

**ROLE OF WOMEN IN DISASTER RISK REDUCTION: A STUDY IN
DISASTER PRONE COASTAL AREAS OF SHAYAMNAGAR
UPAZILA, SHATKHIRA**



M. Phil Researcher

Niger Dil Nahar

Registration No:36/2015-16

Session: 2015-2016

Department of Geography and Environment

University of Dhaka

Supervisor

Professor Dr. Md. Humayun Kabir

Department of Geography and Environment

University of Dhaka

February 2021

DECLARATION

I would like to declare that the study entitled, “Role of Women in Disaster Risk Reduction: A Study in Disaster Prone Coastal Areas of Shayamnagar Upazila, Shatkhira” was submitted to the University of Dhaka for the Degree of Master of Philosophy is an original work. It has not been submitted to anywhere for any degree or publication.

Signature

Niger Dil Nahar

Registration Number:

Session: 2015-2016

Department of Geography and Environment

University of Dhaka

CERTIFICATION

This is to certify that the work incorporated in the dissertation titled “Role of Women in Disaster Risk Reduction: A Study in Disaster Prone Coastal Areas of Shayamnagar Upazila, Shatkhira” submitted by Niger Dil Nahar (Registration number-36-2015-16) to the University of Dhaka, through the Department of Geography and Environment for the degree of Masters of Philosophy in Geography and Environment is based on the results of research conducted by her under my direction and guidance. To the best of my knowledge, it is a unique and original work done by her. I am recommending this dissertation to the University of Dhaka for final submission to the authority concerned.

Signature:

Professor Dr. Md. Humayun Kabir
Department of Geography and Environment
University of Dhaka

LETTER OF APPROVAL

Based on the recommendation of supervisor “Professor Dr. Md. Humayun Kabir” this study submitted by “Niger Dil Nahar” is approved for the examination and submitted to the University of Dhaka in partial fulfillment of the requirements of Master of Philosophy in Geography and Environment.

Signature:

Professor Dr. Md. Humayun Kabir
Department of Geography and Environment
University of Dhaka

ABSTRACT

Women play a crucial role in disaster preparedness in their families and communities which makes their family and society resilient, but the role of women in the disaster risk reduction issues are not acknowledged largely. The objective of this study is to identify and evaluate the role of women in disaster risk reduction and early action in the southwestern coastal region of Bangladesh. Present study followed a qualitative approach and apply Case study, grounded theory, and other related methods. It covers two south-western coastal villages under Shatkhira district of Bangladesh because of their unique features. Ten female villagers who are residing in the study villages, five from each was selected for the Case Studies. Secondly, 10 Focus Group Discussions (FGDs) were conducted, five from each village and with 12 participants in each group. Thirdly, four Key Informants Interviews (KIIs) were administered with the local UNO, Chairman of UP, local female schoolteacher, and NGO female representative. In this study, observation, interview, discussion and document analysis etc. were followed as data collection techniques. Despite being severely vulnerable in disasters, women's constant contributions in the various stages of disaster and emergency management are evident which need to be properly recognized and documented. Considering the active role of women in their family and community in disaster risk reduction, women in disaster-affected coastal areas should be empowered to take on a bigger role in disaster risk reduction and decision-making processes at different levels through appropriate training, capacity building and access to information and resources.

ACKNOWLEDGMENTS

The present study is made possible through the help and generous supports from different corners, including my department, university, M. Phil. supervisor, information providers, my family and friends, and in spirit, all responsive persons related to this study. I am dedicating my acknowledgment of gratitude toward the following major advisors and contributors to my research work.

My heartfelt gratitude to my supervisor Professor Dr. Md. Humayun Kabir, Department of Geography and Environment, University of Dhaka for his professional guidance, enthusiasm, continuous patience, understanding, and inspiration throughout my dissertation development. He went through all my works and writings and offered invaluable advice and guidance on content, organization, data collection, data processing and analysis, report preparation, and so on. I am obliged for his unique supervision. Without his constructive critiques, this study would not have come to the finishing point. I am also grateful to the Academic Committee of the Department of Geography and Environment and the Dhaka University authority for giving me opportunity to pursue my higher study. My thanks to all authors, writers, counselors, library persons and academicians for providing pertinent information and directions, directly and indirectly, those support my study immensely.

Finally, from the bottom of my heart, I acknowledge my family, and friends, who extended their time and emotional support during my study. I also recall the valuable contribution of the respondents of the study areas and authors of different relevant documents I used in this study work.

Signature

Niger Dil Nahar

February 10, 2021

ABBREVIATION

BBS	-	Bangladesh Bureau of Statistics
BWDB	-	Bangladesh Water Development Board
CDMP	-	Comprehensive Disaster Management Programme
CRA	-	Community Risk Assessment
CSR	-	Corporate Social Responsibility
DDM	-	Department of Disaster Management
DRR	-	Disaster Risk Reduction
DRRO	-	District Relief and Rehabilitation Officer
FAO	-	Food And Agriculture Organization
FFWC	-	Flood Forecasting and Warning Centre
FGD	-	Focus Group Discussions
GDP	-	Gross Domestic Product
IFMR	-	Institute for Financial Management Research
IFRC	-	International Federation of Red Cross and Red Crescent
IWM	-	Institute of Water Modeling
IDS	-	Institute of Development Studies
KII	-	Key Informant Interview
LGD	-	Local Government Division
LGED	-	Local Government Engineering Department
MMS	-	Manav Mukti Sangshata (NGO)
MoDMR	-	Ministry of Disaster Management and Relief
MoF	-	Ministry of Finance
MoE	-	Ministry of Environment
MoA	-	Ministry of Agriculture
NARRI	-	National Alliance for Risk Reduction Initiatives
NGO	-	Non Government Organization
PIO	-	Project Implementation Officer
SFA	-	Sendai Framework of Action
SFDRR	-	Sendai Framework for Disaster Risk Reduction

SLP	-	Seasonal Livelihood Planning
SSC	-	Secondary School Certificate
UN	-	United Nations
UNDRR	-	United Nation Disaster Risk Reduction
UP	-	Union Parishad
UzDMC	-	Upazila Disaster Management Committee
UDMC	-	Union Disaster Management Committee
VGD	-	Vulnerable Group Development
VGF	-	Vulnerable Group Feeding
WAPDA	-	Water & Power Development Authority

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CHAPTER I

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Due to climate change, the world is experiencing frequent hazards and intense disasters more than ever, whether they are natural or man-made. These devastating disasters increasing the risks of vulnerable people especially women and children. According to the UNDRR, annually 200 million people are being affected by disasters. Globally it is a common trend that people react more to the aftermath of disasters compared to focusing on the risk reduction before the disaster. This undermines the capacity of disaster reduction and its impact on minimizing or reducing the loss and damage that occurs by disasters. In 2017, more than \$25 billion was requested by UN agencies for humanitarian campaigns (UNDRR). The lack of attention to disaster risk reduction and focusing on response has caused an increasing gap between disaster impacts and risk management (Ostadtaghizadeh, 2010).

‘Disaster risk management should be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics and the environment. Such knowledge can be used for risk assessment, prevention, mitigation, preparedness and response’ (The SFDRR, 2015-2030).

According to UNDRR ‘Risk is typically depicted as being a function of the combined effects of hazards, the assets or people exposed to the hazard and the vulnerability of those exposed elements.’ Risk has many dimensions. It differs from person to person and this is why the risk reduction strategy also varies from person to person. Men and women perceive risk differently. In general, women are seen more as a risk avoider (William E. Lovekamp, 2010). Due to the different socio-economic and biological conditions, in general, women are at a higher level of risk. And due to their risk perception, women act differently than men. A study (Sundheim, 2013) shows that men tend to engage in more risky behaviors than do women. In the study, it was

observed that women are less attracted to risky behaviors because they always think about the potential impact or outcome of the risk, and they think the positive emotions (e.g., thrill) associated with risk-taking behaviors less attractive.

Disaster makes women more vulnerable puts an extra burden on women's shoulders. Nasreen, 2012 reported that women's workload increases enormously during the disaster. In most cases, men become jobless and lose their income opportunities because due to inundation. For this reason, women take the responsibility to earn money working in the neighborhood along with their regular household works. Women also help men constructing homestead platforms, rebuilding houses, making stoves, and protecting livestock and poultry.

'In their vital but unsung roles, women rewove the fabric of their communities while men rebuilt the structure' (Cox, 2012).

Since women tend to avoid risk (Lovekamp, 2010), they apply different tools, techniques, and coping mechanisms to reduce the disaster risks in their family and community. Vasudha Gokhale in 'Role of Women in Disaster Management: An Analytical Study with Reference to Indian Society' stated that 'Although women's social, economic and political position in society makes them more vulnerable to natural hazards, they are not helpless victims'.

Women play a productive role in their families and communities which makes the family and society sustainable, but the issue is it is not acknowledged largely. Even the work women do in the agriculture sector is often seen as part of their regular household work, as a helping work to the male members of their family. The economic value of their domestic work is unrecognized, let their contribution in the agricultural sector. Ensuring food security, water supply, fuel wood management, etc. are largely taken care of by women. Many examples are available regarding women's informal community involvement in disaster reduction; however, it is also evident that women are mostly left out from the disaster planning and risk reduction activities and decision-making role (Vasudha Gokhale). Women have a lot of capacities and capabilities for

disaster risk reduction that should be identified and used for building a community more resilient (Enarson *et al.*, 2012).

To analyze the characteristics of women's vulnerabilities in disaster and the factors that resist the women in disaster a study conducted in 2014 found that 'women can play a critical role in all phases of disaster, but mostly their capacities are ignored and less acknowledged' (Nivaran, 2014).

Women and Girls - the [in]Visible Force of Resilience was adopted as a theme to observe the International Day for Disaster Reduction in 2012. It drew attention not only to the vulnerability and sufferings of women and girls in disaster but also attention was gain to what women and girls are doing to reduce disaster risks in their own families, communities, and societies.

The world's half of the population is women and girls, yet they are the most affected by disasters (UNDRR, 2012). Dealing with disasters frequently they gain considerable experience, knowledge, and expertise which can play a significant role in climate change adaptation and disaster risk reduction strategies and processes (UNDRR, 2012). So, it is essential to understand the role women are playing in disaster risk reduction, development activities like poverty reduction, and climate change adaptation.

