyze the level of risk reduction activities, it is found that only 7 (46.7%) UDMC members of Haturia Nakalia and 3 (20%) UDMC members of Chakla arrange awareness raising activities. The chi-square value of (Sig. value=.121, df=1, $\alpha=0.05$) assures that there is significant difference between the two studied unions (Table-4.8).UDMC members are asked about arrange any mock drills / simulation and it is seen that 6 (40%) of Haturia Nakalia members and 3 (20%) of Chakla UDMC members arrange mock drills (Table-4.8) .

Table-4.8: Awareness raising activities for disaster management

	Haturia Nakalia Union		Chakla Union	
	Frequency	Percent	Frequency	Percent
Q. Has UDMC undertakes any awareness raising activities for community people on DRR during the last one year?				
Yes	7	46.7	3	20
No	8	53.3	12	80
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2= 2.40$, Sig. value=.121, df=1, $\alpha=0.05$			
Q. Have you arrange any mock drills / simulation exercises during last one year?				
Yes	6	40	3	20
No	9	60	10	66.7
Don't Know	0	0	2	13.3
Total	15	100.0	15	100.0

Source: Questionnaire survey 2013.

On the other hand it is found those only 3 (20%) respondents (Service Receivers) of Haturia Nakalia and 2(13.3%) respondents (Service Receivers) of Chakla seen the mock drills (Table-4.9).

Table-4.9: Opinion of Service Receivers about Awareness raising activities

	Haturia Nakalia Union		Chakla Union	
	Frequency	Percent	Frequency	Percent
Q. Have you seen any mock drills / simulation exercises during last one year?				
Yes	3	20	2	13.3
No	12	100.0	13	100.0
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2= .240$, Sig. value=.624, df=1, $\alpha=0.05$			

Source: Questionnaire survey 2013.

4.3.7 Training program

It is one of the responsibilities of UDMC to arrange training and workshops on regular basis on disaster issues and keep the UzDMC informed (SOD, 2010). Some training programs have been conducted by UDMC and Non-government organization (NGO) in the study area but not adequate. Respondents told these programs also teach them during and post flood period how to protect household lives, assets, crops and livestock. These programs raised awareness and preparedness on disaster. The table-4.10 shows that 06 respondents (59.1%) were got training programs in Haturia Nakalia where 100% respondents did not get any kind of Training. Chi-square result (Sig. value=.006, df=1, $\alpha=0.05$) shows significant difference between two study union. Above table also shows that 13.3% respondents got training from UDMC and most 40% from NGO in Haturia Nakalia. In this regard, the chi-square value of (Sig. value=.004, df=2, $\alpha=0.05$) assures that there is significant difference between the two studied unions. Significance difference due to lack of Knowledge about SOD, lack of budget, lack of NGO activities and lack proper monitoring.

Table-4.10: Respondent's Participation in training programs

	Haturia Nakalia Union		Chakla Union	
	Frequency	Percent	Frequency	Percent
Q. Have you receive any training on disaster management?				
Yes	6	40	0	0
No	9	60	15	100
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2= 7.50$, Sig. value=.006, df=1, $\alpha=0.05$			
Q. Who provides the training?				
UDMC	2	13.3	0	0
NGO	6	40	0	0
N/A	7	46.7	15	100.0
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2= 10.909$, Sig. value=.004, df=2, $\alpha=0.05$			

Source: Questionnaire survey 2013.

4.3.10 Drinking water

One of the important elements of a proper health environment is access to adequate safe drinking water. Most households in rural Bangladesh normally get their drinking water from tubewell. Floods are usually result in an acute of safe drinking water (Paul and Routray 2010). It revealed from present study that 60% respondents of Haturia Nakalia and 73.3% respondents of Chakla union faced problem regarding managing drinking water. Chi-square result (Sig. value=.439, df=1, $\alpha=0.05$) shows significant difference in drinking water facility between two study union (Table-4.13).

Table-4.13: Feedback from Service Receivers about managing drinking water

	Haturia Nakalia Union		Chakla Union	
	Frequency	Percent	Frequency	Percent
Facing any problem regarding managing drinking water during last flood				
Yes	9	60.0	11	73.3
No	6	40.0	4	26.7
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2 = .600$, Sig. value=.439, df=1, $\alpha=0.05$			

Source: Questionnaire survey 2013.

4.3.11 Flood Forecasting and Early Warning

The importance of the flood forecasting and warning is widely recognized as a vital nonstructural measures to aid the mitigating the loss of lives, crops and properties caused by the annual flood occurrence (Siddiqui, and Hossain, (ed.), 2006a). It can help in the preparation of an advance disaster preparedness program. This has been amply proved during the floods of 1987, 1988 and 1998. Flood Forecasting and Warning center (FFWC) usually disseminate the flood information everyday through different media of communication. However, the dissemination of flood information by FFWC has limitations (Siddiqui, and Hossain, (ed.), 2006a). This aspect of flood information needs serious attention. UDMC can play an important role in this regard. It is found from table-4.14 that the warning is disseminated only through miking in both unions. It also found that 7(46.7%) respondents of Haturia Nakalia and 6(40%) respondents of Chakla have early warning system to disseminate information. People complained that they do not often get the proper benefit of early warning to get

prepared for an imminent flood. Most of the respondents (60%) in Haturia Nakalia and 87.6% respondents of Chakla claimed that the warning was not given on time to prepare them to departure safe place. 33.3% respondents of Haturia Nakalia and 26.7% respondents of Chakla got early warning by Mikiking .On the other hand Most of the respondents have got information about upcoming flood from different types of sources. These sources are mainly mass media such as Radio, Television, and so on (Table-4.15).

