

Self-Organisation in the Governance of Disaster Risk Management in Bangladesh

By

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KEY WORDS

Bangladesh

Participation

Governance

Accountability

Coordination

Legal framework

Disaster risk management

Union disaster management committee (UDMC)

Non-government organisations (NGOs)

Community-based organisations (CBOs)



DECLARATION

I declare that 'Self-organisation in the governance of disaster risk management in Bangladesh' is my own work and that all the sources I have used or quoted have been indicated and acknowledged as complete references. Moreover, I declare that this mini-thesis has not been submitted at any university, college or institution of higher learning for any degree or academic qualification.

.Mokter Hossain

25 October 2008



ABBREVIATIONS

ADB	Asian Development Bank
ADP	Annual Development Programme
ADPC	Asian Disaster Preparedness Centre
BBS	Bangladesh Bureau of Statistics
BMD	Bangladesh Meteorological Department
BWDB	Bangladesh Water Development Board
CBOs	Community-Based Organisations
CDMP	Comprehensive Disaster Management Programme
DAP	Disaster Action Plan
DFID	Department for International Development
DMB	Disaster Management Bureau
DMC	Disaster Management Committee
DRI	Disaster Risk Index
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
FAO	Food and Agriculture Organisation
FGD	Focus Group Discussion
FPOCG	Focal Point Operation Coordination Group of Disaster Management
GDP	Gross Domestic Product
GoB	Government of Bangladesh
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
IFRC	International Federation of Red Cross and Red Crescent Societies
IMDMCC	Inter-Ministerial Disaster Management Coordination Committee
JJS	Jagrata Juba Shangha
LGED	Local Government Engineering Department
MoFDM	Ministry of Food and Disaster Management
NDMAC	National Disaster Management Advisory Committee
NDMC	National Disaster Management Council
NGOs	Non-Government Organisations
ODI	Overseas Development Institute
PAR	Pressure and Release Model

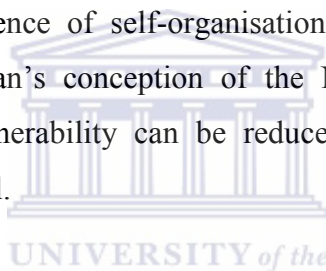
PRA	Participatory Rural Appraisal
SOD	Standing Orders on Disaster
SSI	Semi-Structured Interview
SPARRSO	Space Research and Remote Sensing Organization
SWC	Storm Warning Centre
ToR	Terms of Reference
UDMC	Union Disaster Management Committee
UNDP	United Nations Development Programme
UN/ISDR	United Nations International Strategy for Disaster Reduction
UP	Union Parishad
VGD	Vulnerable Group Development
VGf	Vulnerability Group Feeding
WB	World Bank
WDB	Water Development Board



ABSTRACT

A disaster always means a huge death toll, displacement and inconceivable destruction for a poor country such as Bangladesh. Recently, Bangladesh has taken a holistic approach to prioritising interrelated activities and the involvement of various organisations in disaster management. A number of disaster management committees (DMCs) have been formed to coordinate and implement risk reduction measures. But the levels of success of these organisations have varied in different regions. Improper consideration of local knowledge, corruption of actors, lack of coordination and capacity of actors, etc., are perceived as major causes of this. Primarily, this mini-thesis aims to measure the impact of self-organisation in disaster risk management.

A three-month field research was conducted on two unions¹ of Bangladesh, using qualitative research tools. Having considered the literature review and theoretical framework (chapter 2), this study argued that the presence of self-organisation in disaster management can be explained according to Kauffman's conception of the N-K system. It also investigated whether the progression of vulnerability can be reduced according to the argument of pressure and release (PAR) model.



The results of this study reveal that self-organisation in the response to cyclone Sidr at Koyra Sadar Union can be explained according to the N–K system. This study found various types of organisations responded during the cyclone. The goal to protect the safety of community people of this union served as the basis for decision making and set the boundaries for response operations. Koyra Sadar Union Disaster Management Committee (UDMC) coordinated the activities of all organisations centrally. Regular communications were maintained between organisations to reach the goal. Standing Orders of Disasters (SOD), a legal framework for disasters in Bangladesh, was used to set the boundaries of responsibilities. Therefore, the response measures at Koyra Sadar Union can be attributed to the characteristics of Kauffman's N–K system. But these characteristics were missing in response measures performed by organisations at Uttar Bedkashi Union.

The people of Koyra Sadar Union have increased access to resources (information, safe shelters, government / non-government organisation (NGO) loans) and decision making

¹ Union is the last tier of local government in Bangladesh. It consists of several villages.

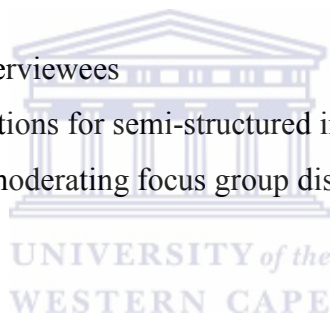
compared with Uttar Bedkashi Union. This study reveals that increased access to information has raised community awareness of preparedness in Koyra Sadar Union. It was motivating people for skill development training, for example evacuation drills (dynamic pressures are reduced because of appropriate skill development). Development of appropriate skills helped the community to be well prepared during natural disasters (safer conditions are gradually achieved). It reduced losses from natural disasters in Koyra Sadar Union. But the study reveals that losses from disasters are still extensive in Uttar Bedkashi Union.

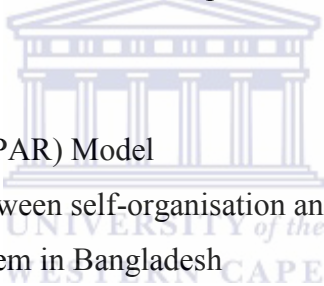


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CHAPTER 1

INTRODUCTION

1.1 Introduction

In 2005 Bangladesh was ranked fifth among the countries most hit by natural hazards (UN/ISDR, 2005:1). Floods, cyclones, and river erosion are widespread and common every year. From 1996 to 2005 around seven million people reported that they had been affected by disasters in Bangladesh (IFRC, 2006:221). Recurrent natural hazards do not leave sufficient time to recover the associated loss and organise rehabilitation. In addition, most of the people do not have sufficient resources to cope with natural hazards, owing to the high level of extreme poverty. Recently, the tropical cyclone Sidr caused 3 292 deaths and affected 8.6 million people, in 2.0 million families (MoFDM, 2007a:1).

Managing disaster risk at all levels is one of the prime concerns of the Bangladesh government. Various measures have been initiated since the 1970s to reduce disaster risk. The latest is the Comprehensive Disaster Management Programme (CDMP), a holistic approach that moves away from response relief towards a comprehensive risk management culture. It has prioritised the interrelated activities and involvement of various agents in different phases. Disaster management committees (DMCs) have been formed at national and local level to coordinate and implement risk reduction measures. But losses from natural hazards are still extensive in most parts of the country. Inadequate consideration of local knowledge in disaster mitigation plans, mismanagement by and corruption of actors, and lack of awareness among the community are perceived to be major causes of extensive losses.

This mini-thesis argues that these causes of extensive losses from natural hazards can be effectively addressed and reduced through self-organised governance. According to Wisner et al. (2004:346), successful disaster management in Cuba may provide an example of the impact of governance in disaster risk management. Governance has been gaining importance in disaster risk reduction since the last decade. The failures of disaster planning, of building regulation, of environmental control and of coordination of actors can be described as governance failures. According to the UNDP report, 'Appropriate governance for disaster risk management is a fundamental requirement if risk considerations are to be factored into development planning, and if existing risks are to be successfully mitigated' (UNDP,

2004:89). The CDMP in Bangladesh has also acknowledged the importance of governance in reducing disaster risk. In this mini-thesis, governance is taken to be self-organisation that determines the participation, coordination and accountability of multiple agents within a defined boundary through a legal framework. Self-organisations are defined here as those organisations that appear through the reallocation of action and energy within a system in order to achieve a larger goal. Following this definition, this study regards union disaster management committees, local youth clubs, women's associations, farmers' organisations, religious groups, and NGOs as self-organisations. Certain key research questions are addressed in this study. How are self-organisations participating and interacting in disaster risk management? Do they have accountability? Do they ensure the participation of the community in risk management? Are the boundaries of interactions defined by a legal framework? What is the impact of self-organisation in risk management?

Bangladesh has decentralised government structures since 1972. In rural areas, there are three tiers of local government structure: district; sub-district (locally known as *upazila*); and union *parishad*. This mini-thesis concentrates on the union-level local government system of disaster risk reduction. The union parishad is the lowest administrative unit of rural local government. It is the public administrative unit that is closest to the people of the community. A union disaster management committee (UDMC) is formed of members selected from the union parishad, and representatives of non-government organisations (NGOs). According to the Standing Orders on Disaster (SOD) (guidelines on the roles and responsibilities of organisations working on disaster risk), the UDMC is responsible for community participation in risk reduction, actor coordination, and preparation and implementation of the disaster action plan (DAP) at local level. But corruption, political bias, and the limited budget and powers of the UDMC are often blamed for inefficient disaster management in Bangladesh. Therefore, this study also aims to find out the real scenario at field level.

This mini-thesis is organised in five chapters. The first chapter is the introductory section, based on the problem statement and research objective. The second chapter details the literature review to produce the theoretical framework for addressing research problems. Conceptualisation of necessary topics has also been done here. The subsequent chapter outlines the research methodology of this study. Two case studies are described in chapter 4 to find answers to the research questions. In the last chapter a number of recommendations are given for decision makers, NGO workers, and researchers.

1.2 Objectives

The main objective of this research is to analyse the impact of self-organisation in the governance of disaster risk management. This objective is elaborated in subsequent objectives:

- To provide a theoretical perspective of governance, self-organisation and disaster risk
- To contribute two case studies of disaster risk management in two unions of Koyra sub-district of Bangladesh
- To provide recommendations for decision makers and practitioners, based on research findings

1.3 Significance and limitations

This mini-thesis is highly significant in the context of Bangladesh as it produces a comprehensive and comparative picture, based on opinions from respondents. It creates scope for further development of disaster policies and laws in the context of the study area. In addition, it analyses the community's perceptions of their risks, and their views of ways in which to address those risks. It also helps to prepare effective risk reduction measures. The level of coordination between various actors has also been analysed here because it could be helpful to delineate coordinated activities to avoid duplication and to use resources optimally. This study also creates scope for further research.

Among the limitations of the study, the first concerns the application of theory to a real context. When considering research problems in the context of Bangladesh, this study relies on the pressure and release (PAR) model to establish the theoretical framework. Because this model prioritises only natural hazards, this study consequently limits its focus to natural hazards of the study area.

This mini-thesis does not explain in detail why union disaster management committees, youth clubs, NGOs, women's associations, etc, are regarded as self-organisations in disaster management. The lack of a precise definition of self-organisation in disaster management is one of the causes behind that. Another limitation is that when one considers the total population and the age-gender distribution, the sample size of this study is not representative of two whole unions. So, this study relies a great deal on qualitative analysis to complement the depth of information. Therefore, the findings and conclusions of the research should be seen in relation to these limitations.

CHAPTER 2

LITERATURE REVIEW

Addressing self-organising networks in disaster management is fairly new in empirical research. There is still a relative dearth of research and information on the consequences of self-organising networks in disaster management practices. This chapter presents the findings of the literature and the terms that are frequently used in disaster research papers.

2.1 Conceptual background and working definition

2.1.1 Vulnerability, hazard and disaster

The concept of ‘vulnerability’ is increasingly used by disaster response agencies when analysing processes and conditions that leads to disasters, and when identifying disaster responses. Because no common definition of ‘vulnerability’ exists, agencies use the concept in the way that best fits their usual practice (Heijmans, 2001:1). Heijmans argues that vulnerability is not a concept that grassroots communities use. According to Wisner et al. (2004: 24), ‘vulnerability’ can be defined as the outcome of political, demographic and global economic processes. Vulnerability is very much contextual, and depends on a number of factors. Two households living in a cyclone-prone area are not vulnerable to cyclone to the same degree. The extent of their vulnerability depends on physical, social, economical and environmental factors. This mini-thesis analyses vulnerability in relation to disaster risk. Vulnerability is defined here as a set of conditions which increase the susceptibility of a community to the impact of natural hazards. This susceptibility can be reduced by increasing its capacity. For example, financial savings can enhance the financial capacity of the community to reduce and/or to prevent the impact of natural hazards.

Hazard can be defined as a potential threat to human beings and their welfare. It can be natural, for example earthquakes, or induced by human processes, for example industrial accidents (Twigg, 2004:12–13). A broader view of hazard can be found in the definition given by UN/ISDR. It defines hazard as

a potentially damaging physical event, phenomenon or human activity, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation. Hazards can include latent conditions that may represent

future threats and can have different origins: natural (geological, hydrometeorological and biological) and/or induced by human processes (environmental degradation and technological hazards). Hazards can be single, sequential or combined in their origin and effects. Each hazard is characterized by its location, intensity and probability (UN/ISDR, 2004:24).

Hence, hazards can be narrowly confined to a locality or threaten entire regions. Depending on the nature and spatial settings of the locality, their intensity and probability can differ. In this study ‘hazard’ is defined as a potentially damaging natural event.

At present, the term ‘disaster’ is not used to mean only one thing. The definition of the term can differ greatly, depending on the standpoint (for example victim, insurer or scientist) and the cultural setting (Garatwa & Bollin, 2002:16). According to Wisner et al. (2004:5), ‘disasters are a complex mix of natural hazards and human action’. Nevertheless, two common elements can be found in the definitions of disaster: the extent of damage and loss, which is considered to be very high; and the inability of the people, regions or countries affected to cope in the short or medium term on their own (Garatwa & Bollin, 2002:16).

Not every extreme natural event is a disaster. Floods may have both beneficial and adverse impacts. For example, through floods the soil is supplied with fresh nutrients and made more fertile again, resulting in higher yields in certain regions of Bangladesh. Therefore, an extreme natural event can be a disaster only when it has adverse impacts. Disaster can be sudden or slow in onset. Among natural hazards, extreme drought is the only one that is innately slow in onset. Natural hazards that are common in the study area are sudden and extreme in character. Often these hazards turn into disasters, causing immense damage to the localities. Therefore, this mini-thesis is aligned with the definition of disaster provided by the UN/ISDR (2004:24), ‘A disaster is a function of the risk process. It results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk.’

2.1.2 Disaster risk management

For years, scientists and disaster managers have been arguing about ‘objective’ risk. They calculate risks according to statistical formulas, based on probability and the negative impacts of past hazard events. They even treat people’s risk behaviour as irrational. But this idea is

highly criticised by sociologists. They argue that ‘perceptions of risk are not irrational, but must be seen as individual judgments under uncertainty’ (Heijmans, 2001:5). According to Löffstedt et al. (1998:4), ‘People make the best choice from several alternatives, and take actions regarding hazards based on their personal perception of risk, rather than on some objectively and scientifically derived measure of threat.’

Wisner et al. (2004:19) also regard risk as an objective hazard which at times can be measured individually and can be mediated through social and cultural processes. Such objective measures of risk can also be found in the UN/ISDR definition, where risk is ‘the probability of harmful consequences, or expected loss (of lives, people injured, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human induced hazards and vulnerable/capable conditions’. In the Disaster Risk Index (DRI), risk refers exclusively to the possibility of loss of life and excludes other facets of risk, such as risk to livelihood and to the economy (UN/ISDR, 2004:30). This mini-thesis does not measure risk. Rather, it relies on people’s perceptions to justify the role of self-organising networks in disaster risk management.