The present study intended to search the role of women. It is expected that the findings of this study will immensely benefit the relevant policymakers and program planners, further research scholars, and general readers.

1.2 PROBLEM STATEMENT

Bangladesh is one of the most densely populated disaster-prone countries in the world, particularly susceptible to devastating cyclones and floods. With a total population of more than 170 million, the sex ratio is 103.3: 100 (F/M), and 61 percent are living in rural areas (indexmundi.com). Combinations of these factors indicate the impact of any natural disaster is often immense and can exceed local people's ability to cope with.

Disaster preparedness is the key to saving lives and resources when disaster hits. The world is experiencing frequent and adverse impacts of natural disasters in the current context of changing climate that makes us contemplate seriously on building the culture of disaster risk reduction and preparedness in every sphere of life. It is widely said that disaster management has become a common global business. But in a country like Bangladesh where natural disasters like cyclones and floods are a regular phenomenon, society often ignores women from almost all kinds of development planning and decision-making processes. Historically women play vital roles in their families and communities to address the challenges of disasters. They are the first line of defense for their families in all types of emergencies and are often proactive in disaster preparedness. Women always play a momentous role in disaster preparedness and risk reduction. For ensuring the food security of their family members, they take on the task of preparing and storing food items that can be the source of energy and nutrition for their family just after the disasters. Protecting houses and homesteads to make them more resilient by strengthening walls and roofs with available materials, raising the plinth level of houses and cowsheds are a common practice.

Unfortunately, in Bangladesh societies, substantial contributions of women in managing, preparing, protecting, recovering, and reconstructing their households, families, and communities before, during, and after disasters remain underestimated and unrecognized. The present study tried to reveal and document the various important jobs women play for their families, households, and communities which will be ultimately helpful to the public and private development initiatives, and further researchers.

1.3 OBJECTIVES OF THE STUDY

1.3.1 Broad Objective

The broad objective of this study is to identify and evaluate the role of women in disaster risk reduction and early action in the southwestern coastal region of Bangladesh.

1.3.2 Specific Objectives

- a. To assess the role of women in disaster risk reduction in the study area
- b. To identify the challenges faced by women in different phases of disasters
- c. To explore the ways and means that the women utilize to encounter disaster-related challenges

1.4 CHAPTER ORGANIZATION

This study is divided into six chapters. The first chapter deals with the background of the study, statement of the problem, the rationale of the study, organization of the study, the objective of the study, the definition of concepts and terms, and limitations of the study. Second chapter presents the review of related literature on women and disaster. The different research documents, articles, reports, journals, were reviewed and imported findings were mentioned.

The third chapter deals with the methodological part. This part includes the methodology of the study, area of the study, population, and unit of analysis, sample and sampling, data collection techniques, data analysis, ethical consideration of the study, etc. Chapter four and five comprised of data analysis and findings. Chapter six comprised the review of data analysis, findings, and recommendations.

CHAPTER II

LITERATURE REVIEW

2.1 DEFINITION OF CONCEPT AND TERMS

2.1.1 Hazard and Disaster

A hazard is an unexpected event, which could be natural or/and humanmade, can happen in human life and cause massive loss of lives, livelihood and infrastructures. Natural cyclones, floods, earthquakes, tsunami, drought, riverbank erosion, humanmade building collapses, fires, accidents, etc. are examples of hazards. Hazards are not always a disaster, but the potential for disasters that can disrupt a community (CDMP, 2009).

Disaster is an event that causes a grave distraction in a community, village or city due to hazardous events. Disasters make people vulnerable and exposed to human, physical, financial and environmental losses and damages. To cope up or overcome the impacts of disasters people often need external supports. According to UNDRR, disaster is a serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts. In recent times a concept has been popular, and many people believe that no disaster is natural, every disaster is human-induced. Natural Hazards become a disaster only when they cause damage to life and property (Roy, 2015).

2.1.2 Disaster Management

According to the Bangladesh Disaster Management Model of MoDMR, disaster management is a combination of policy and practice of planning, organization, coordination, implementation and evaluation of programs in order to reduce and control the damages caused by disasters. Disaster management is an ongoing institutional process that gives efforts to the prevention, mitigation, preparation, relief

and rehabilitation with proper implementation of the process and its improvement through continuous observation, analysis and monitoring.

The objective of disaster management is to ensure safety of the people living in disaster-prone areas by reducing misery and suffering from loss and damages. Also help them with lifesaving supports, skills, early warning, securing rescue and evacuation supports. And inform everyone about probable risks, ways and means of risk reduction, disaster preparedness and various mitigation measures. Again, undertake mass communication activities through increasing public awareness and measures in reducing the loss of lives and property including economic damages are also the other purposes of disaster management (CDMP, 2009).

2.1.3 Disaster Risk Reduction

Pre-disaster management is the step that considers the activities performed before disaster take place which means activities implemented in the normal period. These activities help reduce the risk of the disaster. The pre-disaster phase has an important step which is disaster risk management (Roy, 2016).

According to Bangladesh Disaster Management Model, disaster Risk reduction is an important stage of disaster management. The UNISDR reported that disaster risk reduction is an idea and exercise of reducing disaster threat by organized efforts to assess and plan to reduce the underlying challenges of disasters. Disaster risk reduction activities reduce the significant impact and exposure to hazards, decreasing the vulnerability of people and their properties.

Disaster risk management helps reduce the disaster risk by analyzing the risks before a disaster and undertake preparatory activities to reduce the future risks to an acceptable level to prevent the fatal effects of a disaster. Disaster risk reduction includes two major activities such as disaster preparedness and disaster mitigation.

2.1.4 Disaster preparedness

Preparedness is a very important phase of disaster risk reduction. It refers to the proper planning and formulation of policies regarding community and family level risk reduction activities that ultimately help people to reduce the exposure of disaster.

2.1.5 Disaster mitigation

Disaster mitigation mainly refers to the reduction of all sorts of aspects that are directly related to the susceptibility of people to disasters. The mitigation activities in the disaster risk reduction mainly consider the small or medium scale infrastructural activities such as the construction of embankment, flood proofing activities in the flood-prone areas, and disaster tolerant resilient housing construction, and resistant infrastructure in earthquake-prone areas (Roy, 2016).

2.1.6 Emergency Response

Emergency response is a very crucial phase of disaster management. Even after all the efforts before disaster and risk reduction activities, many times disaster cannot be avoided. With risk management in mind effective preparedness to deal with emergencies to protect the affected people with providing effective assistance by the concerned agencies, communities to keep people safe is the emergency response. The major activities of emergency response include early warning dissemination, search and rescue, evacuation, emergency health support, emergency food distribution, shelter management, emergency rehabilitation etc. (CDMP, 2009).

2.1.7 Disaster Recovery and Reconstruction

When disaster strikes the community, it leaves the people with huge losses and damages and a significant number of people lose their lives, assets and livelihoods. Reasonably, rehabilitation and reconstruction initiatives just after disaster is very meaningful and valuable to the community people and these steps are essential as well. Rehabilitation and reconstruction activities include not only infrastructural activities, psychosocial and trauma care is also very essential to help people bounce back (Roy, 2016).

2.1.8 Risk, Vulnerability, and Capacity

Risk: Risk is the probability and extent of the disaster and its consequences that a person, family or community would be experienced or harmed an effect if exposed to a hazard. Probability of occurrence of hazards, their extent and possibilities of loss and damages in a community are considered as risk factors. According to UNDDR terminology (2017), risk is the probability of fatality, injury or damages occurred by a disaster for a certain period.



Figure: 1 . Risk Factors (Source: UNDRR).

Vulnerability: Vulnerability is one of the determining factors of disaster risks. Vulnerability describes the characteristics and circumstances of a community, system, or asset that make it susceptible to the damaging effects of a hazard (Disaster Dictionary, CDMP 2009)

Exposure: The condition of human, physical structures such habitats, human function that are situated in a hazard-prone (UNDRR, 2017).

Capacity: Capacity is the ability and internal strength of human beings, family, community, state and their economic power, social relation, physical resources and technical knowledge to respond, address, manage and deal with a challenge or disaster (CDMP, Disaster Dictionary 2009). It could be demonstrated as follows:

Risk = Probability of hazard

Vulnerability = Probability of loss/capacity

The issue of vulnerability, capacity and risk need to be analyzed differently. In terms of vulnerability, capacity and risk usually vary among woman and man in the same country and at the same level of hazard. For example, in a cyclone-prone area, risk between a poor and a rich will be different. Similarly, risk of poor woman will be twofold in comparison to a rich man. This can be represented by the following equation:

Risk = Vulnerability x Capacity / Hazard

In this case, let's set a standard of capacity and risk. Suppose their values range from 1 to 5. Here 1 is the lowest value and 5 is the highest. *Amina Bibi* is a poor rural woman lives in a very dilapidated and weak infrastructure, with no savings, illiterate, having lower social status and limited access to vital information. In this case, if the value of her vulnerability is 5, a rich village dweller *Rahim Mollah's* vulnerability will be 1; because his financial condition is good, his house is strong, he is educated, with higher social status, and has access to the information. But in both cases, the risk is 5, because the effect of disaster is the same in all cases as they reside in the same area.

So, *Rahim Mollah's* risk = $5 \times 1 / 5 = 1$; and, *Amina Bibi's* risk = $5 \times 5 / 1 = 25$. That means risk always depends on vulnerability and capacity, not only the level of hazard (CDMP, Disaster Dictionary 2009)

2.1.9 Coping Strategy

Coping strategies or mechanisms are implemented by households to address the problems they face related to natural disasters (Israel *et al.*, 2014). Coping strategies are defined as the choices that households make to manage natural disasters which can be divided into ex-ante and ex-post (Helgeson *et al.*, 2012).

2.1.10 Gender and Disasters

Oxford Languages defines gender as “either of the two sexes (male and female), especially when considered with reference to social and cultural differences rather than biological ones”. The United Nations defines gender as “The social attributes and opportunities associated with being male and female and the relationships between women and men and girls and boys, as well as the relations between women and those between men”. Gender In the fields of disaster and disaster management, gender issues need to consider with enough importance. Disasters usually hit the poorest, socially excluded and polarized persons in toughest way. Among them, women and girls, in particular, are exposed to higher disaster risks. To cope with this situation and reduce the risks women use their exceptional knowledge, ability and experiences (Habtezion, 2013).