During field survey using questionnaire the participants were asked about their satisfaction on early warning.46.7% respondents of Haturia Nakalia opinion is that there warning system is good where 13.3% respondents of Chaklas evaluate them as good in respect of warning given by UDMC. The chi-square value of satisfaction (Sig. value=.053, df=2, $\alpha=0.05$) assures that there is significant difference between the two studied unions.

Table 4.14: Flood Forecasting and Early Warning in the study areas

	Haturia Nakalia Union		Chakla Union	
	Frequency	Percent	Frequency	Percent
Q.Have there any early warning system at your union?				
Yes	7	46.7	6	40
No	4	26.7	4	26.7
Don't Know	4	26.7	5	33.3
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2= .188$, Sig. value=.910, df=2, $\alpha=0.05$			
Q. How is the warning transmitted to the people?				
Miking	15	100.0	15	100.0
Flag	0	0	0	0
Mobile phone	0	0	0	0
TV	0	0	0	0
Radio	0	0	0	0
Total	15	100.0	15	100.0

Source: Questionnaire survey 2013.

Table -4.15: Opinion about getting early warning

Valid	Haturia Nakalia Union		Chakla Union	
	Frequency	Percent	Frequency	Percent
Q.Are warnings given on time to prepare your evacuation and safe guard your belongings?				
Yes	6	40	2	13.3
No	9	60	13	86.7
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2=2.727$, Sig. value=.099, df=1, $\alpha=0.05$			
Q. How is you getting the warnings on disaster?				
Miking	5	33.3	4	26.7
Mobile phone	2	13.3	1	6.7
TV	3	20	2	13.3
Radio	4	26.7	6	40
Others	1	6.7	2	13.3
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2=1.378$, Sig. value=.848, df=4, $\alpha=0.05$			
Q.What is your assessment of the warning given by authorities?				
Good	7	46.7	2	13.2
Fare	5	33.3	4	26.7
Poor	3	20	9	60
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2=5.88$, Sig. value=.053, df=2, $\alpha=0.05$			

Source: Questionnaire survey 2013.

4.3.12 Flood Shelter

Flood shelters are public facilities designed to serve people's need to take refuge with their movable assets and livestock during flooding (Hossain, 2008). Committee members were asked about identification of emergency shelter. Key informants of both unions said that they have only 02 flood shelters. Most cases they used education institution as flood shelter. In this regard, from the table-4.16, it is found that 7(46.7%) of Haturia Nakalia members and 3(20%) of members of Chakla identified

emergency shelter. The chi-square result (Sig. value=.279, df=2, $\alpha=0.05$) confirms that there are significant difference between the two studied unions (Table-4.16).They also told, lacking of adequate flood shelter many of the people took shelter on roads and dam.

Table -4.16: Identification of emergency flood shelter for evacuation

	Haturia Nakalia Union		Chakla Union	
	Frequency	Percent	Frequency	Percent
Q.Have the committee identified emrgency shelters for evacuation during disaster?				
Yes	7	46.7	3	20
No	6	40	8	53.3
Don't Know	2	13.3	4	26.7
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2= 2.52$, Sig. value=.279, df=2, $\alpha=0.05$			

Source: Questionnaire survey 2013.

4.3.13 Relief Operation

Relief is the money, food, medicine, shelter, clothes or any other assistance public or private provided to people and communities to overcome the effects of a disaster event (DMB, 1998). Flood reliefs are usually provided by the government and include financial assistance to help local authorities. The aim of flood relief is to overcome immediate personal hardship and distress, as well as to enable essential repair of houses and infrastructure (Siddiqui, and Hossain, (ed.), 2006c). The table-4.17 shows that most of respondents (80%) get relief during the flood in Haturia Nakalia Union and a large portion (73.3%) of respondents is out of relief aid in Chakla Union. The chi-square result (Sig. value=.007, df=2, $\alpha=0.05$) confirms that there are significant difference between the two studied unions.

Table -4.17: Opinion from Service Receivers about relief operations

Taking relief services	Haturia Nakalia Union		Chakla Union	
	Frequency	Percent	Frequency	Percent
< 24 Hours	2	13.3	2	13.3
> 1 Day	10	66.7	2	13.3
None	3	20	11	73.3
Total	15	100	15	100
χ^2 - test	$\chi^2= 9.905$, Sig. value=.007, df=2, $\alpha=0.05$			

Source: Questionnaire survey 2013.

4.3.14 Transfer essential resources

According to SOD, 2010, it is duty to help people to transfer their essential resources (livestock, poultry, essential food, kerosene, candle, matches, fuel, radio, etc.) to safe places. During the field survey respondents were asked about whether they have got any support from UDMC to transfer their essential resources during last flood. It is found that 7(46.7%) of respondents of Haturia Nakalia and 5(33.3%) respondents of Chakla Union got support from UDMC to transfer their essential resources. But most of the respondents did not get any support from UDMC. Chi-square result (Sig. value=.456, df=1, $\alpha=0.05$) shows significant difference between two study union (Table-4.18).

Table -4.18: Getting support from UDMC to transfer essential resources

	Haturia Nakalia Union		Chakla Union	
	Frequency	Percent	Frequency	Percent
Getting any support from UDMC to transfer essential resources during last flood				
Yes	7	46.7	5	33.3
No	8	53.3	10	66.7
Total	15	100.0	15	100.0
χ^2 - test	$\chi^2 = .556$, Sig. value=.456, df=1, $\alpha=0.05$			

Source: Questionnaire survey 2013.