This study acknowledges the argument that reducing vulnerability is important in reducing the risk of disaster. According to UN/ISDR,

disaster reduction strategies include, first and foremost, vulnerability and risk assessment, as well as a number of institutional capacities and operational abilities. The assessment of the vulnerability of critical facilities, social and economic infrastructure, the use of effective early warning systems, and the application of many different types of scientific, technical, and other skilled abilities are essential features of a disaster reduction strategy (UN/ISDR, 2004:22).

Twigg (2004:13) argues for the broad development and application of policies, strategies and practices to minimise vulnerability and disaster risks throughout society. The World Bank puts more emphasis on interaction among institutions and actors to reduce disaster risk. Mitchell (2003:1), while acknowledging the necessity of interaction among actors, emphasises the need to establish political commitment and community participation around disaster risk reduction.

The terms ‘disaster risk reduction’ and ‘disaster risk management’ are often used interchangeably in disaster literature. In practice, there is no basic difference between risk reduction and risk management. Disaster risk management refers to a series of actions and instruments. It may be defined as ‘the systematic management of administrative decisions, organisation, operational skills and responsibilities to apply policies, strategies and practices for *disaster risk reduction*’ (UN/ISDR, 2004:25). This mini-thesis concentrates on agents/actors, and the policies and roles of actors in reducing disaster losses, which might cover both disaster risk reduction and disaster risk management. This study concentrates on disaster risk management at local level. Since local communities are the first to feel the impacts of natural hazards, they need to be prepared first.

Human vulnerability to natural hazards can be understood according to the pressure and release (PAR) model, developed by Wisner et al. The basis of the PAR concept is that a disaster is the intersection of two opposing forces: those processes that generate vulnerability; and the natural hazard event (or sometimes a slowly unfolding natural process) (Wisner et al., 2004:50). The ‘release’ idea underpins the notion that pressure has to be relieved through reducing vulnerability to disaster. According to the PAR model, there are three levels or progressions of vulnerability: root causes, dynamic pressures, and unsafe conditions.

Root causes or underlying factors can be economic, political and demographic processes, which are less immediately visible. ‘Root causes are also connected with the function (or dysfunction) of the state, and ultimately the nature of the control exercised by the police and military, and with good governance, the rule of law and the capabilities of the administration’ (Wisner et al., 2004:52). Dynamic pressures channel the root causes into particular forms of insecurity or unsafe conditions. Epidemic diseases, rapid urbanisation, foreign debt, etc., can act as dynamic pressures. ‘Unsafe conditions are the specific forms in which the vulnerability of a population is expressed in time and space in conjunction with a hazard’ (Wisner et al., 2004:5). They are dependent on the initial level of wellbeing of the people. Having to live in a hazardous location is an example of unsafe conditions.

Following the argument of this model, risk to disaster can be managed by reducing vulnerability through relieving pressure or by reducing the hazard itself. But vulnerability is very much contextual and depends on a number of factors. No single element can be considered alone to reduce the vulnerability of people. In addition, root causes can be

channelled into unsafe conditions in many ways. Therefore, it is difficult to obtain reliable evidence to establish a linkage between root causes, dynamic pressures and unsafe conditions. But following the arguments of Wisner et al. (2004:85), a chain of explanation can be found if one regards vulnerability as a function of socio-economic process.

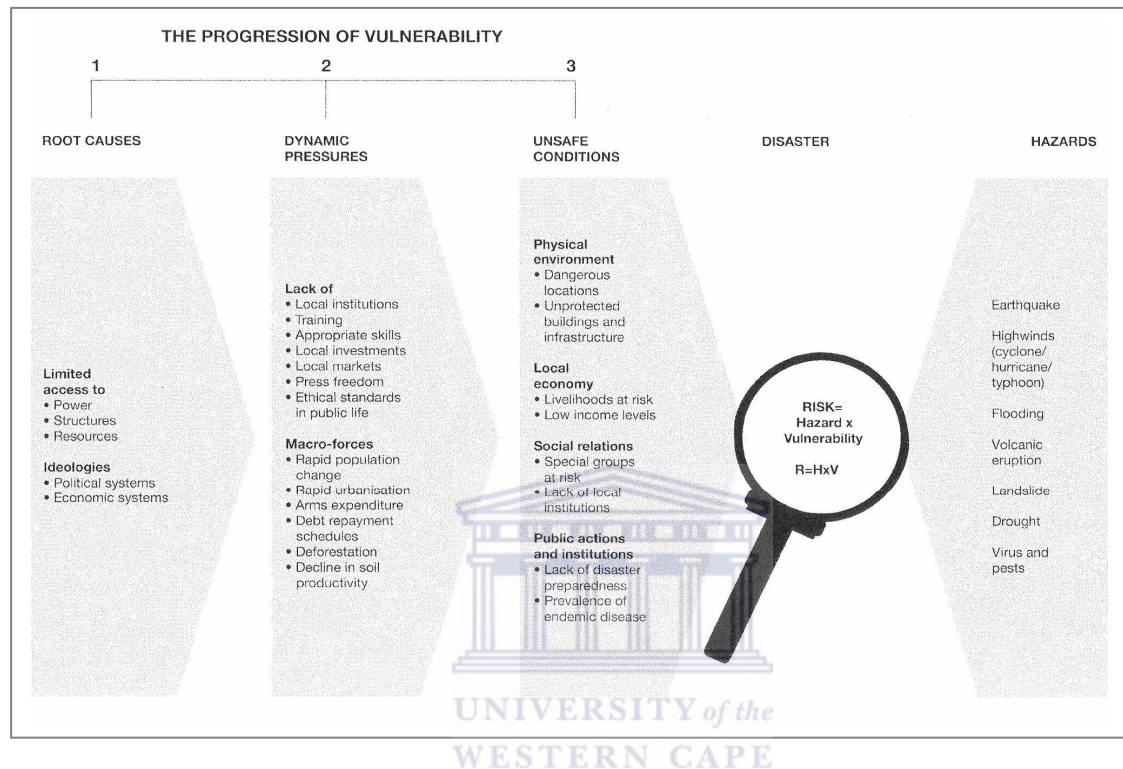


Figure 2.1 Pressure and Release (PAR) Model

Source: Modified and adapted from Wisner et al., 2004:51.

This PAR model can be reversed to provide security instead of risk. Root causes can be changed, and unsafe conditions can be turned into safer conditions. The authors also argue that governance is crucial in reversing many of the dynamic pressures and even the root causes of vulnerability (Wisner et al., 2004:345). Therefore, it is worthwhile discussing governance as a factor to release the ‘pressure’ process leading to disaster.

2.1.3 Governance to reduce vulnerability (relieving pressure)

Governance has received increasing attention since the late 1980s in the search to understand why so many structural adjustment programmes were not taking hold, particularly in Africa (Goldsmith, 2005:2). Governance is a relatively new factor in addressing disaster risk, its inception dating back to the late 1990s. While the World Bank (WB) defines governance as

‘the manner in which power is exercised in the management of a country’s economic and social resources for development’, it draws a distinction between an analytical framework and the operational concept of governance. Analytically the WB explores three aspects of governance: the form of political regime; the process by which authority is exercised in the management of a country’s economic and social resources for development; and the capacity of governments to design, formulate, and implement policies and discharge functions (Goldsmith, 2005:97). The United Nations Development Programme (UNDP), acknowledging this definition, argues directly for economic, political and administrative authority to manage a country's affairs at all levels. In addition to these definitions, Welch and Nuru emphasise power practice and the empowerment of people according to traditions and institutions (Welch & Nuru, 2006:35).

The literature on political processes and practical experience highlights six main ‘arenas’ of governance:

- Civil society, where citizens become aware of and raise political issues
- Political society, where societal interests are aggregated
- Government, executive stewardship of the system as a whole
- Bureaucracy, where policies are implemented
- Economic society, which refers to state-market relations
- The judiciary, where disputes are settled

(Overseas Development Institute, 2006:2).

These main arenas of governance can be universal, but are supposed to make no sense without contextual references.

There are popular misconceptions about governance and government. Governance is about government, but is not synonymous with government. ‘Partly it [governance] is about how governments and other social organisations interact, how they relate to citizens, and how decisions are taken in a complex world’ (Graham et al., 2003:1). Government is one of the actors, among others, in governance. The context of governance can be global, national, regional and local.

Rhodes identifies six separate uses of governance:

- As minimal state

- As corporate governance
- As the new public management
- As ‘good governance’
- As a socio-cybernetic system
- As self-organising network

(Rhodes, 1997:46-47).

Governance as a self-organising network has been studied extensively in the literature. The shared characteristics of governance as self-organising network are interdependencies between organisations; continuing interactions between network members, caused by the need to exchange resources and negotiate shared purpose; game-like interactions, rooted in trust and regulated by rules of the game; and a significant degree of autonomy from the state (Rhodes 1997:53).

The world is full of self-organising systems – systems that form structures and processes, not merely in response to inputs from outside, but also, indeed primarily, in response to their own internal logic (Rycroft, 2003:1). According to Serugendo et al. (2004:1), ‘Many systems in nature demonstrate self-organisation, such as planets, cells, organisms and societies.’ The phenomenon of self-organisation was first recognised as an important aspect of the wider process of change in operating systems in the physical and biological sciences (Comfort, 1993:394).

Physical self-organising systems present a critical value in which the state of the system changes suddenly to another system under certain conditions (temperature, speed, etc.). In terms of living systems, the global emergence of a behaviour or a feature that cannot be reduced to the properties of each system’s component (molecules, agents, cells, ...) also defines the common meaning of self-organisation (Serugendo et al., 2004:3). The communication mechanism plays a vital role in a social self-organisation system. Insects have simple behaviour, and none of them alone ‘know’ how to find food, but their interaction gives rise to an organised society, able to explore their environment, find food and efficiently inform the rest of the colony (Serugendo et al., 2004:4).

Owing to the increasing popularity of the idea of self-organisation in various research fields, it is difficult to find a precise definition. However, similar properties are apparent among the

definitions of self-organisation (Serugendo et al., 2004:2). Serugendo et al. (2004:2) define self-organisation as ‘a system’s structure or organisation [that] appears without explicit control or constraints from outside the system’. Self-organisation usually represents an essential reallocation of action and energy within a system in order to achieve a larger goal (Comfort, 1993:394).

Self-organisation represents the spontaneous emergence in physical or social systems. The process of emergence has been observed in the network of community organisations after natural or technological disasters (Comfort, 1993:393). The process of self-organisation in the context of disaster is supposed to be difficult because the extent, form and rate of self-organisation vary from disaster to disaster and community to community. Owing to sudden change in the systems, it is considered difficult for disaster managers to understand where, how and when changes may occur.

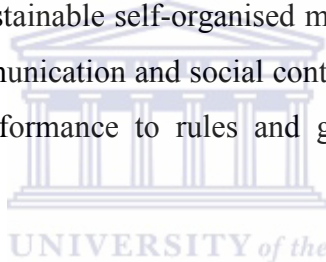
Comfort describes four characteristics of self-organisation (Comfort, 1993:396). First, self-organisation is a continuous process that occurs in social contexts through ‘communicative acts’ (Comfort, 1993:397). These acts can be verbal, written, or electronic communication transmitted directly between two or more actors within the system or between the system and its environment. Second, self-organisation creates the system's capacity for adaptation to environmental conditions (Comfort, 1993:397). Comfort argues that self-organisation recognises that individual choices sometimes affect the operation of the wider system. Third, self-organisation recognises the influence or control that some units exert over other units in an interdependent system. Fourth, different components in self-organising systems perform different functions simultaneously in order to achieve the desired goal of the system (Comfort, 1993:397). Self-organisation depends on ready access to timely accurate information through an information infrastructure that supports systematic monitoring of critical conditions, feedback to responsible participants, and revision of actions taken in the light of new information (Comfort, 1995:1).

Kauffman's description of self-organising systems as 'N–K systems' permits the identification of basic characteristics of this system (Comfort, 1993:398). This set of characteristics may be summarised as follows (Comfort, 1994:306–307):

- N = number of organisations participating in disaster response

- K = estimated number of interactions among participating organisations
- P = shared goal of organisations, or 'bias for choice' in actions
- B = boundaries of the system
- D = duration of interactions among organisations
- T = types of transactions performed by organisations

In terms of the characteristics of 'N-K systems', it can be argued that participation, coordination (owing to interaction, shared goal), legal framework (boundaries of the system), and accountability (types of transactions, trust in game-like interactions among multiple agents) are important in self-organised governance of disaster management. But self-organised governance systems can be dominated by a local leader or a power elite who only accept changes that are advantageous to them. Some appropriators will not organise because of the presence of low-cost alternative sources of income that do not depend on the use of the resource (Ostrom, 1999:527). Sustainable self-organised management can only be successful in a context where efficient communication and social control are possible, allowing for clear mechanisms for monitoring conformance to rules and graduated sanctions for enforcing compliance (Ostrom, 1998:8).



Dedeurwaerdere (2005:1) characterised self-organised governance as an attempt to take into account the increasing importance of NGOs, the private sector, scientific networks and international institutions in the performance of various functions of governance. This study regards community-based organisations (CBOs), NGOs, union disaster management committees (UDMCs), and other self-help initiatives of local groups as self-organisations. It argues that self-organisation in terms of participation, coordination, accountability, and a legal framework to define boundaries of the interactions has a positive impact on disaster risk management. Participation and a legal framework are considered important to ensure the interaction of agents in decision making. In addition, coordination and accountability are crucial to get the decision made according to plan.

2.1.3.1 Understanding 'participation'

Participation is defined differently by authors. Twigg et al. (2001:9) divide 'participation' into two main categories: guided participation (also known as instrumental participation); and

people-centred participation (also known as transformative participation). According to Twigg et al. (2001:10),

Guided participation seeks to include people in improvement projects, mostly in implementation and sometimes planning, but the projects are still initiated, funded and ultimately controlled by professional planners from outside the community: the planners determine the level of popular participation. An example of guided participation in the disaster reduction context is early warning and response systems to rapid-onset hazards such as cyclones.

On the other hand,

People-centred participation addresses issues of power and control. It is concerned with the nature of the society in which these programmes and projects are developed. It is founded on the belief that ordinary people are capable of critical reflection and analysis, and that their knowledge is relevant and necessary (Twigg et al., 2001:10).

The practice of participation is complex and full of challenges. According to a review report of *Participation: The New Tyranny?*, 'The theoretical ideal of participation is often not functioning as the tool for liberation and distribution of power that its rhetoric suggests' (Christens & Speer, 2006:2). Participation is also critical in terms of community dynamics (homogeneity or heterogeneity), power relations, financial disparities and local knowledge. 'Participatory approaches are still not widely practised in disaster risk reduction due to the history, character and culture of disaster work, with its command-and-control mentality, and technocratic bias' (Twigg et al., 2001:12).

Effective preparation of communities against hazards is crucial in disaster risk reduction. Twigg et al. (2001:12) argue that the success of risk reduction depends on the extent to which it can empower and mobilise the community collectively. It depends on full participation or people-centred participation. Therefore, this mini-thesis emphasises full participation of local organisations in disaster risk management. Participation is defined here as a process to ensure access to understandable information, to have a voice in decision making (consideration of local knowledge in disaster plans and policies), and to involve the people concerned in the implementation of disaster risk reduction activities.

2.1.3.2 Understanding 'accountability'

The principle of accountability lies at the heart of genuine participation and community involvement in disaster reduction. The word 'accountability' is often used in disaster and development literature. According to Bhatt, 'Accountability means holding individuals and organisations responsible for their performance, measured as objectively as possible' (Bhatt, 1994:6). This definition seems to place emphasis on the answerability dimension of accountability.