Understanding gender relation is very important to disaster risk reduction. In societies, man and woman members play their roles, duties in different ways. Also, their authority, management and command over resources determine how they will be affected by disasters (Oxfam GB, 2011). The analysis of gender relations is very important to disaster risk reduction, especially, in three areas, analyzing the impacts of disaster; analyzing local capacities to reduce risk and respond to disaster; and designing programmes (Oxfam GB, 2011).

In disaster risk assessment and planning processes, equal participation of men and women should be ensured for balanced and sustainable recovery and development. Disaster relevant information needs to be collected separately from men and women because of their diverse sufferings, experiences and resources. Aspects of gender in the area of division of labor, income sources, participation and contribution, control over resources, freedom of movement, opportunity to participate in different organizations and institutions, etc. need to analyze in the disaster risk reduction programme and planning (CDMP, 2009).

2.2 WOMEN AND DRR IN BANGLADESH

Similar to the post-disaster emergencies, the role of women in disaster risk reduction is very important. Women play a crucial role in disaster risk reduction. They ensure food security for their family, protect houses and homesteads to make them more resilient by reinforcing walls and roofs with locally available resources, increasing the plinth level of households, elevating the level of cowsheds, cattle sheds, poultry coops, fish hatcheries etc. are a common practice.

Role of women in the wide-ranging framework of disasters and emergencies has never been acknowledged, appraise, studied or even documented minimally and properly. There are few studies conducted to comprehend the relationship between women and disaster and their sacrifice and contributions. Rather most focuses direct mainly to the vulnerabilities of women even though women play valuable roles in the entire spectrum of disaster management cycle, specifically, in disaster risk reduction. Women are portrayed as invisible forces of disaster management. To reveal the invisible role of women in disaster risk reduction, it is very important to understand the overall role and vulnerabilities of women concerning every aspect of disaster management and risk reduction.

Disasters impact differently on men and women. Based on the vulnerability, capacity and risk, men and women encounter disasters differently (Maria *et al.*, 2013). In disasters, women suffer more than men due to their social and physical differences between men and women (Nasreen, 2012). Habitually our society does not treat men and women equally. Reasonably, women are always at greater risk due to such inequality. Women are more vulnerable to disaster than men (Ariyabandu *et al.*, 2006). One study shows that in cyclone Nargis Myanmar female death rate was 61 percent, 70–80 percent in 2004 tsunami in India and 91 percent in 1991 cyclone in Bangladesh (Habtezion, 2013). But women have sufficient abilities which are helpful not only for women but also for the whole family and community (Ciampi *et al.*, 2011).

In Bangladesh, frequent flooding is a regular feature which hits most parts of the country; women undertake the role of preparing and storing food items, those become

the sources of energy and nutrition for their families for days when the floods hit. The study “Household Level Preparedness”, conducted by Islamic Relief Bangladesh in 2013, shows that in *Gaibandha* district, women prepare a mixture of puffed rice, dried coconuts and secured those in appropriate packaging to keeping safe from floodwaters. These are the food items that have a long keeping quality and give sufficient energy during crisis. Women in this area also ensure that their small belongings, such as clothing and bedding are stored in such a way that they can be easily removed and transferred to another place when floodwaters rise (IRB, 2013).

A study on “Gender, adaptation and disaster risk reduction” highlights that women’s enablement enhances adaptation to climate and promote disaster risk reduction. Impact of climate change is severe on susceptible groups, especially on rural communities and women. However, women’s life-long experience in addressing disaster situations, knowledge in managing natural resources, family chores, skills etc. benefit adaptation and disaster risk reduction activities. Based on the findings, the study recommends some critical elements of gender mainstreaming in climate change adaptation and disaster risk reduction (Habtezion, 2016).

Box-1: Elements of gender mainstreaming in climate change adaptation and disaster risk reduction.

Take gender-aware steps to reduce the negative impacts of disasters on women, particularly in relation to their critical roles in rural areas in the provision of water, food and energy (i.e., provide support, health services, information and technology);

Ensure that women are being visibly engaged as agents of change at all levels of disaster preparedness, including in early warning systems, education, communication, information and networking opportunities;

Consider the level of women’s access to technology and finances, health care, support services, shelter and security in times of disaster (Habtezion, 2016).

Disaster preparedness is an important phase of disaster risk reduction. People in disaster-prone areas undertake disaster preparedness activities to reduce social difficulties and losses and also help affected people to cope with disasters in their traditional ways. Despite their difficulties, women come up with ingenious management approaches for collecting drinking water, animal fodder and whatever food they could manage for their families (Practical Action, 2010).

Women are the first to provide nursing care to the most affected family members whether it is a flood, earthquake, or drought before any official relief work begins. Along with the task of providing immediate care, women also take the necessary steps to find food, water and fuel to prepare the next meal for their families. A study on floods in *Gaibandha* district, notes that, during floods, most of the char land areas go underwater, as a result, the people living in these char lands suffer from severe scarcity of drinking water. In such situation, women take large risks to collect drinking water from far distances. They have to walk frequently through chest-high water or swimming to collect safe water. The study also noted that women use various techniques to take water out of the tube wells so as not to mix it with floodwater and purify the water, in the absence of fuelwood (IRB, 2011).

A study was conducted on gender and disaster by Lovekamp (2000). In the study, Lovekamp produces the literature in connection to gender and disasters in Bangladesh using a nine-stage typology of disaster preparedness, response and recovery as follows: (1) exposure to risk; (2) risk perception; (3) preparedness behavior; (4) warning communication and response; (5) physical impacts; (6) psychological impacts; (7) emergency response; (8) recovery; and (9) reconstruction (Lovekamp, 2010).

The researcher's finding regarding "Risk Perception" is that women tend to perceive disasters as more serious and riskier than do men because women and men perceive the world differently. Men are risk-takers, while women are risk-avoiders. Women look after children and the household while men may leave the home and relocate to cities or non-flooded areas to find employment often never sending money back to their wives or returning home (Lovekamp, 2010).

Another finding is women seem to be more active in preparing their families for disasters and work at the grassroots, community level more than men. Just before the Bangladesh cyclone of 1991 made landfall, women were responsible for “packing clothes and valuables, getting household possessions to the roof and feeding the children while men took care of securing livestock, protecting paddy stock and securing the home” (Ikeda, 2003).

Ariyabandu (2003) mentioned that women play a major role in disaster risk and emergency management. This includes taking care of their family assets in emergencies, taking children, members with challenges and animals to safety. Family food preservation and other essential items are some other important activities those are entirely performed by women in disasters. Social roles assigned to women in South Asian societies as caregivers and nurturers naturally extend to risk management, secure life and livelihoods and safeguard life support systems in disaster situations.

A recent study tried to manifest the impact of cyclone on women in coastal communities. It was found that women and young girls are the most vulnerable in disasters. But at the same time, they play a key role both in disaster risk reduction and rehabilitation efforts (Rahman *et al.*, 2016). Despite being severely vulnerable, women and young girls play complementary, yet self-determining role at the time of disaster preparedness. They adopt several strategies to cope with disaster created an unprecedented situation. They start to apply strategies way before the disasters as regularly save money from their day to day expenses, make movable earthen cooking stoves, preserve dry food like molasses, cookies and important medicines. They make a kind of jut-made bag which are hung from the roof (locally called *Cheeka*) and put essential food items, medicine and pots high up to protect these from floodwater and other harmful violent strokes. Also, they create “shelterbelts” by planting fruit and timber trees around their houses. To protect tube-wells from saline water and sand and cover the top of the tube-well with plastics (Rahman *et al.*, 2016).

Women carry extra economic burden to maintain their families which again increases their vulnerabilities. Due to floods and cyclones, women’s regular activities (raising

the livestock, poultry, agricultural work, water fetching, care for domestic animals, livestock, and collection of fuel for cooking) increase enormously. However, these additional activities they have to do along with their regular household works. This depicts the resiliency of the rural women. In most cases, rural women give up their small personal assets to maintain the emergency needs of their families. They also try to find out alternative sources of food, water, fuelwoods, shelters for their families (Nasreen, 2012).

2.3 VULNERABILITIES OF WOMEN IN COASTAL AREAS OF BANGLADESH

A few studies are conducted on the vulnerability of people living in the coastal areas of Bangladesh encounter different hazards and disasters regularly. Present study tried to have an overview of these study reports, individual papers and reports presented in various seminars to understand the significance of this issue.

Study conducted in Kulkandi Village under Islampur Upazila of Jamalpur District observes health and menstrual hygiene management of women affected by disasters. The study finds that women suffer several health issues related to their reproductive health including urinary tract infections due to germ-infested sanitation and polluted water during floods. This happens as women in that area mostly lack proper information about sanitization, insufficient toilets and other health facilities during floods (Maktun *et al.*, 2017).

A study was conducted on “Vulnerability and Coping Strategies of Women in Disaster” in the coastal areas of Bangladesh to identify the vulnerabilities and coping strategies of women in disaster by Md. Rabiul Islam in 2011. The researcher found various vulnerabilities of women in the coastal areas of Bangladesh. In his report, Islam mentioned that due to climate change salinity in water is increasing. Therefore, availability of safe drinking water becomes a serious challenge. During dry season, women have to walk a long distance to fetch water which puts extra burden on their shoulders. One of the important findings was women, children, elderly, people with disabilities and pregnant women become more vulnerable because during emergency

they remain left behind due to their slow mobility and lack of resources. Women are more likely to suffer from malnutrition, health care and sanitation facilities are alarmingly insufficient, so, for primary health care of families they mostly dependent on the traditional healing practices and local quack doctors. Women abstain from going to shelters during a disaster due to the fear of loss of privacy and physical and mental abuse and torture (Islam, 2011).

Nasreen (2012) pointed out some empirical evidences on vulnerabilities of women and girls before flood, during flood and after flood situation in her book entitled ‘Women and Girls: Vulnerable or Resilient?’ In this study, it was pointed out that during flood workload of women increase compared to before flood, because, male members of the household remain jobless as most of the agriculture land become inundated with floods water. Women perform regular household activities like cooking, cleaning, fetching drinking water and taking care of the small children and livestock. In addition to these regular activities, women bear extra workload assisting men in raising and building platforms, making stoves and protecting livestock and poultry. Furthermore, women struggle from insecurity, harassment while receiving relief and absence of women-friendly toilets in the shelters (Nasreen, 2012).