4.3.15 Assessment of both UDMCs members and Service Receivers:

The researcher explored the perception of respondents about UDMCs in terms of execution of responsibilities in during last year. As, it was shown in table-4.19 that about 60 percent of UDMC member of Haturia Nakalia's perception is they are performing good where 73.3% service receivers opinion as good. Both On the other hand an 80% respondent of UDMC of Chakla's belief is that they perform poorly because all member of UDMC are newly appointed and they are not aware about their responsibilities. Negative evaluation is come from service receiver of Nakalia.

Table-4.19: Assessment about UDMC's responsibilities

Table-4/19/ Assessment about UDMC

	Haturia Nakalia Union				Chakla Union			
	UDMC Members		Service Receivers		UDMC Members		Service Receivers	
	Q. What's your assessment about UDMC to fulfill their responsibilities?							
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Good	9	60.0	7	46.7	1	6.7	2	13.3
Fare	4	26.7	5	33.3	2	13.3	4	26.7
Poor	2	13.3	3	20	12	80.0	9	60
Total	15	100.0	15	100.0	15	100.0	15	100.0
χ^2 - test	$\chi^2= 14.210$, Sig. value=.001, df=2, $\alpha=0.05$ (UDMC Members) $\chi^2= 5.889$, Sig. value=.053, df=2, $\alpha=0.05$ (Service Receivers)							

Source: Questionnaire survey 2013.

4.4 Findings of the Study

The presents study finds that

- UDMC members do not have adequate knowledge on the SOD. Most of them work in a traditional manner rather than following the standings order.
- There is also instruction for regular meeting relating to preparation of the disaster action plan in all levels of disaster management committees, which are more or less absent in practice.
- There is clear guideline for preparation of public awareness program in all levels of committees. But in practice no remarkable movement was visible. The local level leaders were found less active in enhancing public awareness on flood disasters, imparting training and maintaining the morale of the affected people.
- There is scope for involvement of competent agencies for assessment of need and loss and synchronization with other organization in relief and

rehabilitation activities to ensure maximum support to the vulnerable people. But this good practice is also absent in study union.

v. The relief operations and programs for flood affected peoples rehabilitation in the areas are inadequate.

vi. Most of the UDMC members have no relevant or exclusive training on SOD. Therefore, they are not fully up to date with their roles and responsibilities at UDMC members.

vii. Possible flood shelters were not properly earmarked. Though this was done, the shelters were themselves affected by floods.

viii. UDMCs have been sensitized about their roles and responsibilities and also about their roles in disaster warning dissemination. The warning system limitedly helps the flood prone people indeed due to the limited lead time.

ix. There is different level of administrative management in Union, Upazilla or District level and coordination among all the levels is absent and there is lack of decision making authority in the root level administration.

x. Government has issued SOD for effective disaster management, the SOD execution is not being monitored by relevant government departments. For example, Upazilla Disaster Management Committee (UzDMC) is responsible to assist and supervise the activities of Union Disaster Management committee (UDMC). But there exist poor follow up and monitoring mechanism for this purpose

xi. All member of UDMC of Chakla are newly appointed and they are not aware about their responsibilities.

xii. The study has found that there is massive knowledge gap about the Standing Orders on Disaster (SOD) among the Union Disaster Management committee (UDMC) members. Accordingly, the execution of SOD is almost absent at field level.

But it is found that comparatively UDMC of Haturia Nakalia is more effective than Chakla. The reason is Haturia Nakalia is more vulnerable to frequent disasters. Therefore, they experienced different response and rehabilitation works in past and came to know about SOD by working with NGOs.

4.5 Identification of the policy gaps and challenges

The standing order for disaster management acts as a guiding principle for disaster management of Bangladesh. Government also issues different orders and circulars according to the need of emergency situation. So theoretically we may come to the wrapping up that Bangladesh has a comprehensive disaster management system which can fulfill the demand of any situation but all the data the opinions reflects a different scenario. This scenario exists due to following policy gap and challenge:

4.5.1 Policy Gaps

- i. There is no provision in SOD to allocate budget in the Union Parishad (UP) budget for Disaster Management or to execute Disaster Contingency plan. Sometimes UDMCs are preparing contingency plans but they are not being able to execute the activities. It is due to fund constraints that they don't organize any awareness events or mock drill. Even they are not willing to hold the meetings regularly as they can't manage minimum budget for entertainment.
- ii. There is a provision to raise fund in SOD to implement the risk reduction plan .But there is no specific/clear direction to utilize this fund.
- iii. There is no provision to review the overall activities (feedback) from different level of management system. There is no practice of knowledge sharing and knowledge management got from the experiences of previous disaster.
- iv. For better management of flood, it is important to procure necessary materials such as food; medicine etc but there is no authority to procure services through short notice tendering.

v. Bangladesh Water Development Board (BWDB) plays an important role in flood disaster management. Member from BWDB is included in District and Upazilla Disaster Management Committee. But there is no member included in UDMC.

vi. In the efforts of making the mechanisms clear and comprehensive, National Policy on Disaster Management has been designed in draft form for consideration of GOB. However, it should be finalized as soon as possible.

vii. Legal framework can work as pressure to take all possible steps for effective implementation of government policy. There is Disaster Management Act which instructs to formulate Rules. But yet to be formulated rules. Therefore rules for Disaster Management Act is crying need of time.