Answerability and enforceability are two facets discussed mostly in the social sciences. According to Jenkins and Goetz, accountability means 'to provide information about one's actions and justifications for their correctness, and having to suffer penalties from those dissatisfied either with the actions themselves or with the rationale invoked to justify them' (Jenkins & Goetz, 2001:5). The process of accountability can vary according to type and direction of accountability. Some authors depict role-oriented accountability, political accountability, administrative accountability and financial accountability. Others have argued for time-oriented accountability, such as ex-ante and ex-post accountability.

Twigg et al. depict two types of accountability, functional and strategic. According to the authors, 'Functional accountability focuses on short-term actions, resources and their use, and immediate effects, whereas strategic accountability looks at the wider and longer-term impact of interventions' (Twigg et al., 2001:33). They argue that accountability generally works in two principal, but very different, directions: downwards – to beneficiaries, local partner agencies, staff and supporters; and upwards – to boards of management, donors and host governments (Twigg et al., 2001:33). Upward accountability can be synonymous with horizontal accountability. Devas and Grant (2003:310) refer to horizontal accountability as the accountability of local government officials to elected representatives. It is essentially the same as administrative accountability. According to them, '[d]ownward or vertical accountability is accountability of elected leaders and officials to local citizens' (Devas & Grant, 2003:310). Vertical accountability is made directly to citizens. It highlights regular free and fair elections as one of the mechanisms for ensuring vertical accountability.

Accountability is defined in this mini-thesis as the means of holding individuals and organisations responsible for their performance. It is argued that accountability of these organisations is essential to getting their jobs done according to plan. This paper concentrates

on answerability and enforceability practices to ensure both upward and downward accountability.

2.1.3.3 Understanding 'coordination'

Multiple organisations are involved in disaster risk management. The scale, frequency and complexity of disasters can be effectively addressed only by developing coordination among these organisations. Disaster risk management deploys a wide range of knowledge, skills, methods and resources, both in development and emergency programming.

Following the argument of Holt, coordination is quite different from other defined tasks. According to the discussion in Shang et al., Holt posits that coordination is

a requirement not in itself, but is needed because other tasks are required. Coordination has no product. Instead it serves to establish relationships between tasks and their products. Coordination has no independent purpose; it is a prerequisite for the accomplishment of other purposes (Shang et al. 2001:2).

Malone and Crowston state that 'coordination is managing dependencies between activities' (Malone & Crowston, 1994:7). The key word here is 'dependency'. The definition focuses on managing the dependency between activities rather than between human or non-human actors. Similarly to the British Department for International Development (DFID), several bilateral and multilateral organisations have argued for collaborative actions to effectively manage disaster risk. DFID (2006:6) endorses 'cross-departmental coordination at government, while across society as a whole it requires better links between the government, NGOs, the private sector and academia'.

'Coordination' is defined in this mini-thesis as a tool to establish better links among organisations to make use of synergies to achieve a common goal. It helps to avoid duplication of works. Participant organisations should set a common goal before coordination take place.

2.1.3.4 Understanding 'legal framework'

The legal framework is imperative in comprehensive disaster risk management activities to ensure the involvement of various actors to pursue diverse activities. Mattingly (2002:20) defines the legal framework as

the framework of laws, executive orders, and other legal instruments that set the ground rules for governmental and non-governmental activities related to disaster mitigation and management. It defines authorities, responsibilities, and roles of officials and organizations as they relate to disaster mitigation and management.

Organisational coordination of disaster risk management could be established through the legal framework. A central agency may be charged with responsibility for the coordination of mitigation efforts, and other agencies may be made legally responsible for specific roles or activities being carried out. According to Mattingly (2002:20),

the legal framework [comprises] statutes and executive acts/orders and implementing regulations that establish legal authority for programs and organizations that relate to hazards, risk, and risk management. These laws may dictate – or encourage – policies, practices, processes, and the assignment of authorities and responsibilities to individuals and/or institutions, and the creation of institutions or mechanisms for coordination or collaborative action among institutions.

Flexibility to adopt change is one of the important issues to be considered in disaster policies, executive orders and/or laws. Policies may focus on any of a number of approaches to reducing disaster risk, for example control of land use; enactment and enforcement of engineering and building codes and standards; and use of technology for forecasting and warning. Because the natural and built environments are constantly changing, and the threat posed by various natural and technological hazards is constantly changing as well, policies must anticipate unpredicted changes and be flexible, dynamic, and adaptable to new knowledge and environmental conditions (Mattingly, 2002:21). This mini-thesis regards the legal framework as a set of policies, laws, and/or executive orders which define the authorities and responsibilities of officials and organisations involved in disaster risk management. It includes the enforcement mechanisms to challenge any system that makes people vulnerable to natural hazards.

2.2 Theoretical framework

In terms of these discussions (above), the progression of vulnerability of the study area may be explained. The root causes of vulnerability of the study area are regarded as lack of access to resources (information, shelter, public/NGO loan) and to decision making (DMC and disaster policy formation). These root causes are channelled by dynamic pressures, for example lack of coordination between actors, lack of skill development, corruption of actors, and lack of adequate shelter in unsafe conditions, for example dangerous locations, lack of preparedness, and weak infrastructures. The factors under the progression of vulnerability are interlinked. No single factor produces risk of disaster for that locality. As most of the people are agricultural labourers and extremely poor, they have limited access to resources and decision making. Owing to economic marginalisation and lack of capacity, these people are living in dangerous locations without any preparedness for natural hazards.

The cause-effect chain of impact of the self-organisation on managing disaster risk could be described theoretically. Disaster risk could be diminished by reducing vulnerability. Vulnerability could be reduced through the participation and coordination of accountable self-organisations under authorities and responsibilities defined by the legal framework. According to the reverse PAR model, the details of the cause-effect chain are reduced disaster risk *because of* the release of pressures. Pressures are released as safer conditions are achieved *because of* the legal framework. Safer conditions are achieved as dynamic pressures are reduced *because* participation, coordination and accountability are in place. Dynamic pressures are reduced as root causes are addressed *because* participation and the legal framework are in place.

How does self-organisation through participation, accountability, and coordination within the defined legal framework impact on disaster risk at local level? This is the main research question being addressed in this paper. The legal framework is essential to ensure participation, accountability and coordination. Again, effective coordination depends on participation and accountability. According to the theoretical framework, the progression of vulnerability in the context of the study area can be reduced by self-organisation, can promote safer conditions, and can reduce risk. The hypothesis of this study is: 'Self-organisation in governance of disaster risk management of Bangladesh has a positive influence on disaster risk management.'

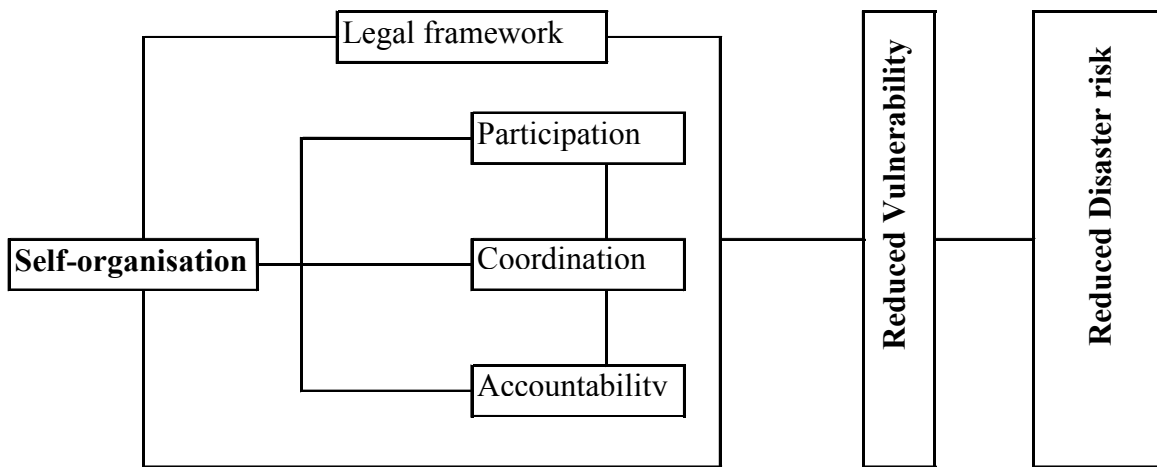


Figure 2.2 Causal relationship between self-organisation and disaster risk

Source: Own compilation.

Figure 2.2 shows the causal relationship between self-organisation and disaster risk management. The legal framework here defines the level of participation, coordination and accountability of self-organisations. The study explains the respondents' views on participation, accountability, and coordination of multiple agents working on disaster risk. Their opinions are also analysed to justify disaster risk in the context of roles played by self-organisations. It is argued that self-organisations have positive impact on disaster risk. It means that losses from disaster, according to the views of the respondents, should be found to be reduced in the case study area.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 General research framework

In terms of the theoretical framework on self-organisation and disaster risk, the study has carried out the following steps in the field research:

- Select case study area
- Select respondents
- List public and/or private organisations working on disaster risk at community level
- Review policies and/or codes for disaster risk reduction
- Analyse the level of coordination among local organisations working on disaster risk
- Analyse the status of participation and accountability of these organisations
- Analyse the impact of self-organisations on disaster risk management
- Identify the causes behind the positive or negative impact of self-organisations on disaster risk

3.2 Case study area selection

This study was conducted at Koyra Sadar Union and Uttar Bedkashi Union of Koyra sub-district in Khulna district of Bangladesh. A multi-stage sampling method was used to select these unions. According to this method, first Khulna district was sampled. Then Koyra sub-district was sampled from other sub-districts of Khulna. Finally, Koyra Sadar Union and Uttar Bedkashi Union were sampled from other unions. The underlying criteria for the selection of these unions were that they are prioritised in the CDMP; they are prone to recurrent natural hazards; and they have active local government systems.

3.3 Selection of the respondents

The respondents were selected from various occupation groups, for example academicians, journalists, experts, members of DMC, of local NGOs, of Red Crescent, and of CBOs, using non-random sampling methods. The 'individual' is regarded here as the unit of analysis. Using a convenience sampling method, 160 individuals (one from each household) were selected from local inhabitants and members of local organisations of these two unions. Then, a judgment sampling method was used to select another 10 individuals as key interviewees from academicians, journalists, and disaster experts. Among these individuals, three

academicians, three experts, and four journalists were selected at local and national level. Semi-structured interviews were conducted with these 170 individuals. In terms of the total population and age-gender distribution, the sample size of this study is not representative of the whole of the two unions. Therefore it relies on more qualitative analysis to complement the depth of information. In addition, two focus group discussions (FGDs) were conducted with the members of union disaster management committees.

3.4 Operationalisation of variables

In terms of the theoretical framework, there are two variables: self-organisation and disaster risk management. Various indicators and their sources of information were used to measure these variables.

3.4.1 Measuring ‘participation’ of self-organisation

The existence of functioning UDMCs, the representation of respondents in decision making, execution of vulnerability analyses, access to information and safe shelters, etc., are important aspects of a local organisation’s participation in disaster risk management (DRM). Semi-structured interviews (SSIs) and FGDs were used to obtain information on the following indicators.

- Percentage share of respondents who have participated at least once in a vulnerability analysis and hazard assessment in the past five years
- Percentage share of respondents who have participated at least once in implementation of risk reduction measures
- Percentage share of respondents who have access to understandable information, safe shelters and post disaster loan. What are the reasons for not having access to information, safe shelters and loans?
- Percentage share of respondents who have a voice in UDMC meetings, and believe their views are considered in disaster plan/policies
- Number of respondents who participated in disaster training in the last five years

3.4.2 Measuring ‘accountability’

This study concentrates on the answerability and enforceability dimensions of accountability. Regular reporting to the relevant authority, disclosing information to the community, regular auditing, etc., are important aspects of an actor’s accountability in DRM, which can be measured through the following indicators.

- Number of monitoring and evaluation reports of UDMCs, NGOs, CBOs that are produced and disseminated regularly (for example through radio broadcasts, newsletters, local newspapers, the Internet)
- Percentage share of respondents who think the UDMC is corrupt
- Answerability dimension: number of demands for explanation and justification from members of UDMC in meetings
- Enforceability dimensions: number of actions taken in the last five years to express dissatisfaction with members' performance, for example recall, demonstrations
- Percentage share of discussion by respondents of inadequate maintenance of dams and cyclone shelters by UDMC or other authorities

3.4.3 Measuring 'coordination'

Coordination refers mainly to establishing better links among organisations to make use of synergies and to avoid duplication of works. Having a common goal among organisations, defined authorities and responsibilities, etc., is important for coordination among organisations in DRM. The following indicators are used to measure coordination or lack of it.

- Number of organisations/institutions that the UDMC communicates with regularly
- Establishment of a common goal among organisations
- Number of ToR (terms of reference) on defined authorities and the range of responsibilities
- Duplication of works among the organisations [i.e. lack of coordination].
- Number of respondents of NGOs/CBOs who talk about easy access to UDMC-developed information on disaster risk reduction (DRR)

3.4.4 Measuring 'legal framework'

- Number of contingency plans / preparedness plans / response plans that have been prepared in last 5 years
- Percentage share of respondents have been informed about these plans
- Availability and use of building codes and land-use plans. Percentage share of respondents who have been informed about building codes and land-use plans
- Percentage share of respondents who have been following preparedness plans
- Number of legal actions that have been taken to stop activities that increase vulnerability

3.4.5 Measuring ‘disaster risk management’

Reduced losses from disasters, well-built infrastructures, availability of adequate safe shelters, sound knowledge of preparedness, etc., are important aspects in DRR, which can be measured by the following indicators:

- Percentage share of respondents who have been injured and/or died because of disaster in last five years
- Total number of cyclone shelters; construction of new cyclone shelters; and the distance of cyclone shelter from homes
- Regular maintenance of flood protection dams, and cyclone shelters
- Percentage share of respondents who think that they have easy access to common property, post disaster loan, public health services
- Number of households that were moved to safe locations in terms of their vulnerability in last five years
- Percentage share of respondents who have sound knowledge of preparedness
- Percentage share of respondents who think that losses from disasters have been reduced

3.5 Methods of data collection and data interpretation

Primary information was collected through semi-structured interviews (SSIs) and focus group discussions (FGDs). Around 170 SSIs were conducted with individuals from the community, academicians, journalists, experts, and member of other organisations. Two FGDs were organised with the UDMCs of Koyra Sadar and Uttar Bedkashi Unions. Necessary checklists were prepared for SSIs and FGDs (see annexures B and C). Secondary information was also collected from published and unpublished documents. After the field survey, this information was organised according to notes and memos to distinguish information relevant to the research. Descriptive statistics (frequency distribution, mean) were used to analyse quantitative data. The narrative write-up technique was followed to discuss qualitative information. The discussion is supported with necessary graphs, charts, etc.

CHAPTER 4

RESEARCH FINDINGS

The purpose of this chapter is to analyse the research findings on self-organisation and disaster risk in the local context of Bangladesh. It consists of four sections. General features on Bangladesh are discussed briefly in the first section. Local government system and disaster management structure are presented in the second and the third sections respectively. Subsequently, research findings from two case studies are discussed in section 4.