Another study entitled, “Climate Change, Gender and Vulnerable Groups in Bangladesh” (DoEF, 2008) revealed some of the gender-specific vulnerabilities to climate change in Bangladesh. The study evident that the nature of vulnerabilities related to climate change is comparatively diverse for women, as women have limited economical capability and decision-making power than that of their male counterparts in the families. But all the household works largely depend on women; they also bear the load of maintaining the needs of their family. One of the important findings of the study is most of the climate change issues, policies and programs are not gender-neutral. Therefore, it recommends proper attention, explicitly on “gender-specific resource-use patterns; gender-specific effects of climate change; gender-related patterns of vulnerability; women’s capacity to cope with climate change; gender and decision-making on climate change; and gender aspects of mitigation and adaptation” (MoEF, 2008).

It was reported in this study that due to SIDR and AILA, many women lost their husband or head of the family which made them severely vulnerable. The study shows that women's early pregnancy loss, premature delivery and delivery-related complications due to long-distance walk and standing long time for collecting relief goods in wet cloths make them disadvantageous. In the rural areas, women run small-scale livestock, poultry and duck rearing, and sell milk, eggs, vegetables etc. to meet the need of their families. But after disaster, women become distressed and forced to sell at lower prices (Islam, 2011).

A study titled "The impact of natural disasters on women: A case study from Bangladesh" conducted in Pathorghata (a coastal village) described that although women shoulder wider caring responsibilities for their families, unfortunately, they are deprived of vital supports in emergencies because they are not viewed as the main breadwinner of the family. The study further observed that women usually are not allowed to work outside their homes. But after disasters, there are new opportunities outside the home where women mostly participate and earn money to support their families. In addition, they take on paid employment to help support their families temporarily. A number of women in their communities also work voluntarily with Union Disaster Management Committee (UDMC); where one-third of the Cyclone Preparedness Programme (CPP) volunteers are now female (Rahman *et al.*, 2016).

Alam *et al.*, (2008) presents an overview of the climate change situation in Bangladesh and reveals its implications on women's livelihood security and gender equality. In this study, vulnerability of women in Bangladesh is discussed in terms of how they cope with continued deprivation and poverty during and in response to climatic disasters.

Uddin (1999) conducted a study entitled "Vulnerability and Adaptation to Climate Change for Bangladesh". In this study, the author identified several dimensions of climate change in Bangladesh context where the focus on human and ecological systems and socio-economic development activities are linked with the process of adaptation. The report focuses on the national level adaptation pattern and local-level

measures have been presented and reviewed with a classification of the above models of adaptation.

Howard (2008) mentioned that when natural disasters strike, majority of those affected most are women. They accounted for 61 percent of deaths from Cyclone Nargis in Myanmar, 70-80 percent in the Indian Ocean Tsunami, and 91 percent in the 1991 cyclone in Bangladesh, according to the data from the Asian Development Bank.

Anderson (2000) reported that in general women and children are at greater risk to natural disasters than men, especially in developing countries. Women and children have less capacity to take effective preventive actions and to recover from disasters once they occur. He mentioned findings from a study on the 1991 Bangladesh cyclone, which reported 130,000 persons died point of the same problem. Forty-two percent more females died than males, a pattern which is similar to the 1970 cyclone.

An article titled “Involvement of Women in Disaster Economic Loss uplift in the Coastal Area of Bangladesh” published in Bangladesh Research Publication Journal described that there is no significant difference between men and women in participation in economic activities to recover disaster created the financial loss. Women and children are more vulnerable to cyclones for various reasons. Women’s unwillingness to leave their homes, mother’s protective instinct (being prepared to die but trying to save her children), the *Sharee* (women’s clothing) and long hair of Bangladeshi women (hindering movement while trying to swim in tidal waves) have all been cited as reasons.

A report of the World Health Organization (WHO) titled “Gender and Health in Disaster” (WHO, 2002) show that there is some evidence showing that women and men may suffer different negative health consequences following a disaster. It is not clear whether this is because of biological differences between the sexes, because of socially determined differences in women’s and men’s roles and status, or because of an interaction of social and biological factors. Social taboos around menstruation and norms about appropriate behavior of women and girls are reported to contribute to

health problems in young women in disaster situations. During the 1998 flood in Bangladesh, adolescent girls reported perinea rashes and urinary tract infections because they were not able to wash out menstrual rags properly in private, often had no place to hang the rags to dry or access to clean water. They reported wearing the still damp cloths, as they did not have a place to dry them.

The study also revealed adverse reproductive outcomes following disasters, including early pregnancy loss, premature delivery, stillbirths, delivery-related complications and infertility. Women's vulnerability to the impact of disasters is also increased by socially determined differences in roles and responsibilities of women and men and inequalities between them in access to resources and decision-making power. It was observed in 1991 cyclone in Bangladesh that many women swept with their children at home as they had to wait for their husbands to return and make an evacuation decision. When compounded by a calamity, the comparatively lower value ascribed to girls in some societies may take on lethal manifestations (WHO, 2002).

One study reports that instances of women in Bangladesh becoming destitute following a disaster as male relatives confiscated family land from a woman in the event of her husband's and son's deaths, leaving women and daughters poverty-stricken and destitute. There were no legal provisions to protect women and their families against such problems (Gender and Disaster Network, 2000).

The research paper namely "Men, Women and the Environment Gender Issues in Climate Change" describes that gender relations are the socially determined relations that differentiate male and female situations. People are born biologically female or male but have to acquire a gender identity. Gender relations refer to the gender dimension of the social relations structuring the lives of individual men and women, such as the gender division of labor and the gender division of access to and control over resources. It is critical to understand the gender dimension in the development-disaster process to address root causes. Gender patterns, thus, shape development patterns and social vulnerability to natural disasters and are influenced in turn by both. When women and men confront routine or catastrophic disasters, their responses tend

to mirror their status, role, and position in society. Most studies show that responsibilities follow traditional gender lines, with women's work carrying over from traditional tasks in the home and household, and men taking leadership positions. Gender inequalities concerning the enjoyment of human rights, political and economic status, land ownership, housing conditions, exposure to violence, education, and health, in particular reproductive and sexual health, make women more vulnerable before, during, and after disasters (Chowdhury, 2003).

Wiest (1994) addresses the unique needs and roles of women in disasters and emergencies. The social structure of most societies formally relegates women to inferiority and dependency, increasing their vulnerability through their disempowerment. However, the actual performance of women in production and distribution differs significantly from gender ideology and role stereotypes in most societies. It is therefore essential to address these realities to appreciate the differential impact of disasters on women and to recognize in the actions of women the potential for disaster preparedness, mitigation, and recovery. O'Keefe, Westgate and Ben Wisner (1976) explain that the vulnerability of population is the real cause of disasters and that vulnerability is induced by socio-economic conditions which can be modified by conscious action.

In 2007, CARE-Bangladesh conducted a rapid gender assessment on SIDR response after its attack. They tried to address that women are in dire need of some basic requirements. They found men, women and children of the Sidr hit areas are living under the open sky as everything was washed away. Female-Headed Households without adult male is suffering as there is nobody to support them in rebuilding houses. Also, some women only have the clothes they were wearing when the cyclone hit and for some, even the clothes they are wearing are torn. Consequently, they are unable to go out even for collecting relief materials. They assessed women's workload increased enormously after Sidr. In the Sidr affected areas, seasonal/temporary migration among men is high, leaving women responsible for managing the household. Even during the Sidr night, in many cases, men were absent in the household. So, after the storm hit the burden of rebuilding new life fell on women. Household utensils were washed away

with other belongings. Women are collecting scattered household items and drying clothes, beds, and other items that were water damaged. Looking after children who are sick and suffering from cold is an extra burden for women. Women's workload has increased significantly following the cyclone. They found women's specific health, sanitation, and water needs are yet to be addressed.

Traditionally women are responsible for meeting family health needs. So, they are facing the burden of looking after children, elderly men and women, and others who are suffering from injuries, sores, skin disease, and scabies. Lactating mothers, pregnant and differently-abled women are suffering as their health needs cannot be met in the post-Sidr situation. Women and adolescent girls are suffering as the sanitation system is destroyed and, in most cases, they are using toilets at night.

Violence against women during disaster setting is one of the alarming issues of society. In one incident a woman was abused because of her inability to manage relief goods while other women were. It was also found that during relief distribution women were pushed by men or rebuked as predominantly men were responsible for disciplining the queue. On some occasions, men used sticks to manage the crowd. Gender role-specific forms of violence against women were found in the communities. For instance, the husband of Monoara has migrated leaving them in the village leaving vulnerable. Although there is a threat of abduction/trafficking in a disaster setting, during the rapid assessment nobody had heard of any incident of trafficking or abduction. It one of the attention-grabbing findings that socially excluded women are excluded from emergency response It was found that at Morelgonj, Raenda and Khantakata - women of Hindu religion, those who lost husband, children, and relatives were excluded from relief.

Sex workers living in Banishanta brothel are also excluded. Among these groups Hindu women were trying repeatedly and desperately to obtain relief, however, they failed as they have less contact with the existing UP members and Chairmen. Some women who lost family members did not seek relief because they were traumatized. Men and women living at the edge of a village or Union are also excluded as the relief workers

tend to move to a central area of a village or community. Widows were also excluded as according to the Chairman and Member they hold VGF cards or receive the pension. It is unclear if immediately after the cyclone widows receive those benefits. Similarly, women of comparatively well-off families were not targeted due to their socio-economic status even though they had also lost everything in the disaster.

In the segment of Exposure to Risk, the researcher said that the poor and women often live in high-risk areas, rural and agricultural, because they cannot afford to live in the cities or areas that are at a lower risk. They also have a more difficult time recovering from disasters owing to their lack of financial resources. Sometimes, they cannot even afford to restore or rebuild their homes to the pre-disaster state, purchase food, or obtain adequate health care. But the importance of women's roles in everyday family life is often ignored and unrecognized, and women are expected to carry the primary burden of caring for the household.