4.5.2 Challenges

- i. The standing order of disaster management has provision to construct different types of committees but the coordination between different level of committees and specific roles and responsibilities for each and every individual is absent due to poor accountability.
- ii. Mind-set of the UDMC members is also great obstacle for execution of SOD. Disaster management is still based on relief oriented activities. Members of LGIs are more interested on relief activities rather than preparedness initiatives. SOD can't be fully operational without changing this mindset.
- iii. In some cases there is not even a sanction mechanism if a disaster should occur and no clear instructions concerning who will declare the disaster.
- iv. Inadequate institutional capacity, inadequate clear authorities and responsibilities and penalties for non-compliance are barriers to the implementation of disaster management.

v. It is crying need develop and implement an ICT based flood response system, which should include a nation-wide network of flood information database by connecting database of various agencies. But unfortunately, we are not familiar with ICT based flood response system.

vi. Different agencies are active in a variety of flood response activities. But there is very little coordination among them.

vii. There is scope for involvement of competent agencies for assessment of need and loss and synchronization with other organization in relief and rehabilitation activities to ensure maximum support to the vulnerable people. But this good practice is also absent in disaster management system.

viii. Floods are a yearly phenomenon in our country .But many were found not adequately prepared at different levels.

ix. Monitoring and follow-up is very important to track progress, learn challenges and make necessary adjustment. Government has issued SOD for effective disaster management; the SOD execution is not being monitored by relevant government departments. For example, Upazilla Disaster Management Committee (UzDMC) is responsible to assist and supervise the activities of Union Disaster Management committee (UDMC). But there exist no follow up and monitoring mechanism for this purpose.

RECOMMENDATIONS AND CONCLUSION

5.1 Recommendations

Bangladesh is a natural disaster prone country. Thus it is imperative that an effective system should be developed to combat such situation to mitigate the effects of disaster. The study has identified policy gaps and challenges and finally came up with the following recommendations to effective the disaster management committee.

- i. Training is one of the best ways to improve knowledge and skill. No work can be done effectively unless the stakeholders are motivated and committed. Training strategy has targeted a complete review of the roles and responsibilities of disaster management committees (DMCs) to ensure they reflect risk reduction as well as emergency response functions. A national training curriculum is being developed to ensure that committees receive capacity building training to ensure they understand and can fulfill their functions effectively. As well as, motivational work should be undertaken for example, rewarding the best UDMC member, rewarding the best volunteer etc.
- ii. Monitoring is very important to track progress, learn challenges and make necessary adjustment. Upazilla Disaster Management Committee (UzDMC) should be committed enough to regularly monitor the activities of Union disaster Management committee (UDMC) and provide proactive support as and when required. Strictly follow the practice of using Flood Management Models.
- iii. Union disaster Management committees (UDMCs) should also take collective initiatives to constitute their own funds to implement programmes and activities as set out in Disaster Management Plans. This fund will arrange by contribution from the government through budgetary allocation, contribution from local government and local donation. The government will formulate guideline for operating the fund.

iv. Sharing and dissemination of specialized knowledge related to disaster management among various execution agencies, NGOs, private sector and the community is important for successful disaster management. This will serve to sensitize people to the participative approach needed for effective disaster management.

v. Disaster Risk Reduction is everyone's business. As disaster affects everyone and every sector, multi-sectoral approach to disaster Management is a essential. It's not possible for government alone unless strong collaboration among all the relevant stakeholders such as government, NGOs, researchers, civil society, private sector, media etc, ate established and maintained. Collaborative efforts can strengthened the preparedness activities at all level may reduce the impact of disasters.

vi. For tackling flood and emergency situation, provide the executing agency with authority to procure services through short notice tendering; amend the Public Procurement Regulations to include such provisions.

vii. Early warning is very important for emergency preparedness. An efficient and well functioning EWS can save lives and prevent loss of property significantly during flood. Union Early Warning Information Centre (UEWIC) can be developed at the union level.

viii. The number of flood shelter should increase along the remote locations and also improving shelter environments and conditions. All new schools should be constructed at least two storied on flood free-high lands in respect to use as flood shelter.

ix. Delegate administrative and financial power to field officers for quick protection and restoration works during flood emergencies.

x. BWDB represtation should be incorporated in UDMC.

xi. Policy maker and planner have to introduce latest and contemporary flood management strategies.

xii. It is necessary to formulate an effective community-based disaster manage system in study areas for flood management.

- xiii. 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.
- xiv. In order to execute Disaster Management Act, the rules should be formulated immediately.
- xv. Developing and implementing an ICT based flood response system. Such a system could be based on internet and wireless communication technologies and also take help from Union Information Service Center (UISC).
- xvi. Academic and research institutions need to carry comprehensive studies to find out flood impacts as well as identifying remedies.
- xvii. Disasters are unsolved concerns of development, which are, therefore, concerns of governance in broad sense. Good governance needs to be placed at flood management. Disasters are requiring multi-prolonged solutions. The proposed activities should be long-term, involving multiple stakeholders and partnerships instead of top-down disaster management and fixed-term projects.