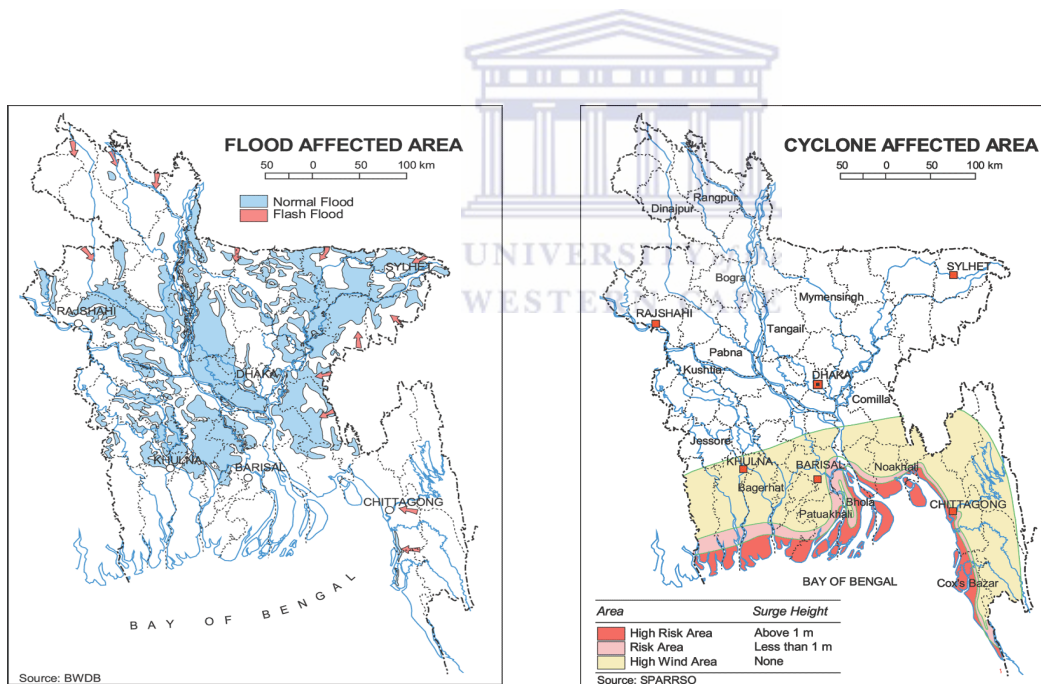
4.1 General features of Bangladesh

Bangladesh, with a population of 153.3 million in a total area of 147 570 km², is one of the most densely populated countries in the world (UNDP, 2007:245). According to the Bangladesh Bureau of Statistics (BBS, 2006:3), the average annual population growth rate was 1.42% in 2004. Around 73% of the total population (95.25 million in 2001) live in rural areas (BBS, 2006:4). Bangladesh has about 25 million households, with an average household size of 4.8. The adult literacy rate in 2005 was 47.5%, which is lower than neighbouring India (61%) (UNDP, 2007:231). The government of Bangladesh (GoB) has developed several programmes to improve the literacy rate, for example cash/food for education, and free primary education. A number of NGOs are implementing non-formal education programmes to increase literacy.

Bangladesh has an agrarian economy, although the share of agriculture to GDP has been decreasing over the last few years. Around 41% people still live below the income poverty line (US\$1/day). The per capita GDP was US\$423 in 2005 (UNDP, 2007:239). The richest 10% of people of Bangladesh enjoy 42.7% of the total income or expenditure, whereas the poorest 10% account for only 3.7% (UNDP, 2007:283). This shows a high degree of inequality in income and expenditure patterns. Local experts contend that lack of political commitment to infrastructure development, lack of investment, uneven distribution of investment to create economic opportunities, and limited access to resources are some of the major causes of inequality.

Bangladesh has a tropical monsoon climate with three main seasons: the hot and humid summer (March–May), the rainy season (June–September) and the mild and relatively dry winter (December–February). Bangladesh is characterised by flat terrain, interlaced with an

intricate system of about 700 rivers, canals, and streams, with a total length of approximately 22 155 km (Rahman et al., 2001:96). It is reported that the combination of the lofty Himalayas in the north with the funnel-like shape of the Bay of Bengal in the south have made Bangladesh one of the worst victims of natural hazards (Rahman et al., 2001:95). The Bay of Bengal, situated in the north-eastern corner of the Indian Ocean, between the latitude of 5°-22' north and the longitude of 80°- 95' east is the breeding place of catastrophic cyclones (Rahman et al., 2001:95). The mean annual rainfall in Bangladesh varies from about 1 400 mm in the western part of the country to almost 5 000 mm in the northeast region (Rahman et al., 2001:6). There are wide seasonal fluctuations, with about 90% of the rainfall occurring in the four months of the monsoon period (June–September) (Rahman et al., 2001:96). This monsoon-dependent rainfall can lead be excessive and lead to floods, or inadequate, resulting in drought. The area of Bangladesh generally affected by flood and cyclone is shown in the following maps.



Map 4.1 Flood affected area of Bangladesh
Source: BWDB, 2007

Map 4.2 Cyclone affected area of Bangladesh
Source: SPARRSO, 2007

4.2 Local government system

The local government system of Bangladesh can be divided into the rural system and the urban system. Bangladesh has six administrative divisions and four metropolitan areas. Each division consists of districts. In rural areas these are subdivided into *upazilas*. The latter

comprise a number of union *parishads* (UP), made up of villages. Urban local government has a simpler structure than the rural one. It comprises six city corporations and 278 municipalities or *pourashavas*, subdivided into wards (ADB, 2004:19). The primary legislation defining the powers of rural local government includes the Local Government (Union Parishads) Ordinance 1983; The Upazila Act, 1988; and The Zila Parishad Act, 1988. (GHK, 2004:5).

In rural areas, there are four tiers of local government, with the *zila* (district) *parishad* at the top. 'Next is the upazila parishad; it is the lowest level at which civil bureaucracy and line ministries operate. It represents the police and various ministerial offices, including tax, magistrates courts, and officers dealing with all aspects of economic and social development. Upazilas are to be the link between the district offices and the union parishads or local people. The third tier is the union parishad, of which there are approximately 4 483 in the country. The fourth tier is the *gram sarker* (village level)' (ADB, 2004:19). Various ruling political parties frequently changed the fourth tier, according to their preferences. In a recent decree the Supreme Court of Bangladesh suspended the *gram sarker*.

This study concentrates on disaster management governance at union level. A union parishad governs an average population of 27 000, with an average area of 38 km². The number of villages under each union differs according to the size of population. The legislative framework for union parishads is guided by the Local Government (Union Parishads) Ordinance of 1983 and its subsequent amendments (most recent in 1998). The elected body of the union parishad comprises a chairperson and 12 elected members, one for each of nine wards, and three women members, each representing three wards (GHK, 2004:9). This body is elected for a five-year term. Theoretically, no political party can nominate any candidate for local-level elections, but in practice all candidates are individually supported by political parties. The union parishad is responsible for 38 functions, which can be broadly categorised as planning, coordination and monitoring of the annual development programme (ADP), construction and maintenance of small-scale infrastructures, law and order, and dissemination of information and communication.

Union parishads have very limited power to raise revenue from sources such as taxation, market fees, vehicle and trade taxes. They also receive an annual revenue budget allocation and, indirectly, an annual allocation of development funds through the ADP Block Grant for

Union. Unions are restricted in their use of the block grant by detailed guidelines. Union parishads may also receive development resources for special relief works programmes, for example Food for Works and Test Relief, and Vulnerable Group Development (GHK, 2004:10). Few union parishads receive block grants from NGOs working on local government. Salaries and members' payments are met partly from government grant and partly from own revenue. A criticism is being raised that actual staffing and financial powers of union parishads do not match functional responsibilities.

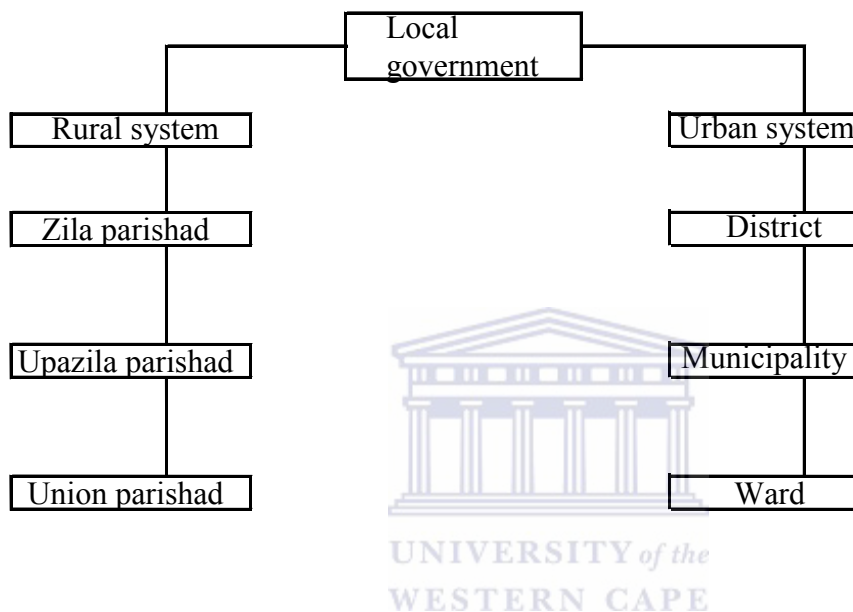


Figure 4.1 Local government system in Bangladesh

Source: Own compilation.

4.3 Disaster management structure

Bangladesh has a national- and field-level set-up for disaster management, and is moving towards a comprehensive disaster management approach. The Ministry of Food and Disaster Management (MoFDM) is mandated to coordinate all disaster management activities in the country. The Comprehensive Disaster Management Programme (CDMP) has been designed to assist the MoFDM in defining risk environments and in achieving government objectives to reduce disaster risk. Assessment of the knowledge of disaster management committees at various levels, community risk assessment and risk reduction action plans are some of the main activities have been carried out in six administrative districts, according to the CDMP.

In January 1997 the MoFDM issued the Standing Orders on Disaster (SOD)² to guide and monitor disaster management activities in Bangladesh. A number of committees and institutions have been formed at national and local level to ensure effective planning and coordination of disaster risk reduction and emergency response management.

4.3.1 National level disaster management institutions

According to the MoFDM (2007b:50), the formations and responsibilities of national level disaster management institutions are:

- *The National Disaster Management Council (NDMC)* is headed by the prime minister. All the ministers and defence forces have representation on this council. It formulates and reviews disaster management policies and issues directives to all concerned.
- *The Inter-Ministerial Disaster Management Coordination Committee (IMDMCC)* is headed by the minister in charge of the MoFDM. It also has representation from the Planning Commission, concerned line ministries, government agencies/directorates and the Bangladesh Red Crescent Society. The major responsibility of this committee is to oversee implementation of the decisions of the NDMC. It also recommends programmes/projects on disaster prevention or mitigation measures to the NDMC for incorporation in the National Development Plan.
- *The National Disaster Management Advisory Committee (NDMAC)* represents members of parliament from disaster-prone areas and experts from public and private organisations. This committee is intended to advise NDMC and MoFDM on disaster management matters, particularly risk and mitigation possibilities.
- *The Focal Point Operation Coordination Group of Disaster Management (FPOCG)*, headed by the director-general of the Disaster Management Bureau (DMB), reviews and coordinates the activities of various departments/agencies related to disaster management and also reviews the contingency plan prepared by departments concerned.

At national level, several other committees/task forces/boards work on disaster preparedness, capacity building and public awareness campaign, NGO coordination, and hazard-specific information dissemination.

² The SOD is a set of guidelines on the formation process of disaster management committees at various levels, and outlines the responsibilities of organisations working on disaster risk.

4.3.2 Local-level disaster management institutions

Local-level disaster management committees are more specific to overall disaster and crisis management. In rural areas, there are disaster management committees at district, upazila (sub-district), and union level. They are responsible for coordinating, reviewing and implementing disaster management activities in their own jurisdictions. Upazila Disaster Management Committee (UZDMC), composed of 10 to 15 members, is headed by the Upazila *nirbahi* officer (upazila administrative head). The union disaster management committee (UDMC) is composed of 9 to 12 members, and headed by the union parishad chairman. Members of both committees are selected from government officials, upazila/union parishad, NGOs/Red Crescent Society, and local teachers. In addition, several activities are performed by the imam (religious leader) of the mosque, local clubs, farmers' groups, women's groups, former members and chairmen of local government, political leaders, informal money lenders and kin-based leaders (Ahmed, 2005:84). The union disaster management committee is responsible mainly for disseminating information, organising training and workshops, preparing disaster action plans with a view to enabling local people, determining specific safe centres/shelters during disasters, preparing local rescue plans, organising rehearsals or drills on the dissemination of warning signals/forecasts, evacuation, rescue and primary relief operations, and rehabilitating the worst-affected people.

4.3.3 Disaster management regulative framework

Bangladesh's regulative framework for disaster management provides for the relevant legislative, policy and best-practice framework under which the activity of disaster risk reduction and emergency management in Bangladesh is managed and implemented (MoFDM, 2007b:53). The framework includes the Disaster Management Act, national disaster management policy, disaster management plans, standing orders on disasters (SOD), and guidelines for government at all levels (best-practice models). Additionally, there are land-use plans, and building codes to reduce the risk to natural hazards. Within this regulative framework, the SOD, developed in 1997, is widely practised.

The standing orders were prepared with the avowed objective of making the people concerned understand their duties and responsibilities regarding disaster management at all levels, and accomplishing them. All ministries, departments and agencies prepare their own action plans for their responsibilities under the standing orders for efficient implementation. The SOD identifies the differences between regular responses and crisis responses. It outlines

the formation process of disaster management committees at national and local level. The SOD indicates orders for proper coordination among the concerned ministries, government agencies, line NGOs and other stakeholders, and ensures their effective functioning in normal, emergency and post disaster situations (Ahmed, 2005:82).

4.4 Case studies

This section presents the research findings on two case studies, which were conducted on Koyra Sadar Union and Uttar Bedkashi Union. Both unions are located in the southwest part of Koyra sub-district, surrounded by two rivers and crisscrossed by several canals. The Sundarbans³ forest reserve is located in the southeast part of both unions. Koyra sub-district consists of 7 union parishads, and 131 villages. Around 74% of the total population (165 473) of this sub-district are Muslim. The average literacy rate (32%) is lower than the average national literacy rate (47.5%).⁴ Around two thirds (64%) of the total population are dependent on agriculture.⁵ The remainder are forest resource users, shrimp farmers, day labourers, etc.

Koyra Sadar Union and Uttar Bedkashi Union are located on low-lying land. The topographic conditions of the two unions is similar (JJS, 2005:12). Rice is the main agricultural crop, cultivated once a year. For the remaining period, the land is used for shrimp farming or vegetable cultivation. Both unions are prone to natural hazards, for example floods, cyclones, river erosion, salinity, and water-logging. (JJS, 2005:17). Koyra Sadar and Uttar Bedkashi Unions have elected union parishad members to administer the parishad's regular activities. Both unions have union disaster management committees to coordinate disaster risk reduction measures in their jurisdiction.

4.4.1 Socio-demographic features: Koyra Sadar and Uttar Bedkashi

a) Age group and gender

Respondents from Koyra Sadar Union represent diverse age groups. Respondents are between the ages of 20 and 58. More than one third (37%) of the total respondents are from the 30–39 age group. The average age is 36 years. Female respondents represent only one third (35%) of the total respondents in Koyra Sadar Union.

³ The Sundarbans is one of the largest mangrove forests of the world. It lies between latitudes 21^o27'30" and 22^o30'00" north and longitudes 89^o02'00" and 90^o00'00" east.

⁴ Available at http://banglapedia.org/ht/K_0291.HTM.

⁵ Available http://banglapedia.org/ht/K_0291.HTM

Table 4.1 Frequency distribution of respondents from Koyra Sadar Union

Age group	Frequency (F) distribution				Total	
	Male		Female			
	F	% of Total	F	% of Total	F	%
20–29	15	19	8	10	23	29
30–39	17	21	13	16	30	37
40–49	13	16	7	9	20	25
50–59	7	9	0	0	7	9
Total	52	65	28	35	80	100

Source: Field Data, 2007

The respondents of Uttar Bedkashi Union represent ages between 20 and 59 years (table 4.2). Among these age groups, the highest frequency and the lowest frequency of the total respondents are the 20–29 years group and the 50–59 years group respectively. The average age of the respondents is 34 years. Around three quarters (74%) of the total respondents are male, hence only one quarter are female. Most of the female respondents (14% of a total of 26%) are aged between 20 and 29.