Having limited scope in receiving disaster-related information women can hardly get prepared for disaster management. Many women lost their husbands or other earning members who go fishing in rough weather and by the attack of pirates in the deep sea, become more vulnerable and start struggling unprecedentedly for survival. In the super cyclone Sidr (2007) and silent killer Aila (2009), women of the coastal areas of Bangladesh spend their days encountering poverty, discrimination, uncertainty, and fearful action of nature and society. Surprisingly, women of these areas are surviving, living with disasters with their small capacity, indigenous knowledge, and strategies (IFRC, 2008).

2.4 WOMEN-FOCUSED NATIONAL POLICIES

The disaster mortality in Bangladesh is largely dropped due to a careful policy of promoting the leadership of women in all sectors (UNDRR, 2019). Bangladesh has formulated several policies, plans, legal frameworks and programmes making them more inclusive of women. These policies emphasized women's involvement in CPP, UDMCs, UzDMCs, shelter management, and community awareness raising. These

initiatives have helped succeed to lower disaster mortality by almost two-thirds (UNDRR, 2019).

Bangladesh is pioneer in formulating many policies and legal frameworks like Standing Order on Disaster, Disaster Management Act, Disaster Management Policy Bangladesh, Disaster Management Plan, National Women Development Policy, etc. These policies and legal frameworks emphasized the participation and contribution of women precisely.

2.4.1 Disaster Management Act 2012

The Disaster Management Act 2012 was approved by the Parliament in September 2012. After a long collective effort by the government and development and civil society actors, a legislative tool under which disaster and emergency management has been undertaken. It has placed mandatory obligations and responsibilities on ministries and committees and ensures transparency and accountability in the overall disaster management system.

The objectives of the Act are substantial reduction of the overall risks of disasters to an acceptable level with appropriate risk reduction interventions; effective implementation of post-disaster emergency response; rehabilitation and recovery measures; provision of emergency humanitarian assistance to the most vulnerable community people; strengthening of institutional capacity for effective coordination of disaster management involving government and non-government organizations, and establishing a disaster management system capable of dealing with all hazards for the country (MoDMR, 2012).

The disaster management Act will help in promoting a comprehensive disaster management programme upholding the all-hazard, all-risk, and all-sector approach where risk reduction as a core element of disaster management has equal emphasis with emergency response management with a greater focus on equitable and sustainable development.

2.4.2 National Disaster Management Policy 2015

The National Disaster Management Policy 2015 was formulated after consultation and discussion at different levels defining the perspective on disaster risk reduction and emergency management and describing the strategic framework and national principles of disaster management. The policy emphasizes the constitutional right of women in information sharing and opportunities for women in all general and special work. Increasing women member's participation in all disaster committees from the village and local administration to the national level and compulsory increasing of women leadership in disaster management were given importance (MoDMR, 2015).

2.4.3 The Standing Orders on Disaster (SoD) 2019

The Standing Orders on Disaster 2010 describes the detailed roles and responsibilities of committees, Ministries, and other organizations in disaster risk reduction and emergency management and establishes the necessary actions required in implementing Bangladesh's Disaster Management Model. It urges to ensure women's participation at all levels of the disaster management committees and planning process (MoDMR, 2019).

2.4.4 National Women Development Policy 2011

In 2011 the National Women Development Policy 2011 was endorsed. The Objectives of the National Women Development Policy are to establish equal rights of men and women in areas of the state and public life in the light of the constitution of Bangladesh. It emphasizes establishing gender equality in politics, administration, other areas of activity, socio-economic activity, education, culture, sports, and in all areas of family life. The priority was given to the women for proper shelter and housing. Rehabilitation of the women affected by natural calamities and armed conflicts was also considered one of the most important issues of the policy (MoWCA, 2011).

Policy also emphasis on capacity building of the women and girls through extensive awareness building training initiatives to cope with disaster; rehabilitating women and children affected by riverbank erosion and disasters ensuring security of women to deal

with disaster and other emergencies; making available of health materials and sewage systems Ensuring the availability of health materials and effective sewage systems; provide women and girls with the psychosocial care to overcome the disaster stress and shocks; making sure the involvement of women in food distribution activities during times of disaster (MoWCA, 2011).

2.4.5 The 7 Five Year Plan 2016–2020

This plan includes significant goals to ensure women’s involvement in the areas of (1) homestead-based agricultural production; (2) post-harvest management; (3) agro-food processing; and (4) marketing and decision-making for ensuring women empowerment.

It adopts issues related to the role of women in transforming agricultural products into elements of national food and nutritional security. Reducing gender-based inequalities and promoting the engagement of women at all levels of decision-making. Increase women’s access to information, credit and other business development services (MoP, 2016).

2.5 HAZARD PROFILE IN COASTAL AREAS OF BANGLADESH

2.5.1 Cyclone and Storm Surge

Bangladesh has a long history of natural hazards. Over 219 natural hazards have taken place between 1980 and 2016, leaving a total death toll of approximately 200,000 people causing economic loss of about US\$17 billion. Bangladesh incurs losses of 1.8 percent of GDP each year due to natural hazards. It is estimated that 14 percent of total GDP is exposed to disaster. It is also estimated that about 10 million people are affected by one or more natural hazard-induced disasters each year.

Shatkhira is located in the southwest region of Bangladesh. The district is vulnerable to both cyclones and flooding. Certain parts (Shyamnagar, Asasuni Upazila) of the district experience severe cyclones while other parts (Tala, Kolaroa and Sadar Upazila) experience flooding, followed by waterlogging almost every year. Cyclone Aila in

2009 severely affected Syamnagar and Asasuni Upazilas. The cyclone breached the river protection embankment which caused severe and prolonged inundation of major portions of the two Upazilas. Almost all of the households were displaced and took shelter on higher ground and embankments and remained there for a period of four years. Prolonged inundation by the saline water caused the death of trees, animals, and livestock. Moreover, it destroyed house structures, road communication infrastructure, water and sanitation systems.

The southwest part, also known as the Ganges Tidal Floodplain, is subject to occasional flooding from upstream and daily tides from the Bay of Bengal. Far upstream is defined as a freshwater ecosystem and the downstream areas are estuarine. In between, a whole section of the land and rivers over a distance of about 75 kilometers is subject to daily, monthly and annual flooding and high variability of salinity in the watercourses, depending on rainfall, river flooding and tidal incursion. Some areas of the southwest experience water logging for up to six months after the monsoon (CPP, 2020).

Box-1: Cyclone in the South-West Coastal Area

The cyclone of November 1988 hit the coastal areas of Shatkhira, Khulna, Patuakhali, Barishal, and Jessore, Kushtia, Faridpur districts. Maximum wind speed was 162 kilometers per hour and a total number of 5,607 people lost their lives in this cyclone. The cyclone 1991, which originated in the Indian Ocean, had a wind speed of 225 kilometers per hour that hit the coastal areas of Chattagram and Barishal districts. The storm caused a tidal wave of 12 to 22 feet in height. The April 29-30 cyclone was described as the worst cyclone of the century and about 136,000 people died. More than crore people were affected. On May 19, 1998, another cyclone struck Sitakunda and its environs in Bangladesh. The coastal area was inundated by a 15-foot high tidal wave with winds of 232 kilometers per hour. Then a few more cyclones hit 7. However, the wind speed was less than 6.

Cyclone Sidr, which struck the country's south coast on November 15, 2006, killed nearly 6,000 people. However, according to the Red Crescent, the death toll is about 10 thousand 7. The storm which formed near the Andaman and Nicobar Islands in the northern Indian Ocean had wind speeds of 280 to 305 kmph. Sidr carried out devastation in Khulna, Shatkhira, and Barisal areas. Everything is washed away by the 15 to 20 feet high tide rising to form the sea. More than three thousand people died in the storm 20 lakh people in 32 districts were affected. About six lakh tons of paddy was lost in the coastal areas. In addition to the animal of the Sundarbans, innumerable cattle are killed.

Cyclone Aila hit the coasts of West Bengal and Khulna in India on May 25, 2009. The cyclone claimed 193 in Bangladesh. About three lakh people became homeless on the southwestern coast of Bangladesh.

Cyclone Mahasen hit the Noakhali and Chittagong coasts on May 16, 2013. Its wind speed was 100 km per hour. This storm claimed the lives of 16 people in Bangladesh. Cyclone Mora, which formed in the North Bay and adjoining East-Central Bay of Bengal, hit the coast of Cox's Bazar on May 30, 2016. At the speed of 148 km. The storm destroyed thousands of unfinished houses. The land crops and salt stored by farmers are wasted (CRA 2019-Buri Goalini Union, UDMC). In cyclone Bulbul (2019) was less than expected as the cyclone Bulbul hit the coast of Bangladesh. A total of 24 people died and 62, 212 tons of crops were damaged with a financial value of Tk 263.05 crore(UDMC, 2019).

2.5.2 Flood due to High Tide

The height of seawater increases during high tides and plain land is submerged. This type of flooding occurs in coastal areas. As a result, field crops could be damaged and saline water could infiltrate various water bodies.

2.5.3 Salinity Intrusion

Salinity intrusion has become an increasing problem across the coastal areas of Bangladesh. The coastal zones exposed to this hazard are having a serious impact on

both the quality of crop production as well as the reduction of agricultural yields. Increase in salinity leads to significant shortages of drinking water, scarcity of water for irrigation for dry-season agriculture and significant changes in the coastal aquatic ecosystems. It adversely affects the productivity of a number of capture fisheries, along with adverse effects in the wild habitats of freshwater fish and giant freshwater prawn. Mainly salinity intrusion affects water and sanitation facilities and creates a moderate crisis regarding the availability of safe water.

2.5.4 Waterlogging

Waterlogging has been a regular phenomenon for the hundreds of villages adjacent to the Kopadak and Betna River in Shatkhira 2000. In at least four of the last ten years (2006, 2009, 2011, and 2013), the southwest area experienced extensive waterlogging. In 2013, this was about 28% of the land area in the affected Upazilas (FAO,2015). In the given geophysical settings, people lost their livelihood options. Long-term inundation prevents the cultivation of most crops normally cultivated in this area, resulting in very significant economic loss to households and villages. Significant quantities of T. Aman, Boro rice, winter vegetables and cash crops including betel leaf, oilseeds, jute and sugar cane were normally produced in this region. Flooding and waterlogging made the T. Aman paddy cultivation impossible in this region. The scope of rice, as well as seasonal crops and vegetables, has significantly reduced as a result of swathes of stagnant water. The population generally relies on crop-based agriculture for their living, which is lost when waterlogging occurs. Other sources of income that include homestead production and livestock/poultry, are also greatly affected due to flooding and waterlogging. The recurrent flooding and waterlogging therefore pose severe threats to food security of the poor households and agriculture day laborers.