5.2 Conclusion

The standing order for disaster management acts as a guiding principle for disaster management of Bangladesh. It addresses the need of people front corner of the society. The present study finds that there is massive knowledge gap about the Standing Orders on Disaster (SOD) among the Union Disaster Management committee (UDMC) members. Accordingly, the execution of SOD is almost absent at field level. As a result our people still suffer a great deal from flood disaster. With the sincere efforts of all concerned organisations/committees can be reduced to great extent. Experiencing from this study, finally it can be recommended that in order to make SOD fully functional and strengthening the effectiveness of UDMCs, members should be trained up for local risk reduction planning. The study also recommend that allocation of sufficient resources, establishing proper monitoring and follow up system and disaster management rule should be formulated immediately to execute the proper effectiveness of UDMCs at Union Level. The study also advocates that the Government of Bangladesh should give emphasis on institutionalization and follow the procedures and guidelines. All available instructions and guidelines for better management in future should be updated and improved upon.

References

- Adnan, S. (1991) '*Floods people and environment: Institutional aspects of flood protection programmes in Bangladesh*'. Research and Advisory Services, Dhaka.
- ADRC (Asian Disaster Reduction Center) (2012) '*Disaster Management Plans*'. Available at http://wbi.worldbank.org/wbi/Data/wbi/wbiems/files/drupal-acquia/wbi/drm_kn2-2.pdf accessed on 02.12.2012
- Ahmad, Q.K. et al. (ed.), (2000) '*Perspective on Flood 1998*'. The University Press Limited, Dhaka, Bangladesh.
- Ahmmad, Shabbir, (2012) '*Preparedness in Facing the Challenges of Climate Change: A Study on the Role of Local Government*'. MPPG, North South University, Dhaka, Bangladesh.
- Ali, A.M.M. Shawkat (1987) 'Decentralization for development: Experiment in local government administration in Bangladesh', *Asian Survey*, 27(7), pp. 787-799.
- AMD (Asian Management and Development Institute), (2011) '*Climate Change and Disaster Management Policy in Viet Nam*', Asian Management and Development Institute, Viet Nam & The Pressure Group Consultancy, UK.
- Baris, M.E, (2009) '*Effectiveness of Turkish Disaster Management System and Recommendations*', Department of Landscape Architecture, Ankara, Turkey.
- BCCSAP (Bangladesh Climate Change Strategy and Action Plan) , (2009) Ministry of Food and Disaster Management, Bangladesh.
- BNBC, (Bangladesh National Building Code),(1993), Ministry of Housing and Public Works.
- Brammer, H. (2000), '*floods, flood mitigation and soil fertility in Bangladesh*', Dhaka, Bangladesh.
- Brammer, H. (2004), '*can Bangladesh be protected from flood?*', The University Press Limited, Dhaka, Bangladesh.
- Business Dictionary Available at <http://www.businessdictionary.com/definition/effectiveness.html> accessed on 24.12.2012
- Chait, Richard, Holland, Thomas, and Taylor, Barbara (1996), '*Improving the Performance of Governing Boards*',
- Cheema, G.Shabbir, (2005), '*Building Democratic Institutions*', Kumarian Press, Inc, USA.

- Chowdhury, M. (2000) '*An assessment of flood forecasting in Bangladesh: The experience of the 1998 flood*', *Natural Hazards*, 22(2). pp. 139–163.
- Collegiate Project Services, (2006), '*Eight Factor Model of Committee Effectiveness*' <http://www.collegiateproject.com/articles/Eight%20Factor%20Model%20of%20Committee%20Effectiveness.pdf> accessed on 1.12.2012
- Custers, P. (1992) , '*Banking on a flood-free future? Flood Management in Bangladesh*', *Ecologist*, 22(5). pp. 241–247.
- D'Oley, V., A. Blunt and R. Barnhardt (1994), '*Education and Development: Lessons from the Third World*', Detselig Enterprises, Calgary.
- Disaster Management Act (2012), Ministry of Disaster Management and Relief, Bangladesh
- DMB (Disaster Management Bureau), (1998), '*Disaster management Handbook for Bangladesh*', Dhaka, Bangladesh.
- Elahi, K.M. (1991) '*Impacts of riverbank erosion and flood in Bangladesh: An introduction*', In K.M. Elahi, K.S. Ahmed and M. Mafizuddin (eds.) *Riverbank Erosion, Flood and Population Displacement in Bangladesh*, Riverbank Erosion Impact Study, Jahangirnagar University, Dhaka. pp. 11–67.
- Few, R. (2003) '*Flooding, vulnerability and coping strategies: Local responses to a global threat*', *Progress in Development Studies* 3(1). pp. 43–58.
- GOB (Government of Bangladesh), (1992) '*flood modeling and management*', Flood hydrology study, main report, Dhaka, Bangladesh.
- Haque, C.E. and M.Q. Zaman (1993) '*Human responses to riverine hazards in Bangladesh: A proposal for sustainable floodplain development*', *World Development* 21 (1). pp. 93–107.
- Haque, M. and Mohammad, A. Z. (2006), Report Card on char livelihood program.
- Hassan S. 2004. Bangladesh Experiences, In Shaw R. and Okazaki K. (eds) *Sustainability in grass-roots initiatives: focus on community based disaster management*. UNCRD, pp 30-37.
- Hossain, A. N. H. A., 2008, *Bangladesh: flood management*, Bangladesh Water Development Board (BWDB), WMO/GWP Associated Programme on Flood Management, Dhaka, Bangladesh.
- Hutton, D. and C.E. Haque (2004) '*Human vulnerability, dislocation and resettlement: Adaptation process of river-bank erosion-induced displacees in Bangladesh*'. *Disasters*. 28(1). pp. 41–62.