Table 4.2 Frequency distribution of respondents from Uttar Bedkashi Union

Age group	Frequency (F) distribution				Total	
	Male		Female			
	F	% of total	F	% of total	F	%
20–29	14	17	11	14	25	31
30–39	17	21	3	4	20	25
40–49	18	22	4	5	22	27
50–59	11	14	2	3	13	17
Total	60	74	20	26	80	100

Source: Field Data, 2007

Uneven gender distribution is found among the respondents of both unions. The reason is that it is very difficult to interview female respondents because of prevailing socio-cultural norms. This is common in rural areas of Bangladesh.

b) Education level

Education levels have been categorised here according to the schooling systems followed in Bangladesh. Those respondents who are not able to read and understand simple text in Bengali (the local language) are classified as illiterate. Respondents who have been educated up to level 5 and from level 6 to level 10 are categorised as ‘primary’ and ‘secondary’ respectively. Respondents with college education are categorised as ‘higher secondary’ level.

In Koyra Sadar Union, the majority of the total respondents (40%) have primary-level education. Around 16% of the total respondents were found to be illiterate. This is lower than the national illiteracy rate. Around 11% of the total respondents (all of them are male) have college education. The educational qualifications of female respondents are lower than those of male respondents. The number of illiterate female respondents is higher than that of male respondents.

Table 4.3 Education level of respondents from Koyra Sadar Union

Level of education	Frequency (F) distribution		Total	
	Male	Female	F	%
	F	F		
Illiterate	5	8	13	16
Primary level	17	15	32	40
Secondary level	18	5	23	29
Higher secondary	9	0	9	11
More than higher secondary	3	0	3	4
Total	52	28	80	100

Source: Field Data, 2007

In Uttar Bedkashi Union, the majority (44%) of the total respondents are illiterate (table 4.4). Around one third (35%) and one seventh (14%) of the total respondents have primary- and secondary-level education respectively. No respondents were found with more than higher secondary education. Around two thirds of the total female respondents are illiterate, whereas only one fifth of the male respondents are illiterate.

Table 4.4 Education level of respondents from Uttar Bedkashi Union

Education	Frequency of male	Frequency of female	Total	
			Frequency	%
Illiterate	21	14	35	44
Primary level	25	3	28	35
Secondary level	10	1	11	14
Higher secondary	4	2	6	7
Total	60	20	80	100

Source: Field Data, 2007

c) Occupation of the respondents

While some respondents have multiple occupations, this study considers only primary occupations that are used as main sources of cash income. In general, only males are involved in productive activities in rural areas of Bangladesh. Women are mostly involved in household activities. The occupational pattern of the study area is influenced mainly by the

available resources in that locality. Rice is cultivated here once a year, whereas shrimp cultivation goes on for half of the year (JJS, 2005:11).

In Koyra Sadar Union, around one fifth of the total respondents (19%) are engaged in shrimp farming. It is the second largest occupational group among the surveyed people. While shrimp farming has a greater economic return, it is probably one of the main causes of increasing vulnerability in this area. All of the female respondents (28 women or 35%) of Koyra Sadar Union are involved in household activities. The remaining respondents, 65% of the total respondents, are male, with diverse occupations (table 4.5).

Table 4.5 Primary occupation of the respondents from Koyra Sadar Union

Occupation	Frequency	%
Service	7	9
Agriculture	13	16
Day labour	9	11
Shrimp farming	15	19
Teaching	3	4
Doctor	1	1
Household activities	28	35
Business	4	5
Total	80	100

Source: Field Data, 2007

Uttar Bedkashi Union is located close to the Sundarbans (a mangrove forest). This forest influences the occupations of the area. Around 34% of the total respondents are forest resource users (Mouals⁶ and Bawalis⁷). All of these respondents are male. The next largest group of respondents (16%) is involved in agriculture. Female respondents of Uttar Bedkashi Union are involved only in household activities. Only two female respondents are teachers, working in NGO-operated non-formal primary education.

⁶ Honey collectors from the Sundarbans.

⁷ Wood and golpata (scientific name *Nipa fruticans*) collectors from the Sundarbans.

Table 4.6 Primary occupation of the respondents from Uttar Bedkashi Union

Occupation	Frequency	%
Agriculture	13	16
Day labour	9	11
Shrimp farming	11	14
Teaching	2	3
Mouals	15	19
Bawalis	12	15
Household activities	18	22
Total	80	100

Source: Field Data, 2007

4.4.2 Common natural hazards of case study areas

Koyra Sadar Union and Uttar Bedkashi Union have suffered from natural hazards for decades. During the field survey, individual respondents were asked about prevailing natural hazards and their impact on the locality. Multiple responses are counted to rank natural hazards in severe, moderate, and low categories. Natural hazards that occurred every year and caused intensive damage (outside support was needed to recover) are categorised here as 'severe'. Moderate and low damage events at irregular intervals are categorised here 'moderate' and 'low' natural hazards respectively.

According to the views of more than three quarters (81%) of the total individual respondents from Koyra Sadar Union, flood is ranked as a severe-type natural hazard. River erosion is another natural hazard there, and is ranked severe, according to the opinions of around 91% of the total respondents. Cyclone and salinity are moderate natural hazards, according to respondents' perceptions.

Table 4.7 Natural hazards of Koyra Sadar Union

Natural hazards	Type ⁸	Respondents' responses	
		Frequency	%
Flood	Severe	65	81
River erosion	Severe	73	91
Cyclone	Moderate	70	87
Salinity	Moderate	58	72
Hailstorm	Low	53	66

Source: Field Data, 2007

⁸ Types of natural hazards have been measured according to the views of individual respondents at SSIs on magnitude and damages caused by these natural hazards in the past.

Uttar Bedkashi Union is also prone to natural hazards such as floods, cyclones, and river erosion. Floods, cyclones and river erosion are ranked as ‘severe’ natural hazards, according to the opinions of 94%, 79% and 86% respondents respectively. The remainder categorise floods, cyclones and river erosion as ‘moderate’ and ‘low’. Among the total respondents, around 94% described salinity as infrequent, causing moderate damage in this area. Therefore, salinity is ranked as a moderate natural hazard.

Table 4.8 Natural hazards of Uttar Bedkashi Union

Natural hazards	Type	Respondents’ frequency	% of frequency
Flood	Severe	75	94
River erosion	Severe	69	86
Cyclone	Severe	63	79
Salinity	Moderate	75	94
Water logging	Low	55	69
Hailstorm	Low	53	66

Source: Field Data, 2007

The causes of floods in both unions are same. Flood protection dam collapse, owing to high tides, is the main cause of floods, according to the respondents. Their opinions are supported by local disaster experts and academicians.⁹ In the project undertaken by Bangladesh Water Development Board in the 1960s and 1970s, a 2-km-long flood protection dam was built round the periphery of Koyra sub-district to protect it from flooding and to increase frequency of rice cultivation (JJS, 2005:20). Respondents talked about inadequate maintenance of the dam and sluice gates, and illegal encroachment by shrimp farmers as causes of dam collapse.

‘Flood is a natural event in Bangladesh that usually occurred in rainy season. But some man-made interventions are liable to intensify it in this area.’¹⁰

4.4.3 Local organisations working on disaster risk

A number of public and private organisations are working on disaster management. Their areas of intervention differ according to the availability of resources and accessibility to neighbourhoods.

⁹ Interview with Shahidul Hasan Swapan, assistant professor, Khulna University; Nazmul Hossain, disaster manager, Jagrata Juba Shangha on 16/09/2007.

¹⁰ Nazmul Hossain, disaster manager, Jagrata Juba Shangha, commented at an interview on 16/09/2007.

4.4.3.1 Koyra Sadar Union Disaster Management Committee

This committee of 11 members was first constituted in 2001. It was reformed again in 2005. The formation process was regulated by government guidelines. The members of this committee were selected from the union parishad and other organisations. The members of the union parishad (chairman, secretary, and other four or five members) are automatically chosen to form this committee. The duration of an UDMC term is five years. The community can hold the members accountable through election to the union parishad. Seven members of this UDMC are also members of the union parishad.

A focus group discussion (FGD) was conducted with the members of this committee. All of the members are well informed about their roles and responsibilities in reducing disaster risk. This committee holds general meetings at two-month intervals with majority attendance. Around two thirds of the total members have received training from Caritas (a national NGO) and Prodipan (a local NGO). The UDMC has some coordinated activities with local NGOs on disaster preparedness, particularly on awareness-raising of the community. The UDMC has prepared a disaster action plan (DAP) for this union, assisted by JJS,¹¹ a local NGO. The DAP is based on risk assessment conducted by this NGO.

The chairman of the UDMC talked about various risk reduction measures that are being implemented jointly with the local NGOs. Local elite and influential people¹² are always invited by the committee to attend disaster management meetings. Information about disaster risk has been disseminated at community meetings, religious centres and local clubs to ensure that the community has easy access to it. The committee is accountable only to the upazila¹³ disaster management committee and senior government officials. Most of the members are very positive about incorporating suggestions from community people in disaster plans. But the final decisions regarding these plans are taken only by the upazila committee. The members of the UDMC said they always tried their best to pursue the interests of the community in decision making by the upazila committee. The members find that limited funds and decision-making powers are major obstacles to implementing the necessary measures on disaster risk. Most of the members think that the involvement of NGOs and

¹¹ JJS is a local NGO that has been working in Koyra for 20 years. It has implemented several projects in collaboration with the upazila parishad and the Koyra Sadar union parishad.

¹² Elite and influential people include religious leaders, political leaders, teachers, and community leaders.

¹³ Upazila is the second tier of local government of Bangladesh. It is also known as sub-district.

CBOs in risk reduction measures over the last couple of years has helped to improve such limitations.

4.4.3.2 Uttar Bedkashi Union Disaster Management Committee

Uttar Bedkashi Union Disaster Management Committee was formed in 2001 with 13 members. The members of this committee were selected from the union parishad (the lowest tier of the local government) and other organisations, according to the government guidelines. The renewal of the UDMC, planned for 2005, did not take place, owing to administrative constraints. Key informants in this area said that the formation process of this committee was not transparent and is influenced by ruling political parties.

Following the discussion in the FGD, it was found that most of the members of the UDMC are well informed about their duties. A few, who are the members of both the union parishad and UDMC, think that they are overburdened and cannot perform properly. But their remuneration is relatively poor. According to Local Government (Union Parishad) Ordinance 1983, one portion of their remuneration comes from the annual budget allocated by the government, and the remaining portion depends on revenue (tax collection) generated by the members.¹⁴ But the amount of tax collected in Uttar Bedkashi Union is very low. Low remuneration as a form of disincentive is therefore regarded as one obstacle to having responsive actors. General meetings of this committee did not happen regularly, owing to the nonattendance of most members. The members of the UDMC usually invite local influential people to participate in disaster management meetings.

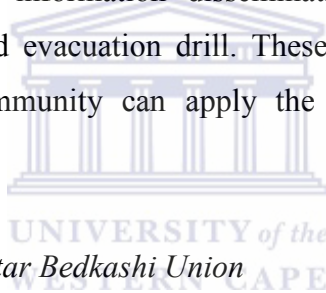
The capacities of the UDMC members have been enhanced through training and exchange visits. Around half of the total members have received training on disaster risk management. This committee prepared a DAP for Uttar Bedkashi union in 2004, but an inadequate budget was identified as one of the main obstacles to implementing it. This committee usually disseminates information on disaster warnings to the community. But they did not have posters, booklets or flip charts on disaster information that were regarded as accessible formats for the community. The committee is accountable only to the upazila disaster management committee and senior government officials. Almost all of the members complained that limited funds and decision-making power, no NGO contributory work on

¹⁴ Interview with Dr Gulam Murtaza, expert on local government, and professor, URP, Khulna University on 16/09/2007.

disaster, and a lack of awareness among the community are major issues in reducing disaster risk here.

4.4.3.3 Other organisations of Koyra Sadar Union

Four NGOs and two CBOs are working on disaster risk in Koyra Sadar Union. These NGOs have been working here for more than 10 years. Two have projects on disaster preparedness, community risk assessment, and adaptation technology development.¹⁵ They are also working with the UDMC to reduce disaster risk. A number of training sessions have been provided to UDMC members to ensure effective risk reduction measures.¹⁶ Another two NGOs are working on disaster relief and rehabilitation. Local youth clubs are defined here as CBOs. These are informal organisations (have no public registration) that are doing social development projects voluntarily. Both CBOs have working experience of disaster preparedness, risk assessment and relief as partners of the above NGOs. The members of CBOs are usually involved in information dissemination on disaster warnings, flood protection dam maintenance, and evacuation drill. These CBOs are treated as one of the sources through which the community can apply the answerability and enforceability dimensions of accountability.¹⁷



4.4.3.4 Other organisations of Uttar Bedkashi Union

Uttar Bedkashi Union has two CBOs that are working on disaster response and relief only. Most members of these CBOs have working experience with the UDMC on relief distribution. Occasionally they assist UDMC members to disseminate disaster warnings among the community. They also participate in dam maintenance work during floods. No NGO in this union works specifically on disaster risk reduction. Local NGO activists mentioned the remoteness and weak communication systems of this union as the main causes of lack of NGO interventions.

¹⁵ Interview with Babla Ahmed, area manager, Koyra, JJS; and Chitto Ranjan, project manager, Prodipan on 18/09/2007.

¹⁶ Ibid.

¹⁷ Interview with Rawnok Mahmud, journalist, *Shamokal* (a national daily newspaper), Bangladesh, on 24/09/2007.

4.4.4 Governance of disaster risk management of Koyra Sadar Union

4.4.4.1 Status of participation

Participation is defined here as a process to ensure the access of actors to understandable information, to have a voice in decision making that takes local knowledge into consideration in disaster plans and policies, and involves the community in disaster risk reduction initiatives. In Koyra Sadar Union, most of the individual respondents (85%) have access to information on disaster preparedness and disaster forecast. Although all of them can understand most of the information, a few have problems with understanding cyclone warnings/signals.

‘I used to hear disaster signal broadcast on radio. Sometimes, local youths also announced the signal using loudspeakers. But I got [too] confused to understand the importance and meaning of different signals.’¹⁸

Bangladesh uses the warning signal 1 to 10 system, designed for maritime ports to alert people to the severity of cyclones.¹⁹ A warning signal is a message with information on the position of the storm, the direction and rate of movement, the area likely to be affected, the maximum wind speed expected, the approximate height of the storm surge/tide, and the areas likely to be affected.²⁰ The Storm Warning Centre (SWC) of Bangladesh Meteorological Department (BMD) is responsible for issuing warnings of tropical cyclones and all kinds of weather alerts and forecasts. Bangladesh Betar (radio) and Bangladesh Television (BTV) broadcast and telecast the warning signal from all stations.

All respondents talked about the locally developed disaster forecasting system for cyclones, which is perceived as moderately effective here. This practice has been incorporated in disaster mitigation measures implemented by a local NGO.²¹ The respondents have access to information on risk mapping, a preparedness booklet, flip chart and posters on preparedness, etc., that have been developed by local NGOs.

¹⁸ Mrs Roksana Begum, housewife, Gobra village, Koyra Sadar union, comments at an interview on 20/09/2007.

¹⁹ Interview with Dr A.S.M. Habibullah Chowdhury, Former Focal Point member, Public Health in Emergency, Bangladesh Red Crescent on 15/10/2007.