CHAPTER III

RESEARCH METHODOLOGY

3.1 STUDY AREA

The study covers two South-western coastal villages of Bangladesh namely, Dakhinakhali and Durgabati in Buri Goalini Union of Shayamnagar Upazila under Shatkhira district. Villages were selected because of their unique features. They are close to *Sundarban*, the famous Mangrove forest. In history, these areas are most vulnerable to disasters with intense impacts and regularly prone to tropical cyclones, tidal surges, salinity, riverbank erosion, lightning, etc. The super cyclone *Sidr* and cyclone *Aila* and *Bulbul* hit these villages and cause severe damages. Despite being repeatedly hit by these disasters, noticeable risk reduction and development initiatives are almost absent here and villagers of this area are very poor, mostly illiterate and nature dependent. Considering all the factors, these two villages were selected as the study area.

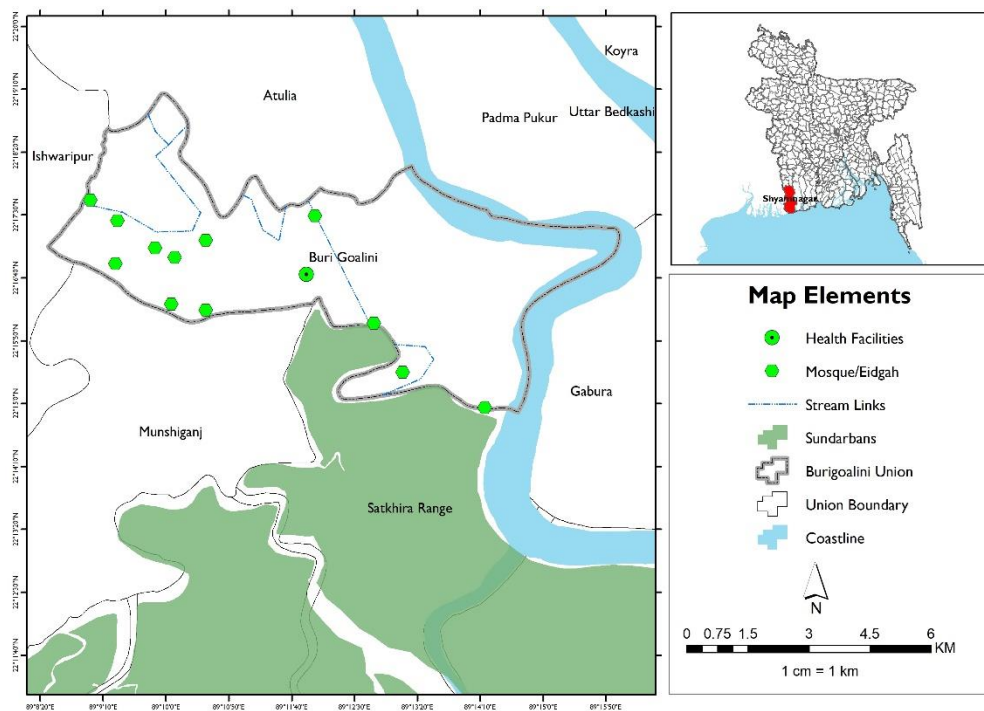


Figure 1: Location map of the study area-Buri Goalini Union in Shayamnagar Upazila, Shatkhira District

3.1.1 Buri Goalini Union

It is known from history that once Buri Goalini Union was under salty seawater. Day by day alluvium gathered at this area from Estuary Rivers of Padma, Meghna & Jamuna's connection with the Bay of Bengal. Then grows many types of grasses. After a few years, mangrove trees like Garjan, Goran, Gaoa, Goalpata, Poshur, Bain, etc. grow there. In the British period, peoples of the nearest areas started coming here to collect Goal Pata, Fuel woods, Honey, Fish, etc. Sometimes they need to stay here for a long time. Then they felt that they need a living place here. The fishermen, farmers, boatman & other poor people established their household here for their livelihood. This is the historical background of the Buri Goalini Union. The natural calamities here caused a lot of damage in the two villages Durgabati and Dakhinakhali, according the local level community risk assessment (CRA) by Buri Goalini Union Parishad in 2019.

3.1.2 The Study Village Dakhinakhali

Dakhinakhali is located at the edge of the Sundarbans which is separated by the Kholpetua River. It has a total population of 2,220 in 513 households (BBS, 2014). More than 95 % of the people are Muslim. In this community, the majority of the people are involved in agriculture, shrimp farming, crab fattening, small business, and day laboring. Most of the fishers here depend on the Sundarbans and catch crab and small fish and collect honey. This community is also highly vulnerable to climatic hazards such as cyclones, riverbank erosions, and salinity.

3.1.3 The Study Village Durgabati

The Durgabati is located at the edge of the Sundarbans which is separated by the Kholpetua River. Durgabati has two parts, as- West Durgabati and East Durgabati. It is situated in 6 no ward. It has a total of 2041 population in 467 households (BBS, 2014). More than 90 % of the people are Muslim. In this community, the majority of the people are involved in agriculture, shrimp farming, crab fattening, small business, and day laboring. Most of the fishers here depend on the Sundarbans and catch crab and small fish and collect honey. This community is also highly vulnerable to climatic hazards such as cyclones, riverbank erosions, and salinity.

3.2 STUDY APPROACH AND METHODS

The present study has followed a qualitative approach and apply Case study, Grounded theory, and other related methods of research.

3.3 DATA SOURCES

The present study has been accomplished mainly based on primary data and secondary data. Primary data were collected in several ways applying FGDs, KIIs, Case Studies.

Secondary data have been collected in two steps. First of all, pertinent literatures (e.g., peer-referred journals), research papers, books, risk assessment reports, newspaper, etc. were consulted. In the second step: relevant local and national level institutions were studied. Related institutions, ministries, reports, for example, Ministry of Disaster Management and Relief (MoDMR), Department of Disaster Management (DDM), Office of the Upazila Nirbahi Officer (UNO) were explored. These institutions provided vital information related to area affected by disasters, loss and damages due to these disasters, vulnerability of women, women's participation in different DRR initiatives, etc.

3.4 DATA COLLECTION TOOLS AND TECHNIQUES

In this study, Observation, Face to face interview, Document analysis, Discussion, etc. were followed as data collection techniques. For better application of these techniques some appropriate tools were developed and administered; mainly, Semi-structured interview schedule, Observation, and FGD Guidelines, Checklist, Audio-video materials, etc. All the techniques and tools were designed in a systematic way and applied for revealing the in-depth information, challenges, supports, voices, experiences, contributions, suggestions, and stories related to disaster and risk reduction.

Further, relevant data of this study was collected in written form and also using suitable electronic devices that were suitable to the study participants. Interviews and discussions were conducted mainly in Bangla maintaining the local dialects. Spending

sufficient time in the study villages was an additional benefit to the data collection procedure. In addition, the researcher applied methodological knowledge, skills, compassion, and honesty to ensure that the collected data was valid, and the information was reliable.

3.4.1 Case Studies

Ten female villagers who are permanently residing in the study villages- Dakhinakhali and Durgabati, five from each was selected purposively for the case study. Selected cases were local Union Disaster Management Committee (UDMC) members, women with disabilities, widows, older women, CPP volunteers, and severely disaster-affected vulnerable poor women.

3.4.2 Focus Group Discussions (FGDs)

Ten Focus Group Discussions (FGDs) were conducted for obtaining pertinent information of the study with 12 participants in each group. Five FGDs were arranged in each village. Participants of four out of ten FGDs were disaster-affected vulnerable women especially, those women heading their households, women with disabilities, widows, and older women. Three FGDs were organized involving CPP female volunteers, female community leaders, female UDMC members, and local female NGO workers and CBO members. Rest two FGDs were arranged with local male villagers who are farmers, day laborers, fishermen, schoolteachers, religious leaders, and disaster-affected heads of their families.

3.4.3 Key Informants Interview (KIIs)

Four Key Informants Interviews (KIIs) were administered with the UNO of Shayamnagar Upazila, Chairman of Buri Goalini UP, one local female schoolteacher, and one NGO female representative.

3.5 DATA PROCESSING AND ANALYSIS

After completion of data collection from the field, all data were edited thoroughly so that there should not be any gap, ambiguity, and dichotomy in the same. As the present

study follows the qualitative approaches, analysis has been completed by using narrative, descriptive and explanatory procedures. In analyzing qualitative data description and explanation of themes and voices have been presented in narratives. After frequently hearing to audio records, similar data obtained from other forms and sources was consequently scrutinized and transcribed within the prospective interest of the study. Observations and records from fields were rearranged into an understandable description with major arguments and groupings. Collected data has been processed, organized, arranged, and analyzed maintaining generally established principles and practices of the qualitative data analysis procedure. Appealing verbatim of the severely disaster-affected rural women is used for attracting public notice, particularly of the policymakers, program managers, academicians, and general readers.

3.6 LIMITATIONS OF THE STUDY

The following issues are acknowledged in this study as limitation:

The present study on the ‘Role of Women in Disaster Risk Reduction: A Study in Disaster Prone Coastal Areas of Shayamnagar Upazila, Shatkhira has been conducted only on two villages of Shatkhira district. As the coastal area of Bangladesh is vast, it should not be generalized to all coastal regions.

The study was conducted only in the cyclone-affected areas, but the impact of multi-hazards was not possible to portrait.

The study also focused on the role of women in rural areas, whereas disaster has different dimensions and impacts on women in urban areas that were not possible to focus on.

To identify and reveal the grounded capacities of the regular disaster-affected women in coastal areas needs longitudinal studies but due to time limitation, it was not possible in this study.

It was not doable to match up to the study evidence with other earlier works due to a lack of sufficient relevant literature. So, it was not possible to use the review of the literature to test or challenge the methodology used, and the conclusions of the study.