- ICCR (International Cooperation for Child Rights) (2010), *Children and Disaster Risk Reduction in the Asia Pacific: Background Paper* Presented by Ministry of Women and Children Affairs, Bangladesh
- IFRC (International Federation of Red Cross and Red Crescent Societies) (2012), *International Disaster Response Laws (IDRL) in Sierra Leone*, the International Federation of Red Cross and Red Crescent Societies (IFRC) and the Sierra Leone Red Cross Society (SLRCS), Geneva
- Islam, K.M N, 2008, *Flood loss management: mitigation and adaptation options For Bangladesh*, Dhaka, Bangladesh.
- Islam, N. (2001) 'The open approach to flood control: The way to the future in Bangladesh'. *Futures*. 33 (8-9). pp. 783-802.
- ✓ Jayawardane, A.K.W (n.d), *Disaster Mitigation Initiatives in Sri Lanka*, Department of Civil Engineering, University of Moratuwa, Sri Lanka
- John, S. (1998) 'Understanding development: The experience of voluntary agencies in South Asia'. *Asian Affairs*. 29(2). pp. 152-160.
- Khalequzzaman, M., 2000, *Flood Control in Bangladesh through Best Management Practices*, Department of Geology & Physics, Georgia Southwestern State University, Americus, GA 31709, USA.
- Kirschenbaum (2004), *Measuring the Effectiveness of Disaster Management Organizations*, Accessed from <http://ijmed.org/articles/389/download/> on 12.12.2012
- Mahamud, M.S. (2011) 'Intervention of Char development and settlement project: does it make a difference in people's livelihood at Boyer Char in Bangladesh'. MPPG, North South University, Dhaka, Bangladesh.
- Miah, M. 1989, *Flood in Bangladesh*. Academic Publishers, Dhaka,
- Mirza, Q.M.M., R.A. Warrick, N.J. Ericksen and G.J. Kenny (2001) 'Are floods getting worse in the Ganges, Brahmaputra and Meghna Basins?' *Environmental Hazards*. 3(2). pp. 37-48.
- Mirza, Q.M.M., R.A. Warrick, N.J. Ericksen and G.J. Kenny (2001) 'Are floods getting worse in the Ganges, Brahmaputra and Meghna Basins?' *Environmental Hazards*. 3(2). pp. 37-48.
- National Disaster Management Act, 2010, Government of Zambia
- NDF (Natural disaster Framework) (n.d), accessed on 18.02.2012 from http://nema.gov.ng/upload/21708_nigherianationaldisastermanagementf-%20NDF.pdf

- ✓ NDRMP (Natural Disaster Risk Management in Philippines) (n.d), *Natural Disaster Risk Management: Natural Disaster Risk Management in the Philippines: Enhancing Poverty Alleviation through Disaster Reduction* accessed from http://siteresources.worldbank.org/INTEAPREGTOPEENVIRONMENT/Resources/P_H_Disaster_Risk_Mgmt.pdf on 03.12.2012
- ✓ NPDM (National Plan for Disaster Management, 2010-15) (2010), Ministry of Food and Disaster Management, Bangladesh
- NPDM (National Policy on Disaster Management) (2009), National Disaster Management Authority, India, accessed from http://ndm.gov.in/PDF/policies/ndm_policy2009.pdf on 2.12.2012
- NSDRMN (National Strategy for Disaster Risk Management in Nepal), (2009) accessed from <http://www.undp.org.np/pdf/NSDRMFinalDraft.pdf> on 20.12.2012
- Paul, B K, 1994, *Farmers' Responses to the Flood Action Plan (FAP) of Bangladesh: An empirical study*, Kansas State University, Manhattan, U.S.A.
- Paul, B.K. (1984) 'Perception of and agricultural adjustments to floods in Jamuna floodplain, Bangladesh', *Human Ecology*, 12(1). pp. 1-19.
- Paul, B.K. (1997) 'Flood research in Bangladesh in retrospect and prospect: A review', *Geoforum*. 28(2). pp. 121-131.
- Paul, S. K. & Routray, J. K., 2010, *Flood proneness and coping strategies: the experiences of two villages in Bangladesh*, Department of Geography and Environmental Studies,
- Paul, S. K. & Routray, J. K., 2010, *Flood proneness in Bangladesh: Coping and indigenous knowledge*, Lambert Academic Publishing AG & CO, KG, Koln, Germany.
- Paul, S. K. 2007, *Flood impacts, People's Needs and Satisfaction on Flood mitigation services in two Bangladeshi Flood prone villages*, *The Journal of Geo-Environment*, Vol. 6, 2006, pp. 1-19.
- Rashid, Haroun er, (1977), *Geography of Bangladesh*, Dhaka, University press limited.
- Rashid, M.H. (2008) 'Implementation Standing Orders on Disaster (SOD) at Union Level: The Case of Kakua Union, Tangail District and Kazipur Union of Sirajganj District, Bangladesh', PPDM , Brac University.
- Rashid, S.F. (2000) 'The urban poor in Dhaka City: Their struggles and coping strategies during the floods of 1998'. *Disasters*. 24(3). pp. 240-253.