²⁰ Ibid.

²¹ Interview with Babla Ahmed, area manager, Koyra, JJS, on 18/09/2007.

Table 4.9 Access to resources in Koyra Sadar Union

List of resources	Frequency (F) distribution of respondents			
	Male		Female	
	F	% of total	F	% of total
Information	44	55	24	30
Shelter	28	35	10	12
Public loan	18	22	5	6
NGO loan (micro-credit programme)	0	0	22	27

Source: Field Data, 2007

Around half of the total respondents have access to shelter during disasters. But only one tenth of female respondents have access to shelter. The long distance of safe shelter from home and inadequate capacity are two restrictions to easy access mentioned by some of female respondents.

‘I faced many problems to take shelter in the cyclone shelter with my family. The shelter is far away from my home. I found that place overcrowded and dirty.’²²

Generally, multipurpose shelters are constructed in hazard-prone zones, targeting 500 people for each shelter, within 1 km.²³ But the average distance of the nearest shelter from most of the households is 2.3 km. The respondents talked about political preferences in selecting locations for this shelter. Because of bureaucracy and the time taken to process the post disaster loan, respondents do not want to borrow from public banks. Only one third of the total male respondents think that they have access to public loans, in contrast to less than one fifth of the total female respondents. The scenario is completely different for an NGO loan. All NGOs have micro-credit programmes that are available only for women. Therefore, around 80% female respondents have access to an NGO loan. But all of them use the loan through their husbands or male guardians.

JJS, a local NGO, has conducted a risk assessment (vulnerability, hazard and capacity analyses) of the Koyra Sadar Union. The purpose of this assessment was to create awareness among the community of disaster risk. Participatory methods (using PRA tools) were followed to assess the risk. But such assessments were not carried out regularly. Around half of the total respondents took part in this assessment. Koyra Sadar UDMC members also participated.

²² Mr. Samoli Biswas, housewife, Five no. koyra village, Koyra Sadar union, comments during interview on 21/09/2007.

²³ Interview with Dr A.S.M. Habibullah Chowdhury, Former Focal Point, Public Health in Emergency, Bangladesh Red Crescent on 15/10/2007.

The UDMC is known to almost all respondents, although half of them did not partake in its formation process. Around two thirds of the total respondents have had invitations to participate in DMC meetings. While half of the total respondents participated in a DMC meeting at least once in the last year, the majority (72%) talked about their preoccupation with other activities as a major obstacle to regular involvement in this meeting. Usually only two thirds of the total respondents who participated in the DMC meeting can discuss and suggest measures against disaster risks. All of these respondents have no problems/pressures in deliberately talking in the meeting. Around half of the total respondents who talked in the meeting think that their suggestions have been considered in disaster plans.

Local NGOs and CBOs have different capacity building programmes for their members. Trained members later share their experiences with the community in community yard meetings and mass gatherings in public places. Mr Mahtab gazi, a trained member of the local NGO, said it was as an effective way of enhancing the capacity of the community.²⁴ Almost two thirds of the total respondents have participated in such community yard meetings. It encourages them to take part in risk reduction measures. Around two thirds of the total respondents have participated voluntarily by providing physical labour in order to maintain the flood protection dam and cyclone shelters. Around half of the total respondents have given financial support to the construction and maintenance of dam and shelters. Local disaster experts think that increasing participation in risk reduction measures has brought awareness among community people, and organised them.²⁵

4.4.4.2 Status of accountability

Koyra Sadar UDMC abides by the SOD in performing its actions. It is accountable only to the upazila DMC. The secretary of the UDMC is responsible for annual auditing. He submits the audit report to the upazila committee. Because most members of the UDMC are also the members of the union parishad (the lowest tier of the local government), the community can hold them accountable via elections organised at five-year intervals.²⁶ But only one third of the total respondents have been informed that they can reject a UDMC member for lack of accountability through the union parishad election. The participatory budgeting project of JJS, a local NGO, is perceived as another way of holding UDMC members accountable to the

²⁴ Interview with Mahtab gazi, trainer, Prodipan (local NGO), Koyra sub-district on 13/10/2007.

²⁵ Interview with MA Rahman, and Prosanto datta, local experts on disaster, Khulna on 29/09/2007.

²⁶ Interview with Dr Gulam Murtaza, expert on local government, and professor, URP, Khulna University on 16/09/2007.

community. Through this project the community, together with the members of the UDMC, identify their problems and devise their own annual plan. A block budget is provided to implement this plan.

The UDMC prepares an annual report and submits it to the higher authority. Thus, it has only upward accountability. According to most respondents, the annual budget, audit report, and annual report are never disclosed to the community, and are never published in the newspapers (table 4.10). Actually most of them never ask the UDMC to disclose such reports/budget. The UDMC cannot divulge the annual budget and audit report without a higher order. But they have no obligation to close the annual report to the community. Local NGOs also maintain upward accountability, although their members have access to published annual reports. But the majority of the respondents (73%) did not have access to the project plan and budget of the local NGO. Table 4.10 shows the frequency distribution of respondents who think that they have access to the annual plan, budget and reports of local organisations. Respondents who had no idea of the annual plan, budget and reports of these organisations answered 'Do not know'. Comparatively better pictures have been found for CBOs in the case of access of respondents to annual plan, budget and reports. Around two thirds of the total respondents have asked questions of and been satisfied with answers from CBOs.

Table 4.10 Number of respondents who think they have access to plans, budgets and reports

Access to	Frequency distribution of individual respondents								
	UDMC			NGO			CBO		
	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know
Annual report	3	54	23	25	41	14	55	13	12
Annual budget	0	67	13	0	64	16	33	31	16
Annual plan	7	53	20	3	64	13	55	13	12
Audit report	0	63	17	0	71	9	31	35	14

Source: Field Data, 2007

Around half of the total respondents talked about the corruption of the UDMC, particularly the nepotism of the UDMC chairman and secretary when distributing disaster aid. But these complaints were denied by the committee at FGDs. According to a local NGO activist, the corruption of the UDMC is becoming less, owing to some coordinated projects, that is, a

good governance campaign with NGOs.²⁷ To know the authority and place to complain about the UDMC is perceived as important in dealing with accountability. Although two thirds of the total respondents know where to report the corruption of the UDMC and/or NGOs, none of them did so. Very few of the respondents (23%) are committed to reporting corruption in the future. Most of the respondents ranked CBOs as good in terms of accountability, while NGOs and UDMC ranked as satisfactory.

4.4.4.3 Level of coordination

Coordinated activities to reduce disaster risk have been carried out by two NGOs in collaboration with the UDMC for last five years. Another two NGOs are working on disaster relief and rehabilitation. But their activities are also coordinated by the UDMC during disaster periods. All of these organisations are working with the common goal of reducing disaster risk in this locality. The members of the UDMC and CBOs have received several training sessions by JJS as a local partner to implement the capacity-building component of the CDMP.²⁸ All these NGOs and CBOs have been invited by the UDMC to participate in bi-monthly meetings. NGOs representatives are always present at these meetings and provide necessary suggestions for the agenda.²⁹

According to the SOD, the maintenance of safe shelters and dam/embankments in non-disaster periods is given to both the UDMC and the upazila office of the Water Development Board (WDB). To avoid problems of duplication and conflict, a mutual agreement has been reached between these authorities to divide responsibilities in certain periods (a non-disaster period will be covered by the WDB and a disaster period will be covered by the UDMC).³⁰ The majority of the respondents said that the maintenance of shelters and dams in times of disaster is conducted by the UDMC, with the help of the community. But maintenance work carried out by WDB is reported by the respondents to be inadequate. Duplication of projects on disaster preparedness and response, relief and rehabilitation has been reduced as a result of defined authority and responsibilities among the UDMC, NGOs and CBOs.³¹ The UDMC works in this situation as the sole coordinating body.

²⁷ Interview with Kalipad Biswas, NGO activist, Koyra, Khulna on 24/09/2007.

²⁸ Interview with Babla Ahmed, area manager, Koyra, JJS on 18/09/2007.

²⁹ Ibid.

³⁰ HM Shahabuddin, chairman, Koyra Sadar UDMC comments at FGD on 21/10/2007.

³¹ Ibid.

4.4.4.4 Level of legal framework

The SOD is followed by all organisations working on disaster risk reduction. It has defined clearly the roles and responsibilities of actors in pre-disaster, disaster and post disaster periods. Risk assessment (vulnerability, hazard, and capacity analyses) of this locality has been conducted by a local NGO. The UDMC has prepared a DAP, based on the risk assessment. According to this plan, the capacity building of community volunteers, the regular maintenance of dams, evacuation drills³² to leave the risk area before disaster, awareness of human rights to vulnerability reduction, etc., are carried out regularly.

Koyra Sadar Union does not have building codes for house construction. Most of the houses are made of local materials, that is, timber, mud, golpata, bamboo, straw, etc. Building codes are usually practised in urban areas of Bangladesh. This union has a land-use plan, prepared by the upazila land office. But two thirds of the total respondents are unaware of this plan. Most of the respondents do not have sufficient knowledge of laws and regulations of disaster risk reduction. Around two thirds (58%) of the total respondents do not know of laws that define their rights to reduced disaster risk. None of the respondents ever take legal steps to stop vulnerability-increasing interventions in their locality

4.4.5 Governance of disaster risk management of Uttar Bedkashi Union

4.4.5.1 Status of participation

Applied indicators (see chapter 3) for measuring participation can generally be categorised as access to resources, and access to decision making, in addition to the active involvement of the community in disaster risk reduction initiatives. Access to resources means access to information, to safe shelter, to a post disaster public loan, and to an NGO loan. Information includes not only disaster signals/forecast, but also information in a comprehensible format (poster, flip chart, etc.) that is relevant to risk reduction.

According to table 4.11, more than half of the total respondents (55%) have access to disaster information. Since Uttar Bedkashi UDMC disseminates only disaster signals, access to information here can only ensure access to disaster warnings.

³² Evacuation drill is a training session that takes place in a non-disaster period. This is to make people able to prepare for and leave in a emergency.

Table 4.11 Access to resources in Uttar Bedkashi Union

Resources	Frequency (F) distribution				Total	
	Male		Female			
	F	% of Total	F	% of Total	Total	%
Information	35	44	9	11	44	55
Safe shelter	40	50	12	15	52	65
Public loan	11	14	0	0	11	14
NGO loan	0	0	0	0	0	0

Source: Field Data, 2007

Safe shelter includes multipurpose cyclone shelters, and high places such as roads/embankments, and buildings. Around two thirds of the total respondents (65%) have access to safe shelters, although female respondents prefer to take shelter either in the houses of relatives or to stay at home. Female respondents have complained about the inadequate capacity of the cyclone shelter and about lack of security. These objections are acknowledged by the UDMC members. But the UDMC members argued that the cyclone shelter had been managed by local volunteers during the previous disaster. Management of cyclone shelters is the responsibility of the UDMC, according to the SOD. The UDMC also has the authority to form small volunteer groups for that purpose.

In the case of a public post disaster loan, only 11% male respondents think that they have access to a loan. Owing to lack of NGO intervention, people do not have any access to NGO loans. Most of them usually obtain loans from Mahajans³³ after disasters. Around half of the respondents who borrow from Mahajans either sell their labour in advance or mortgage their lands to repay the loan. A local disaster expert thinks that borrowing money from Mahajans ultimately reduces the financial capacity of local people and increases their vulnerability.³⁴ Because they are spending a portion of earnings on repaying the loan, people either have reduced savings or no savings at all. This lessens their preparedness capacity.

Uttar Bedkashi UDMC has organised several meetings to discuss the DAP. But two thirds of the total respondents did not participate in such meetings because the UDMC seldom represented their interests. Respondents argued that local elite and influential people were usually invited to attend the UDMC meetings. But UDMC members claimed that they always invited local people to participate in general meetings. Among all the respondents who

³³ Mahajans are local informal money lenders. They provide loans with annual interest rates ranging from 22% to 35%. This is much higher than the interest rate of the public bank (8 to 12% interest rate).

³⁴ Interview with Prosanto datta, local expert on disaster, Khulna, on 29/09/2007.

participated in UDMC meetings, few had an opportunity to discuss and suggest measures on disaster risk. But they think that their suggestions are not taken into account in the disaster action plan. The community are very willing to participate in maintaining the flood protection dam and cyclone shelters. The majority of the respondents (83%) have voluntarily provided physical labour to maintain the flood protection dam and cyclone shelter. Well-off respondents are very willing to provide financial support for maintenance works.

4.4.5.2 Status of accountability

The Uttar Bedkashi UDMC is accountable only to the upazila DMC. Annual auditing is conducted by the secretary of this committee. He submits the audit report to the upazila committee. Most respondents of Uttar Bedkashi union think that they have no access to the annual budget, audit report and annual plan of the UDMC (table 4.12). It was found that the majority of respondents had not asked the UDMC to disclose plan/reports. Actually, the community's awareness level of the functions and obligations of the UDMC to the community is very low.³⁵

Table 4.12 Number of respondents who think they have access to plan, budget and reports

Access to	Frequency distribution of individual respondents					
	UDMC			CBO		
	Yes	No	Don't know	Yes	No	Don't know
Annual report	0	67	13	43	27	10
Annual budget	0	67	13	19	31	30
Annual plan	0	78	2	55	11	14
Audit report	0	73	7	19	31	30

Source: Field Data, 2007

Nepotism, political preference and corruption of this committee in relief distribution are also reported by most respondents.

'I am an agricultural labourer. I just earn to live. I lost my home and two goats during last cyclone. But I did not get any VGF card from UDMC because I am a Leftist. I got relief from some other organisations.'³⁶

Most respondents said that VGF³⁷ cards had been distributed mostly among the members of ruling political party. This has also been acknowledged by a local journalist.³⁸ Some

³⁵ Interview with Babul Sarder, local journalist, *Jhanmobhumi*, Koyra, Khulna, on 22/10/2007.

³⁶ Moinul Sana, agricultural labourer, Katmarchar village, Uttar Bedkashi union, comments at interview on 8/10/2007.

members of the UDMC have admitted that occasionally they are subjected to political pressure to work in favour of the party supporters.

On the other hand, most members of CBOs have argued that they have both upward (reporting to the executive committee) and downward accountability (regular discussion with the community).

‘We regularly discuss our monthly plan and budget in general meeting. This meeting is open to all to participate and discuss. Participants can ask question about our performed activities and expenditure.’³⁹

Around half of the total respondents think that they have access to the annual report and plan of CBOs (table 4.12). Only one quarter of the total respondents think that they have access to annual budget and audit report. Most of the remaining respondents do not have any idea of the annual budget and auditing of CBOs. But the community have perceived local CBOs to be more accountable than the Uttar Bedkashi UDMC.

4.4.5.3 Level of coordination

Uttar Bedkashi UDMC has no coordination with other NGOs to reduce disaster risk. One reason is lack of NGO intervention in disaster risk in that locality. If the disaster is very severe, NGOs in other areas sometimes distribute relief. But such relief distributions are not coordinated by the UDMC. As a result, duplication in relief distribution is common in this union.

‘My husband did not get any relief in the last flood. We had severe damages. We lost our crops. No one from UDMC or NGOs visited our place to give relief. But some people who are living near to *pucca*⁴⁰ road got relief several times.’⁴¹

³⁷ VGF means Vulnerable Group Feeding. A VGF card is given to a disaster-affected household of four members. Using this card, each household gets 15 kg rice per month.

³⁸ Interview with Bahlul Alam, local journalist, *Jhanmohumi*, Koyra, Khulna, on 22/10/2007.

³⁹ Lutful Gazi, secretary, Gazipara Youth Club, Gazipara village, Uttar Bedkashi union comments at interview on 11/10/2007.