3.7 ETHICAL CONSIDERATIONS

Following ethical issues were considered while conducting the study:

Respondents of this study were sufficiently informed about the objectives, methods, procedures, goals, risks, and harms involved in the research project.

Pertinent data were collected after obtaining verbal and written consent from all respondents; they were not pressurized in participating and cooperating in this study.

Respondents were assured that provided information will be utilized only for this study purpose and not make disclosed and available to anyone else who is not directly or indirectly involved in this mission. They were also guaranteed of maintaining the confidentiality of their personal and private identity and information given to us.

The principle of anonymity was also followed strictly throughout the research work.

CHAPTER IV

DISASTER VULNERABILITY AND CHALLENGES OF WOMEN

4.1 HAZARDS AND DISASTERS IN THE STUDY AREA

It is evident that participants of this study are aware that Bangladesh is known as a disaster-prone country due to its geographical features, location, and adverse environment. When they were asked about the hazards those are common in their area, they mentioned the names of many hazards, for example, cyclone, tidal surge, hailstorm, salinity, riverbank erosion thunderstorm etc. They identified cyclone as the main hazard in this area which usually occurs in the months of April-May and October-November. They also mentioned that the frequency and intensity of cyclones are increasing due to the increase in temperature and climate change. Again, they believe that deforestation and expansion of the urban areas are the most common factors for frequent cyclones. Tidal surges occur in the same months that occur due to temperature rise and heavy rainfall during cyclone. Hailstorms usually take place in the month of April.

Majority of FGD participants believe that there is a relationship among increase in hailstorm and air pollution, deforestation, smoke caused by mills and factories. Thunderstorms usually occur here in the months of May-July, and riverbank erosion mainly happens during tidal surges in the months of May-June and August-September-October. The main reasons for riverbank erosion are flood and fragile embankments, they observed. Salinity is another serious problem for this area. In the months of April-May and October-November, salinity intrusion increases and the main reasons for this increase in salinity, unplanned shrimp farming etc. in their coastal areas they pointed out. Majority of the FGD participants mentioned that lightning strikes in the months of April-May and June-July-August, and the frequency of lightning has increased significantly in recent times compared to immediate previous years. Every year 3-4 people die due to the strike of lightning in their villages they reported.

4.2 LOSS AND DAMAGES DUE TO DISASTERS

During discussions, FGD participants mentioned that the most recent disaster that happened in this area was Amphan in 2020. Cyclone Amphan caused severe damages in Shayamnagar Upazila. Most of the areas of village Dakhinakhali and Durgabati were inundated, as the protective embankments in Shayamnagar Upazila of Shatkhira district were damaged due to tidal surge followed by waterlogging. As the surging water breached protective embankments, standing crops were wiped out, vegetable and fish/shrimp farming was damaged, and millions of trees were uprooted; crop fields were smashed severely and many vegetable fields in the backyard were destroyed. In many places' roads were washed away. Thousands of people could not return to their homes and were living on whatever elevated land was available or in cyclone shelters. Ponds and fish were washed away, and a huge number of cattle and goats drowned in the water. One respondent mentioned that she had lost her 10 goats and 6 cows which cost almost three lac taka. Also, their homesteads, livestock houses, kitchens were damaged. Many respondents reported that their houses were fully or partially damaged in the recent cyclone in 2019 and 2020.

4.3 VULNERABILITIES AND CHALLENGES OF WOMEN

Women who participated in the FGDs, Case Studies and KIIs for this study pointed out many disaster-related vulnerabilities and challenges they experience in the different phases of disasters. It was found that the male participants also agreed with and repeated what women already expressed about their vulnerabilities and challenges in most of the cases.

4.3.1 Challenges Women Face in the Families

Many respondents stated that just before, during and after disasters, women's workload increase enormously. Women ought to manage all these household chores being overloaded and their lives become extremely busy and miserable. During and just after disasters male members of the households go away to search for alternative earning and women take primary care of their children, elderly other dependents besides their

regular household works. Villagers shared that when cyclone or storm surge is over, women immediately start reconstructing their house and homesteads. They collect scattered household items and dry clothes, beds, and other items that are damaged. Women face the burden of looking after children, elderly members, and others who are suffering from injuries and other diseases. They mentioned that as they stay near to their families, they are there to provide nursing and primary health care to the most affected family members.

Some women participants mentioned that during cyclone, usually they do not feel encouraged to rush to cyclone shelters. They demonstrate many reasons behind this like, in rural areas most of the women cannot go outside their houses without the permission of their husband, father or other senior male members of the family. One girl participant mentioned that many girls of their locality are disallowed from going to school just after disasters due to their security reasons and are forced to child marriage.

Case Story 1: Latifa Banu (Pseudonym), Age-43

“Socioeconomic life of my family was disrupted all on a sudden”– Latifa Banu. Latifa Banu having 43 years of age, local village dweller widow who lost her husband in cyclone Sidr of 2007. She has four daughters and one son alive. None of them are eligible to work and earn money. Reasonably, she had to go outside of her house to earn money and feed her family members. Latifa’s house swept away in cyclone SIDR. She lost all her crops and livestock within few hours.

“We were compelled to living beside the embankment. We had no food, no shelter, no work, no income, no money; nothing was left” – Latifa Banu.

Latifa was a housewife before Sidr and most of the time she used to spend looking after her family and also helped her husband in cultivation. Cyclone Sidr has destroyed all sources of income opportunities of Latifa. At present she is working in other villager’s farming fields and neighbors’ houses. This activity allowed her to

find regular work and ensure constant income to cover her personal and family needs. She earns a daily wage of 175 taka which she was able to access in a lump sum for her family. Even then it is very tough on her part in maintaining her family. Now, her children stopped going to school because it is not possible to continue their education with her small income.

Latifa Banu received some cash support from the government sources and some NGOs. With this small amount of money, she made a new house and shifted her from the embankment side. She mentioned that staying on the embankment side was not dignified at all. During her stay there she faced many unexpected and fearful problems there. People used to harass her in different ways; so, she felt insecure and helpless as no one was there to protect and support her.

Latifa went to the local Chairmen to enroll herself in the government-run “Husband deserted and Widow Allowance Programme” but she was asked to pay a chunk amount of money for this purpose. As she could not manage the money and not interested to bribe, did not get the same. *My life has become seriously miserable now and I have lost all of my hopes and dreams*, said Latifa.

4.3.2 Challenges in Cyclone Shelters

When asked the participants where they took refuge when disasters start, most of the women participants answered that they took refuge at the local temporary makeshift shelters on the roadside or embankment side. A few women mentioned that they took refuge in local government cyclone shelter. Some also reported that they took shelter in boats or relative's houses. Male respondents mentioned that the people in their area at the time of disaster events mainly take asylum in the permanent cyclone shelters. Some of the participants answered that they remained at their homes during the disaster. A few participants took refuge in the temporary shelters.

When the female respondents were asked what kind of problems they frequently faced in the shelters as woman during disasters, almost all of them gave the same answer. They said that there was not enough space in the shelters, no alternative lighting

system, no separate toilets, not any arrangement for lactating and pregnant women and no provision for menstrual care for women at all. In the same shelters, men, women, children, older people, persons with disabilities stay together. Also, there is only one common toilet for all in the shelters which make women's life miserable

Case Story 2: Sitara Begum (Pseudonym), Age-55

Sitara Begum, now 55 years of age, was living in a good tiny house along with every necessity of life. She spent 20 years in her native village. She passed her Secondary School Examination. She is educated compared to other cyclone victims. After passing Secondary School Examination, she got married to her cousin. She was very happy in her married life. Her husband was an owner of a fishing boat. She spent fifteen years of her married life in her village. When she was nine months pregnant the cyclone Sidr destroyed her village. Then after she was forced to take shelter in a cyclone shelter. When cyclone SIDR stroked she was nine months pregnant and it was very difficult for her to travel. Coastal flood water was five feet high and people were using barefoot to travel to the nearest high land or shelters. After facing many difficulties, her family finally found a small boat with that they traveled to the cyclone shelter.

Sitara Begum lost her husband in cyclone Sidr who was in the mid-sea during the cyclone and could not return. She has also lost her two sisters and one child at the same time. Of her three children, two sons are still alive. Sitara now works as an NGO run schoolteacher. She said,

"This area is prone to storms and tidal surges. Our parents have witnessed the huge cyclone of 1970. I was yet to born then. But I have seen cyclone SIDR and AILA. One sea cyclone comes, and hundreds of mothers lose their children. Many families get ruined. I am hearing that this year may witness another large cyclone. What will happen to us then?"

She is eagerly waiting to have her house of her own in local high land area, but it is very difficult to purchase a piece of land as it is highly expensive now.

Study participants who went to the cyclone shelters faced a lot of challenges. One of these challenges was not being able to use toilet. There was only one toilet in the cyclone shelter, but there were four or five hundred people in the same shelter. Girls and women could not use that toilet because of the men. One participant mentioned that she did not drink water for a whole day, so she did not have to go to the toilet. In that shelter, dry food and drinking water were not available this was a big problem for everyone.

4.3.3 Physical and Mental Harassment

The likelihood of sexual violence grows when women and girls are living in cyclone shelters, makeshift shelters, temporary shelters or refugee camps. Unwanted events of sex trafficking were reported in several reports after cyclone Sidr. During the study, most of the women who were interviewed reported that they faced sexual harassment (physical and mental) during and after disaster. Almost every woman who stayed in different shelters after the disaster reported that they faced physical and mental harassment. These happened particularly when women line up to use the common toilet.

4.3.4 Increase in Domestic Violence

A majority of women reported that during a disaster domestic violence is increased. They think the reason for this is according to social context men have to maintain their family economically but it is seen that during disaster men have a limited scope of work and due to lack of a job, they become frustrated as a result they sometimes quarrel and beat their wives and children.

4.3.5 Scarcity of Safe Food and Sweet Water

After disasters, affected people face serious challenges with shortage of safe food, sweet water, essential drugs etc. They need clothes to wear, utensils and kitchen items

for cooking and women need special safety and security. Participants informed that they received some amount of cash, food items and other essentials as relief items immediately after the cyclone and other disasters casually from different public and private sources. But there was no item of special need for women, older people, and chronic patients. Almost all participants reported that after cyclone Sidr and Aila, they faced serious problems with having sweet water which was totally unavailable here. Women in their villages had to walk a few kilometers every day to collect salt-free sweet drinking water.