- Rasid, H. (1993) 'Preventing flooding or regulating flood levels?: Case studies on perception of flood alleviation in Bangladesh'. *Natural Hazards*. 8(1). pp. 39–57.
- Rasid, H. (1993) 'Preventing flooding or regulating flood levels?: Case studies on perception of flood alleviation in Bangladesh'. *Natural Hazards*. 8(1). pp. 39–57.
- Rasid, H. and A. Mallik (1995) 'Flood adaptations in Bangladesh: Is the compartmentalization scheme compatible with indigenous adjustments of rice cropping to flood regimes?' *Applied Geography*. 15(1). pp. 3–17.
- Rasid, H. and B.K. Paul (1987) 'Flood problems in Bangladesh: Is there an indigenous solution?' *Environmental Management*. 11(2). pp. 155–173.
- Shajahan, A and Reja, M Y, 2001, *Towards sustainable flood mitigation strategies: A case study of Bangladesh*, Department of Architecture, Bangladesh University of Engineering & Technology, Dhaka-1000, Bangladesh.
- Siddiqui, K. U. and Hossain, A. N. H. A. (ed.), (2006) , *The Impact of Floods on Bangladesh and Options for Mitigation: An Overview*, In: *Options for Flood Risk and Damage Reduction in Bangladesh*, The University Press Limited, Dhaka.
- Siddiqui, K. U. and Hossain, A. N. H. A. (ed.), (2006a), *Flood Forecasting and Response System*, In: *Options for Flood Risk and Damage Reduction in Bangladesh*, the University Press Limited, Dhaka
- Siddiqui, K. U. and Hossain, A. N. H. A. (ed.), (2006b), *Guideline on Flood Disaster Management*, In: *Options for Flood Risk and Damage Reduction in Bangladesh*, the University Press Limited, Dhaka
- Siddiqui, K. U. and Hossain, A. N. H. A. (ed.), (2006c), *Flood Disaster Management in Dhaka City*, In: *Options for Flood Risk and Damage Reduction in Bangladesh*, the University Press Limited, Dhaka
- SOD (Standing Orders on Disaster) (2010), Ministry of Food and Disaster Management, Bangladesh.
- SoE BANGLADESH : STATE OF THE ENVIRONMENT 2001
- Third AIPA CAUCUS Report (2011) Available at: http://www.congress.gov.ph/aipa.2011/delreps/CR9_Vietnam_On%20Disaster%20Response%20Management.pdf accessed on 20.12.2012 University of Rajshahi, Bangladesh.
- USAID (United States Agency for International Development) (1988) *OFDA Annual Report*. Office of the US Disaster Assistance Agency for International Development, Washington, DC. pp. 110–122.

- VCR (Vietnam Country Report) (2012), *National framework and practices for socially vulnerable groups in case where natural disaster hit country*, The 10th ASEAN & Japan High level officials meeting, Tokyo, Japan
- Wescoat, J.L. Jr and J.W. Jacobs (1993) *The Evolution of Flood Hazards Programs in Asia: The Current Situation*. University of Colorado, Boulder, CO
- Zuma et al, (2012), *Disaster Management in South Africa: Legislative Framework and Current Challenges*, International Conference on Applied Life Sciences (ICALS2012), Turkey

**Effectiveness of Union Disaster Management Committee (UDMC) for Flood Disaster
Management: A comparative study.**

**QUESTIONNAIRE (ONLY FOR UNION DISASTER MANAGEMENT
COMMITTEE MEMBER)**

(Highly confidential Only for Research Purpose)

Date:

Time:

A. Identification of the area:

Zilla:	Thana:
Union:	Sample No :

B. Personal Information:

Name	Fathers/husband name	Gender (1)	Age (2)	Religion (3)	Education (4)	Occupation (5)

Remarks:

- Gender: 1=Male, 2= Female
- Age: 1=25-35 Years ,2=36-45 Years,3=46-55Years , 4=Above 55 Years
- Religion : 1=Muslim, 2=Hindu , 3=Buddhist ,4=Christian , 5= Others
- Education: 1=Up to Primary school , 2=below SSC, 3=SSC, 4=HSC,5= Graduate and above
- Occupation: 1=Agriculture, 2=Business, 3= service , 4= House Wife 5) Others

C. Questions

1. What position do you hold in Union Disaster management Committee (UDMC)?

a) Chairman b) Member c) Member secretary d) Don't Know

2. Have you ever heard about Standing Orders on Disaster (SOD)?

a) Yes b) No

3. Have you ever seen the book on Standing Orders on Disaster (SOD)?

a) Yes b) No

3. Do you know the Responsibilities of Union Disaster management Committee (UDMC)?

a) Yes b) No c) Partial

4. How do you Know Responsibilities of Union Disaster management Committee (UDMC)?

a) By SOD b) By Traditionally

5. Do you submit updated list of members of UDMC to Upazila Disaster Management Committee?

a) Yes b) No

6. How many meetings of UDMC were held during the past 01(one) year (January-December 2012)?

a) None b) Less than 3 c) 3 d) More than 3 e) Don't Know

7. Do you attend in meeting regularly?

a) Yes b) No

8. What is the usual percentage of attendance at UDMC meetings?

a) Less than 30% b) 30-40% c) 40-50% d) 50-60% e) above 60%

9. Have you got any training on disaster management during last one year?

a) Yes b) No

If yes, please specify

Training/ workshops	Duration (days)	From	To

10. Has UDMC undertake any awareness raising activities for community people on DRR during the last one year?

a. Yes b. No

If yes, please specify

Item	Number	Item	Number
Folk Song		Leaflet	
Popular Drama		Poster	
Bill Board		Miking	