⁴⁰ *Pucca* road means a road made of bricks.

⁴¹ Sathi Karmokar, teacher, non-formal school, Gazipara village, Uttar Bedkashi union, comments at interview on 12/10/2007.

Around one third of the total respondents received relief several times from several organisations, whereas some respondents did not receive any. People who are difficult to reach (live in remote areas) usually have not received relief. Owing to lack of coordination, the maintenance of flood protection dam and cyclone shelters is not carried out properly by the authorities. According to FGDs with the UDMC, no maintenance of the flood protection dam takes place in non-disaster periods. The UDMC thinks that it is the responsibility of the upazila WDB. The WDB member blamed inadequate maintenance work on the limited budget.

4.4.5.4 Level of legal framework

Uttar Bedkashi Union has no risk assessment (vulnerability, hazard, and capacity analyses) to date. It has only a DAP. But the DAP has not been implemented properly, owing to lack of funding. This union has no house construction rules and no land-use plan. Shrimp farming is gradually occupying agricultural land, and changing land use drastically.

There are two types of shrimp farming: sweet-water shrimp farming; and saline-water shrimp farming. Saline-water shrimp farming is widespread in Uttar Bedkashi union. Most shrimp farms here are owned by rich and influential people. A number of small holes are made in the flood protection dam to allow saline water into shrimp farms. This gradually diminishes the strength of the dam to withstand the pressure of the high tide during the rainy season. In addition, keeping saline water for a long time reduces the fertility of the land. Hence, rice production is also decreasing here. Food insecurity is taking place. But the community are afraid to do anything to stop saline-water shrimp farming.

‘So-called watchmen are hired by rich shrimp farmers to prevent stealing in shrimp farms. But in reality, they are hooligans carrying firearms and often are used to force small farmers to lease their land to rich farmers.’⁴²

Most respondents of Uttar Bedkashi Union do not know of any laws that would enable them to claim their rights to information, common land, and other resources. Almost all of the respondents (89%) have no knowledge of laws/policies relevant to disaster risk reduction. None of the respondents ever take legal steps to stop interventions that increase vulnerability to disaster risk.

⁴² Suresh Mitro, shrimp fry collector, Uttar Bedkashi union, comments at SSI on 7/10/2007.

4.5 Self-organising network in disaster risk management

In terms of Kauffman's conception of the N-K system, this section identifies and analyses the critical components and characteristics of the self-organising network in disaster risk management of Koyra Sadar Union and Uttar Bedkashi Union. In previous sections, the governance of risk management of previous disasters in the case study area was discussed. Risk management is a continuous process which is practised differently in the two unions. A number of local organisations are involved in the risk reduction process. This section presents self-organising networks in terms of the catastrophic cyclone Sidr, which hit the case study area on 15 November 2007.

Sidr, a tropical cyclonic storm, struck the southwest part of Bangladesh at speeds up to 240 kilometres per hour (kph). According to the official report from MoFDM (2007:1), 'the number of deaths caused by tropical cyclone SIDR has risen to 3 292, affecting 8.6 million people of 2.0 million families'. These casualties were reported from 1 888 unions of 200 sub-districts of 30 districts. Most deaths and damages were attributed to the storm surge. The whole communication system of the southwest region collapsed for a week. What was the situation in the case study area? The case study area falls under Khulna district. The number of deaths caused by this cyclone was 18, among 68 affected unions. Around 17 000 households were fully destroyed.

Case study area: Koyra Sadar Union

During cyclone Sidr different types of organisations – public, private, and nonprofit responded at Koyra Sadar Union. Besides the UDMC, four nonprofit and two private organisations have been working in this union. Regular maintenance of cyclone shelters and other safe shelters made prompt evacuation of communities possible. A number of small committees have been formed in villages, with the support of CBOs, to disseminate disaster warnings and to help with preparedness and evacuation.⁴³ On hearing the signal of Sidr, the members of these small committees disseminated information among communities of the Koyra Sadar Union. Awareness campaigns by local NGOs and CBOs made people more conscious of what 'to do and not to do' to reduce disaster risk factors.⁴⁴ Therefore, the communities could be prepared quickly to find refuge in cyclone shelters.

⁴³ Focus Group Discussion with Koyra Sadar union DMC on 21/10/2007.

⁴⁴ Interview with Bahlul Alam, local journalist, *Jhanmobhumi*, Koyra, Khulna, on 22/10/2007.

The Koyra Sadar UDMC took the central role in coordinating the activities of all the participant organisations. According to this union's DAP, these organisations hold bi-monthly meetings to discuss the progress of the plan and the availability of resources. Before the cyclone Sidr, they organised three emergency meetings to take immediate action. These organisations maintained communications with various groups and organisations at regional and national level. According to Koyra Sadar UDMC, approximately 100 messages per day were directed to and from the sub-district and district disaster management committees using the wireless network.⁴⁵ Small volunteer groups were formed to maintain the embankments to protect the community from storm surges. The members of these groups also shared their resources for maintenance projects.

Relief and response works were also coordinated by Koyra Sadar UDMC. Using the manpower of NGOs and CBOs, situation reports were prepared immediately after Sidr. According to the situation report, a VGF card for each family was prepared through a coordinated meeting in the union office. All participant organisations agreed on their area of relief operations to avoid duplication of efforts. A number of medical and rescue teams were formed with local practitioners and volunteers. Meanwhile, in terms of shortages of resources, few appeals were to central authorities and other donor organisations. Most disaster victims were satisfied with the distribution of relief, although some people criticised the amount of items provided under a VGF card. In terms of the damage caused by Sidr at Koyra Sadar union, reportedly no one died; 23 people were injured; 700 households were damaged; 1 300 hectares of crops and shrimp farms were washed away; and around 2 500 livestock died.⁴⁶ Compared with the situation reports of other unions hit by this cyclone, Koyra Sadar union fared better in terms of deaths and injuries.

In the case of tropical cyclone Sidr, the goal of the emergency operation was to protect the safety of the people of Koyra Sadar Union. This goal served as the basis for decision making of participant organisations and set the boundaries of response operations. The participant organisations maintained regular communications with one another to reach that goal. Using the legal framework of the SOD, they set the boundaries of responsibilities and the areas of operations. Therefore, the characteristics of self-organised network can be identified here as being based on Kauffman's N-K system.

⁴⁵ Focus group discussion with Koyra Sadar union DMC on 21/10/2007.

⁴⁶ Situation report, 27 November 2007, by Koyra Sadar union disaster management committee.

Case study area: Uttar Bedkashi Union

Uttar Bedkashi UDMC and two youth clubs responded immediately after cyclone Sidr. The goal of the emergency operation was to protect the safety of the community. Disaster response is thought to be interlinked with disaster preparedness. Because risk management is a long-term process, it is perceived that well-informed communities could be prepared properly. But lack of access to understandable information made people unaware of what to do and not to do for disaster preparedness.

Uttar Bedkashi UDMC does not have any coordination with other organisations to reduce disaster risk. Therefore, regular maintenance of cyclone shelters and other safe shelters was not carried out. This hindered prompt evacuation of communities to safe shelters during Sidr. Except for two youth clubs, there were no volunteer organisations to disseminate disaster warnings and to help in preparedness and evacuation.⁴⁷

During the field survey, it was found that the community are informed about their vulnerability to natural hazards. But most of them being poor, they have no alternatives. Most of them are still unaware of relevant laws, and are not organised to prevent interventions that increase their vulnerability to natural hazards. People are losing jobs because shrimp farming is less labour intensive. It is reducing their financial capacity. Most of the houses, made of local raw materials, are not built well enough to withstand a strong storm or cyclone.⁴⁸ There are very few well-built structures in this area to use as shelter during cyclones, hailstorms and tornadoes.⁴⁹

Uttar Bedkashi UDMC also played a central role in managing response activities during Sidr. Before Sidr, they organised two emergency meetings with local youth clubs to take immediate action. But these organisations did not maintain proper communication with organisations at regional and national level. This also delayed disaster relief projects. In terms of the damage caused by cyclone Sidr, at this union 2 people died; 33 were injured, 1 200 households were damaged; 1 100 hectares of shrimp farms were washed away; and around

⁴⁷ FGD with Uttar Bedkashi union DMC on 25/10/2007.

⁴⁸ Interview with Babla Ahmed, Area Manager, Koyra, JJS on 18/09/2007.

⁴⁹ FGD with Uttar Bedkashi union DMC on 25/10/2007.

2 100 livestock died.⁵⁰ Compared with the situation report of Koyra Sadar Union, which was also hit by ‘Sidr’, Uttar Bedkashi Union fared worse in terms of deaths and injuries.

The goal of protecting the safety of the community served as the basis for decision making of participant organisations at Uttar Bedkashi Union as well. But the goal has not been designed for a long-term perspective. Uttar Bedkashi UDMC interacted with youth clubs for relief projects under the legal SOD framework. Only three organisations participated in response efforts. Some volunteer teams also distributed relief among the victims. But there was no coordination. Interactions among these three organisations were not carried out properly, owing to lack of mutual trust. Corruption of the UDMC is perceived as a reason for distrust. Therefore, the characteristics of self-organised network cannot be identified here, based on Kauffman’s N–K system.

4.6 Comparative analysis between case study areas

In terms of these research findings, this section presents a comparative analysis between Koyra Sadar Union and Uttar Bedkashi Union. The respondents selected from both unions are equal in frequencies, and do not have much variation in terms of education level and occupation. The majority of the respondents in both unions do not have education that is higher than secondary level. Agriculture and shrimp farming are the two leading occupations in Koyra Sadar Union, whereas agriculture is losing dominance in Uttar Bedkashi Union. In Uttar Bedkashi Union, the increase in shrimp farming, which is less labour intensive, and access to resources are the two main factors that are driving people away from their agro-based professions to other forms of income-generating activities, for example van⁵¹ driver, and dry food hawker.

Both unions are prone to natural hazards, that is, floods, river erosion, cyclones and salinity. Flood and river erosion are two severe natural hazards, according to the majority of respondents of both unions. Cyclones are moderate in nature in Koyra Sadar Union, but severe in Uttar Bedkashi Union. The rate of saline water shrimp farming in Uttar Bedkashi Union is higher than Koyra Sadar Union.⁵² Increasing shrimp farming leads to higher levels of salinity. The salinity of the land is increasing very fast in Uttar Bedkashi Union, compared

⁵⁰ Situation report, 27 November 2007, by Uttar Bedkashi union DMC.

⁵¹ A van is a three-wheel human-driven form of transport.

⁵² Situation report, 27 November 2007, by Uttar Bedkashi union DMC.

with Koyra Sadar Union.⁵³ It is unfavourable for afforestation and trees are dying very fast in Uttar Bedkashi Union. The dwindling number of trees is perceived to be one of the causes of increasing losses from cyclones in Uttar Bedkashi Union. Although the upazila forestry office has undertaken tree plantation programmes in both unions, trees are not growing well in Uttar Bedkashi Union. Flood protection dams have encircled both unions from 1970s. In the rainy season, Uttar Bedkashi dam collapsed, owing to the increased pressure of high tides, and caused flooding. Irregular maintenance by the relevant authorities and illegal interventions by rich shrimp farmers are common in both unions. But in Koyra Sadar Union, increased attention and organised efforts ensure regular maintenance of this dam.

The UDMC, as the sole coordinating body, plays different roles in the two unions. Koyra Sadar UDMC is more active than Uttar Bedkashi UDMC. Both committees have been working for the last seven years in their jurisdictions. The UDMC formation process in Uttar Bedkashi is perceived by the majority of respondents as being politically biased. Corruption, nepotism, and the political preferences of this committee were mentioned. But a different scenario is found for Koyra Sadar UDMC. Several partnership programmes of local NGOs with Koyra Sadar UDMC are perceived as important reasons for this committee being transparent and responsive. No risk reduction measures are being taken by local NGOs in Uttar Bedkashi Union, and only two CBOs are working on disaster response there. But four NGOs and two CBOs are working on disaster risk reductions in Koyra Sadar Union. Therefore, it can be argued that the presence of other actors, that is, NGOs, CBOs, etc., might have a positive impact on risk reduction. Discussing disaster information at community yard meetings of NGOs has increased the awareness of the community in Koyra Sadar Union. Increasing awareness helps them to be well prepared for natural hazards.

The self-organised network of Koyra Sadar Union is better than that of Uttar Bedkashi Union in the contexts of participation, coordination, accountability, and the legal framework. The majority of the respondents have access to information in both unions, but only the respondents of Koyra Sadar Union received the information in an understandable format that was jointly prepared by the UDMC and NGOs. This enhances their awareness level of disaster risk. Female respondents of Koyra Sadar Union have easy access to an NGO loan, whereas respondents of Uttar Bedkashi Union have no access at all. Increasing financial

⁵³ Interview with AKM Mamun, agriculture extension officer, Koyra Upazila, Khulna, on 28/09/2007.

capacity, indeed, can support the risk reduction that is enjoyed by the inhabitants of Koyra Sadar Union.⁵⁴ The UDMC of Koyra Sadar has identified several strong structures to use as safe shelters in addition to cyclone shelters. But this has not been carried out by Uttar Bedkashi UDMC.

Participation in disaster management meetings, risk assessment, and risk mitigation measures has also increased in Koyra Sadar Union. Around half of the total respondents have participated in risk assessment there. But no risk assessment was conducted in Uttar Bedkashi Union. The respondents of Uttar Bedkashi Union talked about less representation of their interests to higher authorities by this committee. They even complained that their suggestions were not being considered in the disaster action plan by UDMC of Uttar Bedkashi Union. In contrast, around half of the total respondents of Koyra Sadar Union think that their opinions are taken into account in the disaster action plan.

Upward accountability is maintained by the UDMC of both unions. Internal auditing is conducted by the secretary of the union committee and reports are submitted to the upazila authorities. The annual budget, audit report, and annual report of the UDMC are never disclosed to the community, according to the majority of respondents of both unions. Most respondents talked about the nepotism, political preference and corruption of the Uttar Bedkashi UDMC in relief distribution. The number of respondents who complained about corruption is fewer in Koyra Sadar Union than in Uttar Bedkashi Union. A participatory budgeting project with a local NGO is perceived to be one reason for the reduced corruption of Koyra Sadar UDMC. Local NGOs of Koyra Sadar Union have only upward accountability, although their members have access to published annual reports. In both unions only CBOs are found to have upward as well as downward accountability.

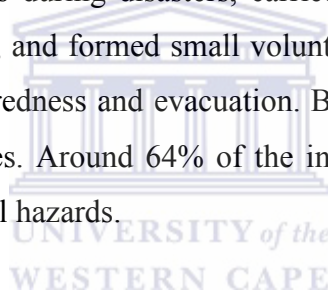
The Koyra Sadar UDMC coordinates with local NGOs and CBOs. It has coordinated projects with a common goal to reduce the disaster risk in Koyra Sadar Union. Duplication of projects on disaster preparedness and response, relief and rehabilitation has been reduced in Koyra Sadar through defined areas of authority and responsibility among UDMC, NGOs and

⁵⁴ Interview with Prosanto datta, local expert on disaster, Khulna, on 29/09/2007.

CBOs.⁵⁵ But Uttar Bedkashi UDMC has no coordination with the local NGO. Duplication in disaster response measures is common in Uttar Bedkashi Union.

The SOD has been used in both unions as guidelines for work on disaster risk. The risk assessment (vulnerability, hazard, and capacity analyses) of Koyra Sadar has been conducted by a local NGO. But Uttar Bedkashi Union has no risk assessment. Both unions have DAPs. According to the DAPs, various risk reduction measures are being implemented in Koyra Sadar Union. But the DAP has not been implemented properly in Uttar Bedkashi Union, owing to shortage of funds. The knowledge of disaster risk-related laws and policies is relatively poor among the respondents of Uttar Bedkashi Union.

In Koyra Sadar Union a completely different picture from Uttar Bedkashi Union is found in terms of disaster risk management. Koyra Sadar UDMC has identified several other well-built structures to use as shelters during disasters, carried out regular maintenance works, improved the modes of transport, and formed small volunteer groups to disseminate disaster warnings and to help with preparedness and evacuation. But Uttar Bedkashi UDMC did not take such risk reduction measures. Around 64% of the inhabitants of Uttar Bedkashi Union feel they are at high risk to natural hazards.



⁵⁵ HM Shahabuddin, chairman, Koyra Sadar UDMC, comments at FGD on 21/10/2007.

Chapter 5

Conclusion and Recommendations

For the last decade Bangladesh has emphasised governance in addressing disaster risk. Disaster management committees (DMCs) have been formed at various levels to coordinate and implement risk reduction measures. But disaster management actors are perceived to be corrupt, politically biased and weak in capacity. On the other hand, the limited powers and budgets of local actors are posited as major drawbacks to performing their duties efficiently. But it is contended that the participation and interaction of multiple agents, an established legal framework, community involvement, etc., are important in managing disaster risk. Governance is regarded in this study as self-organisation that determines the participation, coordination and accountability of multiple agents within a defined boundary through a legal framework. This mini-thesis regards union disaster management committees (UDMCs), local youth clubs, women's associations, farmers' organisations, religious groups, and NGOs as self-organisations. The main research questions addressed by this study are as follows: How are self-organisations participating and interacting in disaster risk management? Do they have accountability? Do they ensure the participation of the community in risk management? Are the boundaries of interactions defined by legal framework? What is the impact of self-organisation in risk management?

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In terms of the literature review and theoretical framework (chapter 2), it is argued that a self-organised network in the context of participation, accountability, coordination and legal framework can be effective in managing disaster risk at local level. The presence of self-organisation in disaster management can be explained according to Kauffman's conception of the N-K system. This mini-thesis analysed the presence of self-organisation and argued that the progression of vulnerability can be reduced by better risk management, following the argument of Pressure and Release (PAR) Model. It is assumed that participation and legal framework can address the root causes of vulnerability through increased access to resources (information, shelter, public fund/loan) and decision making (DMC formation, and disaster policy formulation). Again participation, accountability and coordination can reduce pressures through the development of coordination, appropriate skills training, reduced corruption and the regular maintenance of shelters. It is also assumed that a legal framework can help to achieve safer conditions. Koyra Sadar Union and Uttar Bedkashi Union of Bangladesh are two cases that were studied, using qualitative research methods.

5.1 Conclusion

Koyra Sadar Union and Uttar Bedkashi Union are prone to natural hazards such as floods, river erosion, cyclones and salinity. People's perceptions of their vulnerability to those natural hazards are almost similar in the two unions. But significant differences have been found in managing disaster risks in the context of self-organised networks.

Self-organisation in the response to cyclone Sidr at Koyra Sadar Union could be explained according to N–K system. It was found that various organisations – public, private, and nonprofit – responded at Koyra Sadar Union. The goal of the emergency operation was to protect the safety of the community of this union. This goal served as the basis for decision making of participant organisations, and set the boundaries for response operations. Koyra Sadar UDMC took the central role of coordinating the activities of all participant organisations. The participant organisations maintained regular communication with one another to reach the goal. Using the legal framework SOD, they set the boundaries of responsibilities and areas of operations. Before the cyclone Sidr, they organised three emergency meetings to take immediate action. They delivered and received one hundred messages per day. The participant organisations shared their resources to ensure efficient response efforts. Therefore, it can be concluded that the response measures in Koyra Sadar Union can be attributed to the characteristics of Kauffman's N–K system.

Uttar Bedkashi UDMC and two youth clubs also responded immediately after cyclone Sidr. The goal of the emergency operation was similar to that of Koyra Sadar Union. Only three organisations participated in response works. Some volunteer teams also distributed relief among the victims. But there was no coordination. Interaction among these three organisations was not carried out properly owing to lack of mutual trust. Corruption of the UDMC is perceived as a reason for distrust. Therefore, the self-organisation of Uttar Bedkashi Union cannot be attributed to Kauffman's N–K system.

Actually, Koyra Sadar UDMC is more responsive than Uttar Bedkashi UDMC. Corruption, nepotism, and the political bias of the Uttar Bedkashi committee are perceived to be major causes of poor performance. Koyra Sadar UDMC, with the help of other local actors, made much more progress in terms of safe shelter preparation, volunteer group formation, and awareness campaigns for preparedness and evacuation. In contrast, Uttar Bedkashi UDMC disseminates only disaster warnings and distributes relief during disaster. Although both

committees have shortages of funds, Koyra Sadar committee developed collaboration with local NGOs to implement the risk management plan.

The community of Koyra Sadar Union have increased access to resources (information, safe shelters, public/NGO loan) and decision making compared with Uttar Bedkashi Union. The land-use plan of Koyra Sadar is enforced by the UDMC to ensure access of vulnerable households to *khas* land. Therefore, it can be argued that the root causes of vulnerability have been addressed in Koyra Sadar Union through increasing participation and the legal framework. It is found that increased access to information (root causes to vulnerability addressed owing to participation and legal framework) have increased the awareness of community people in Koyra Sadar. Because of this increased awareness, people are becoming more motivated to participate in skill development training, for example evacuation drill, knowledge sharing (skill development through participation and coordination of local actors; dynamic pressures are reduced because of appropriate skill development). Because of the development of appropriate skills, community people are well prepared for natural hazards (safer conditions are gradually achieved owing to compulsory preparedness). Being well prepared helps to reduce disaster losses.

Lack of funding, low remuneration, political influences, etc. are major causes of the dysfunctional UDMC at Uttar Bedkashi Union. Lack of intervention by other actors is also found in this union. It is perceived that the remoteness of this union actually deters NGOs from intervening there. Proper infrastructure development through government bodies can be effective in reducing remoteness. This study is limited to actors at union level, although the influences of the upazila and district level actors, for example the upazila nirbahi officer, the upazila forest office, the agriculture department, and LGED⁵⁶ are also found on disaster risk. Therefore, further research can be conducted to cover such issues in detail.

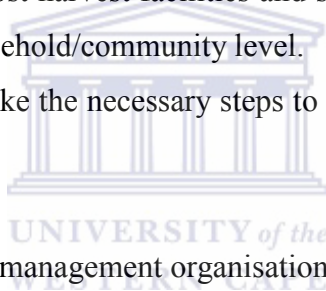
5.2 Recommendations

In terms of the research findings, essential recommendations have been provided below for disaster management organisations, NGO activists, disaster workers, researchers and policy makers.

⁵⁶ LGED is the Local Government Engineering Department, responsible for infrastructure development.

a) Recommendations for policy makers/government:

- Increased funding, satisfactory remuneration, and proper monitoring are important to ensure better performance of the UDMC. Therefore, measures must be taken to increase financial support. A monitoring commission can be formed at upazila level to monitor the performance of UDMC.
- Reconstruction of the flood protection dam using stones instead of mud will prevent dam collapse during the rainy season.
- Measures must be taken to prevent agricultural land from being taken over for saline-water shrimp farming.
- House construction guidelines should be developed for hazard-prone rural areas. These may provide guiding principles on construction materials, house locations that are less exposed to wind and flood, etc.
- Promoting and producing disaster resistant crops are vital to reduce crop damages. Promotion of improved post harvest facilities and storage methods are also important to reserves of food at household/community level.
- The government should take the necessary steps to ensure easy access to post disaster loans for disaster victims.



b) Recommendation for disaster management organisations (UDMC/NGO/CBO):

- An awareness campaign of disaster prevention policies, the right to information, and the right to resources should be initiated. Information should be understandable to community people. Therefore, attention should be given to making people aware through the popular media, that is, street drama, folk songs, and so on.
- Regular maintenance of flood protection dam and cyclone shelter should be carried out properly. Small volunteer groups could be formed among the community to obtain help in maintenance work.
- Measures should be taken for capacity building of communities through regular evacuation drills, knowledge sharing among community groups, etc.
- Terms of references could be developed to avoid duplication of works.
- Post disaster loan programmes could be areas of intervention for NGOs working on microfinance.

c) Recommendation for researchers:

- Income diversification strategies can be effective in the short run. It is necessary to find out existing practices of non-farming income-generating activities, for example small shops, the fattening of small livestock, etc., in hazard-prone rural areas, and the impact of non-farming activities on financial vulnerability.
- Crop diversification can be a long-term adaptation measure. Crop varieties can be developed to avoid the usual periods/seasons when hazards affect the locality.

In terms of the research findings, it can be said that self-organisation in the context of participation, coordination, accountability and legal framework has a positive influence on disaster risk management in Bangladesh. Therefore, the lessons from experience in Bangladesh may prove valuable elsewhere in the world.



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Annexure A
List of Key Interviewees

List of key interviewees (arranged by date of interviews)

1. Shahidul Hasan Swapan, assistant professor, URP Discipline, Khulna University from 16/09/2007 to 17/09/2007 at URP discipline office, Khulna.
2. Dr. Gulam Murtaza, local government expert, and professor, URP Discipline, Khulna University from 16/09/2007 to 17/09/2007 at URP discipline office, Khulna.
3. Nazmul Hossain, disaster programme manager, Jagrata Juba Shangha from 16/09/2007 to 17/09/2007 at project office, Khulna.
4. Babla Ahmed, area manager, Koyra, JJS from 18/09/2007 to 20/09/2007 at JJS Koyra branch office, Koyra upzila, Khulna.
5. Chitto Ranjan, project manager, Prodipan, Khulna from 18/09/2007 to 20/09/2007 at Prodipan Koyra office, Koyra upazila, Khulna.
6. Rawnok Mahmud, journalist, The Daily Shamokal (a national newspaper) on 24/09/2007 at the Zonal office, Khulna.
7. MA Rahman, Local expert on disaster, Khulna on 29/09/2007 at his home, Babu khan road, Khulna.
8. Prosanto datta, Local expert on disaster and former member of District Disaster Management Committee, Khulna, from 29/09/2007 to 30/09/2007 at his home, MT road, Khulna.
9. Dr. A.S.M. Habibullah Chowdhury, Former Focal Point, Public Health in Emergency, Bangladesh Red Crescent on 15/10/2007 at his home, Dhanmondi, Dhaka.
10. Bahlul Alam, journalist, *Jhanmobhumi* (local daily newspaper), Koyra upazila on 22/10/2007 at his office, Koyra upazila, Khulna.

Annexure B

Checklist questions for semi-structured interview

1 Interview topics (Individual respondents from community people)

A Participation

- Do you have access to any information regarding disaster risk? Who provide the information? Is it understandable for you? If not, why?
- Do you know disaster management committee? How and when does it form? What is the formation process? Do you participate in the formation process? Do you select anyone to participate on behalf of you?
- Do you have access to common land, post-disaster public loan/NGO loan?
- Can you talk in this meeting? Do you suggest anything in this meeting? Does the committee consider it properly? If no, why not?
- Did you participate in any kind of risk analysis of your locality? If not, Why?
- Did you participate in any risk reduction measures?
- Did you participate in any skill development training in last five years?

B Accountability

- Have you ever taken any action(s) to express dissatisfaction with the performance of UDMC members and/or NGO workers? What action did you take?
- Do you get any information about UDMC and its responsibilities? Do they invite you to participate there?
- What do you think about the accountability of participants in risk reduction measures?
- Does UDMC/NGO/CBO disclose any report, plan, and budget in any meeting to the community people?
- If you have a question or complaint about the activities of DMC, do you know who to address it to? To whom do you normally address such issues?
- Why do think about the performance of DMC? Are you satisfied or not? If no, why? Does your community ever take any sanctions against DMC? Why?

C Coordination

- Name of other organisations from your locality participate in disaster management work.

- Which organisation usually organizes disaster management work? Are you satisfied with their works? If not, why?
- Do you get same training offer from several organisations simultaneously? If yes, what type of training? Who provide it?
- Does any organisation do maintenance of cyclone shelter and/or flood protection dam?
- Which organization distributes relief? Did you face any problem to take relief?

D Legal framework

- Do you inform about disaster action plan? Did you participate in planning process?
- Do you inform about land use plane of your locality?
- Do you follow any rules/codes for safety measures? If not, why?
- Do you know any laws needed to claim your rights for reducing vulnerability? Do you take any legal actions to challenges any measures that increase your risk?

E Disaster risk

- Do your locality has disaster risk map? If yes, when did it prepare?
- What types of disaster take place in your locality? Which one extreme in nature? Year wise ranking of those disasters according to damage?
- Condition of infrastructures (road, cyclone shelter, flood protection dams, sluice gates in rivers, electricity, tube wells, and maintenance procedure).
- Location and distance of cyclone shelter? When and why these shelters build there? Do they take shelter in these places? Why or why not?
- Communication system (radio, TV, telegraphs, wireless network); which one they use during hazards, why?
- Early warning system: practice of early warnings, tools use for early warning, do they believe in warning signals, why not.
- What do you think about your risk to disaster? Is it increase or decrease? Why?

2 Interview topics (members of local organisations)

- Organisation type: CBO, NGO, religious centre, etc. Type of disaster-related activities.
- Is it involved with UDMC? How does it contribute to form this committee? Does it participate in disaster related events/meetings organised by this committee? If not, why?
- How is it involved with CDMP?
- How does it ensure accountability (top down or bottom up) for disaster related projects?

- Does it take any incentive or enforcement mechanism to ensure accountability of participating organisations? If yes, what type of mechanism?
- Does it work alone or in coordination with other organisations to address disaster risk? If in coordination, what type of organisations it works with? Why coordination (for financial, technical or other reasons)?
- Opinion about present legal arrangement to address risk locally: does it consider local vulnerability, hazard and risk appropriately? If not, why?
- Is there any long term plan for disaster risk reduction? Is local risk incorporated in other development programme?
- Do you have any risk management plan? When did it prepare? How? Did it follow participatory process? If yes, how it ensure participation?

3 Interview topics (academicians, journalists, and experts)

- Do you know anything about CDMP? Does it address causes of disaster, and mitigation measures properly? If not, why?
- Who are the main actors to implement this programme? Are they appropriate to addressing disaster risk?
- What do you know about disaster related policies, rules and codes? Are these applying properly? If not, why? Are they properly addressed in a vulnerability context?
- How do local needs reflect in decision making at national level?
- Do you think disaster risk can effectively address at local level? If yes, why? If not, why?
- What do you think about the performance and accountability of local organisations (NGOs, CBOs, UDMC, etc.)?
- Do you think coordinated activities among these organisations are important?
- What your comments about disaster risk in Khulna district? Is it higher than previous year or not? Why?
- Do you find any relation between good governance and disaster risk reduction?

Annexure C

Checklist for moderating focus group discussion with the members of union disaster management committee

▪ **Discussion topics**

1. Committee formation period, process.
2. Responsibilities of this committee.
3. Problems to perform those responsibilities.
4. Regular meeting, attendance in the meeting.
5. Knowledge of committee members about CDMP.
6. Linkage of UDMC with CDMP.
7. Performed actions to reduce risk in responsive area.
8. Participation of local people and other organisations in these activities.
9. Coordination with other local organization. Problems of coordination.
10. Strength sharing with local organisations.
11. Specific plan and budget for disaster risk reduction. Is it sufficient or not?
12. Activity reporting system.
13. Capacity building of committee members on disaster risk reduction.
14. Is authority and power sufficient or not to perform assigned duties?
15. Comments on prevailing disaster and associated risk in that locality.