11. Have you arrange any mock drills / simulation exercises during last one year?

a) Yes b) No c) Don't Know

12. Do you identify the most vulnerable people?

a) Yes b) No c) Don't Know

12. Is there any Union Disaster Management Plan?

a) Yes b) No c) Don't Know

13. Have the committee identified emergency shelters for evacuation during disaster?

a) Yes b) No c) Don't Know

14. Do you have trained volunteers?

a) Yes b) No c) Don't Know

15. Have there any early warning system at your union?

a) Yes b) No c) Don't Know

16. How are the warnings transmitted to the population?

a) Miking b) Mobile phone c) TV d) Radio e) Others

17. Do you have any action plan to help people to transfer their essential resources to safe place?

a) Yes b) No c) Don't Know

18. What is the last major flood in your union?

a) 1988 b) 1998 c) 2004 d) 2007

18. Is there any NGO activities regarding disaster?

a) Yes b) No c) Don't Know

19. Do you think NGO activities are helpful for disaster management?

a) Yes b) No

20. What your assessment about UDMC to fulfill their responsibilities?

a) Good b) Fare c) Poor

21. What are the challenges for successful execution of SOD? (Please put more than one tick if applicable)

a) Lack of awareness and Knowledge b) Lack of resources/Budget

c) Lack of proper monitoring d) Lack of training/motivation

e) Lack of regular meeting

f) Lack of coordination among the member

g) Others, please specify

22. What should be done for fully functional of UDMC at union level? (Please put more than one tick if applicable)

a) Proper training and motivation b) Proper allocation of resources

c) Proper monitoring d) Evaluate stakeholder feedback

e) Others, please specify

Thank you for your kind cooperation

**Effectiveness of Union Disaster Management Committee (UDMC) for Flood Disaster
Management: A comparative study.**

QUESTIONNAIRE (ONLY FOR SERVICE RECEIVER)

(Highly confidential Only for Research Purpose)

Date:

Time:

A. Identification of the area:

Zilla:	Thana:
Union:	Sample No :

B. Personal Information:

Name	Fathers/husband name	Gender (1)	Age (2)	Religion (3)	Education (4)	Occupation (5)

Remarks:

1. Gender: 1=Male, 2= Female
2. Age: 1=25-35 Years ,2=36-45 Years,3=46-55Years , 4=Above 55 Years
3. Religion : 1=Muslim, 2=Hindu , 3=Buddhist ,4=Christian , 5= Others
4. Education: 1=Up to Primary school , 2=below SSC, 3=SSC, 4= HSC, 5= Graduate and above
5. Occupation: 1=Agriculture, 2=Business, 3= service , 4= House Wife 5) Others

C. Questions

1. Do you know about Union Disaster Management Committee?

a) Yes b) No

2. Have you receive any training on disaster management?

a) Yes b) No

3. If yes who provide the training?

a) UDMC b) NGO c) Others

4. Have you seen any mock drills / simulation exercises during last one year?
- a) Yes b) No
6. Are warnings given on time to prepare your evacuation and safe guard your belongings?
- a) Yes b) No
8. How are you getting the warnings on disaster?
- a) Miking b) Flag c) Mobile phone d) TV c) Radio
9. What is your assessment of the warning given by authorities?
- a) Good b) Fair c) Poor
10. Did you get any support from UDMC to transfer your essential resources during last flood?
- a) Yes b) No
11. What is the last major flood in your union?
- a) 1988 b) 1998 c) 2004 d) 2007
13. Did you face any problem regarding managing water during any last flood?
- a) Yes b) No
14. How long did it take for local authorities to provide emergency or relief services after the disaster?
- a) < 24 hours b) - > 1 day c) none
15. How long does it take to go back to your normal life after a disaster?
- a) 8 days to 15 days b) 15 days to 30 days c) 30 to 60 days d) more than 60 days

16. Do you have any foreign aid program/NGOs in your locality?

- a) Yes b) No c) N/A

17. Do you think NGO activities are helpful for disaster management?

- a) Yes b) No

18. What your assessment about UDMC to fulfill their responsibilities?

- a) Good b) Fair c) Poor

19. What should be done for fully functional of UDMC at union level? (Please put more than one tick if applicable)

- a) Proper training and motivation b) Proper allocation of resources
c) Proper monitoring d) Evaluate stakeholder feedback
e) Others, please specify

Thank you for your kind cooperation

**Effectiveness of Union Disaster Management Committee (UDMC) for Flood Disaster
Management: A comparative study.**

**INTERVIEW (UPAZILA NIRBAHI OFFICER)
(Highly confidential Only for Research Purpose)**

Date:

Time:

1. Identification of the area:

Zilla:	Thana:
Union:	Sample No :

2. What is your opinion about Union Disaster Management Committee regarding their activities?

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3. What are the challenges for successful execution of SOD?

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4. How can develop collaboration between the government and other organizations/agencies like NGO?

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5. What should be done for fully functional of UDMC at union level??

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Thank you for your kind cooperation

**Effectiveness of Union Disaster Management Committee (UDMC) for Flood Disaster
Management: A comparative study.**

**INTERVIEW (PROJECT IMPLEMENTATION OFFICER)
(Highly confidential Only for Research Purpose)**

Date: _____ **Time** _____

1. Identification of the area:

Zilla:	Thana:
Union:	Sample No :

2. What is your opinion about Union Disaster Management Committee regarding their activities?

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3. What are the challenges for successful execution of SOD?

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4. How can develop collaboration between the government and other organizations/agencies like NGO?

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5. What should be done for fully functional of UDMC at union level??

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Thank you for your kind cooperation