4.3.6 Access to Early Warning

Most of the respondents reported that they received early warning signals before the cyclone happened. Although they acknowledged that women have less access to information mainly in disaster situations that makes women more vulnerable. They depend on radio, television and mobile phone to hear early warnings which are not always available to poor households particularly with women. Some of them said that as no one was in their home to protect domestic resources, they could not go to shelters. Some adolescent girls said that they thought shelter is not safe for them. Some of them told that they did not realize the severity of the cyclone as they did not receive an early warning.

Some of the participants also mentioned that they heard cyclone related information and early warning from different media, for example-TV, Radio, Union Disaster Management Committee members, UDMC members, Village Development Committee members, Community Volunteers, Mobile Phones, verbally from others in their village, from NGO workers, micro-ponic announcements from local Mosques and BGB camps.

4.3.7 Access to Relief Supports and Assistance

The study participants were asked whether they receive any support or relief items after the disasters, and they responded positively but mentioned that those stuffs were always insufficient and inappropriate as well. Most of the time, they received only dry

foods, such as flattened rice (*Chirha*), bread, biscuits, hotchpotch (*Khichurhi*) etc. Usually, they receive these relief materials from the government through Upazila Parishad and Union Parishad, and different national and international NGOs, neighbors and other philanthropic persons and groups. Respondents informed that they get water treatment plants from the Department of Public Health Engineering, but it is not enough for everyone. Unfortunately, as women pointed out that many times housewives and young girls have to stand in long queues to get relief materials; women cannot push men. Again, it is not possible on their part to leave their children at home alone for obtaining relief goods. Participants generally think that women are physically weaker than men, therefore, relief materials often come from different sources are received mainly by men and ultimately do not reach women.

4.3.8 Challenges of Special Groups

FGD participants mentioned that they observe stereotypes and negative attitudes towards socially challenged women, mainly women from minority groups, with disabilities, older women, Hijara etc. even in the disaster situation. They also pointed out that other special group of women who needs special care during and after disasters often remain unaddressed. Such group includes widows, pregnant women, lactating mothers etc. but most of them are usually excluded from relief assistance. Woman with disabilities think that they are not the same as other women, so cannot expect to have same rights and aspirations.

Case Story 3: Molina Rani (Pseudonym), Age- 25

Memories of the super cyclone SIDR might have faded, but for some, the trauma still lingers with no fewer wraths. Amidst the trauma, there are stories of hope against all despair. Twenty five year old Molina is one of such rare stories. When village after village was swept by the tidal waves, Molina was screaming for help from her house in the remote coastal area of Shayamnagar. Initially, she was not allowed to move to the cyclone shelter because it was a common understanding in the village that there is no

separate room for women in this shelter and not safe for her. Although there was a fear that women might sexually abuse in the cyclone shelters.

Remembering the time of cyclone Sidr, she recalls that there were no separate utility facilities for their needs in shelters. There were no separate toilet facilities in most of the shelters. She knew that almost every woman who lived in cyclone shelters after disaster in the past faced physical and mental harassment while using the common toilet.

When the strong wind was blowing, she got feared and wanted to flee to the cyclone shelter, but it was too late. She took shelter under a tree, but it fell on her and she was trapped there for over 12 hours. The next day, some village people rescued her and took her to the emergency health camp. But for not getting proper treatment, she became paralyzed due to a spinal fracture.

Because of her physical disability, her husband left her at her parents' house. Her condition dried up all hopes of her family. Now she lives with no hope. Her life is totally dependent on the other family members. Molina Rani is the second of four children of her father and mother. Molina Rani passes her days with grave miseries. In 2009, a terrible cyclone Aila hit her village again but no one was home at that time. Without waiting, Monila Rani, rushed to the cyclone shelter ignoring her physical obstacles even though she knew she had to face same challenges as three years back.

Although Molina Rani is not well educated, she thinks that the environment is changing badly as a result of climate change. So, when she gets a warning of cyclone, she tries her best to aware of people sharing her experience. Now, due to her fateful past, she has to live with lot of physical challenges. Still, Molina Rani hears less in the ears, sees less in the eyes and has problems in movement.

4.3.9 Poor Health Care Facilities

Medical care facilities are a must during and after any types of disaster, but it is seen that most of these disaster-prone areas medical facilities are not available, particularly for the disaster affected women. Most of the respondents said that they could avail

medical facilities only after 15 days, but it was only in areas near the Upazila or Union Parishad. It was seen that the lactating mothers, pregnant and disenabled women suffer most as their health needs are not met in the post-disaster situation. Women and adolescent girls suffer severely as sanitation systems are destroyed and in most cases, they had to use toilets only at night.

A child was born in the shelter during cyclone Sidr. There was no doctor or nurse at that night. His mother became severely ill while giving birth to her child, but no breastfeeding corner was available in that cyclone shelter.

4.3.10 Psychological Impact

Psychological responses to disasters include short-term effects such as shock, anxiety, sleep disturbances, guilt etc. There are differences between women and men, and girls and boys in terms of psychological impacts. Some participants mentioned that women and girls suffered from emotional disorders and distress more as compared to men and boys.

4.4 WOMEN'S COPING STRATEGIES WITH DISASTERS

4.4.1 How Women Address Disaster Challenges

Women of the study villages deal against the challenges they face during and after disasters by utilizing their long-practicing indigenous knowledge, experiences, skills and traditional coping strategies as they described. These experiences and traditional coping strategies include both positive and sometimes a bit negative consequences. However, these rural poor women usually never hesitate, rather believe it very effective, in using these techniques as instant remedies to overcome any crisis situation. So, recognizing and applying their indigenous knowledge, experience and coping strategies are very imperative.

4.4.2 Manage Financial Needs in Crisis Situation

Managing financial crisis during and after disasters, women reported that initially, they depend on their personal and family savings, assistance or loans from kin, neighbors,

friends and some other money lending sources, even in against of their valuable assets and ornaments. In some cases, they ought to pay double interest rates when they borrow loans from local money lenders. Respondents mentioned that understanding the consequences of borrowing loans from these local sources, they tend to do such actions repeatedly as most of the time they are left with no options. Besides, they sell their jewelry or whatever small valuable items they have for the same purpose. In such cases, they usually do not receive actual value compared to the ideal selling conditions. As they informed, women in these areas raise chicken, duck, goats on a small scale. They are often forced to sell these to pay back debt or to manage household costs.

4.4.3 Ties with Kin, Friends and Neighbors

Rural people traditionally maintain cozy relationships with their relatives, extended family members, neighbors and other community people. Although most of the participants mentioned that they depend mainly on their own capacity and resources to cope with or face challenges during or after disasters, however, some women said that they address the challenges and cope with the crisis situation taking help and supports of their relatives.

Participants disclosed that after disasters Sidr and Aila some affected women rushed to their close relations' houses and lived with them for a certain period, especially their parents to get through the difficult times. They sent their young children, particularly adolescent girls to relative's houses for the time being to avoid the security concern during crisis period.

Case Story 4: Saleha Begum (Pseudonym), Age-46

Saleha Begum lost both of her husband and the only son in cyclone Sidr in 2007 when she was only 46 years of age. She was on the verge of her death when a CCP volunteer found her under her own collapsed house. The CPP volunteer who found her took her to the Upazila Health Complex. With some medication and nursing, she regained her consciousness and started to recall the immediate past.

When she heard for the first time that she had lost her husband and son on that cursed night, she at times thought of taking her own life as she believed she did not have any purpose of living without her beloved ones. She remembered that she was crying continuously and could not eat or drink anything.

After hearing Saleha begum's situation, her brother came to meet her and took her to his home. There she is living now spending most of her time saying prayers and taking care of her brother's children. This is her life now. She prays for her husband and son regularly. She believes that one day she will reunite with them in heaven.

4.4.4 Accept and Shoulder Responsibilities in Crisis Situation

Several examples manifest that women take responsibility for the situation to manage painful and difficult circumstances in disasters and other crisis events. This helps them to minimize and adjust to stressful situation. Through helping and supporting the affected and distressed persons in crisis these women can regain and maintain their emotional well-being.

4.4.4.1 Manage Food, Water Supply and Primary Health Care

Study respondents stated that their ability to purchase food and some other necessary materials during and just after disasters is much more challenging than normal times. Access to local markets and buying food items is generally difficult because of the movement restrictions during disasters. Cooking facilities become badly narrowed because of scarcity of firewood, other fuel and facilities. Consuming less preferred food, limiting meal amount and reduced number of food items and times of meals are common coping practices of these women as stated by the study informants. They try to rearrange alternative food items in place of their regular meals. Rice is commonly eaten in rural areas as the main meal item. During disasters, it is difficult to manage sufficient rice grain. So, people eat handmade bread instead of rice. Eating rice starch is also a common practice in rural areas which is an important source of energy as well.

Women take considerable risks to collect sweet and safe drinking water from long distances, walking through chest-high water or swimming to collect fresh and clean

water. The respondent also noted that women use various techniques to take water out of their tube wells so that it does not mix with polluted floodwater. They also try to purify available flood water by water purifying tablets those casually distributed by the different relief item distributors.

4.4.4.2 Aid, Relief and Other Supports

Based on the discussions, it was understood that disasters literally push women out of their comfort zones and lead them to adopt non-traditional roles. To cope with such situation, women seem to depend on aid, relief and support provided by local government and NGOs. Participants reported that after cyclone Amphan, women in the coastal areas fell into severe vulnerable situation which forced them to come out of their home and be involved in the rehabilitation and reconstruction works, for example, many women took part in building temporary shelters, latrines, repairing roads and embankments, etc. to earn money.

4.4.4.3 Work Additional Job

Besides household works, women reportedly engaged in different side works to earn extra money to survive the consequences of disasters. The major activities that women get engaged with are, serving as a domestic help at neighbor house, day laborers in shrimp farms, and working in the local mills, and earth-works. Participants mentioned that some women in their area seek help from others for survival and migrate to the urban areas for work.

Case Story 5- Salina Parveen (Pseudonym), Age-32

Poor Salina Parveen a thirty-two years old woman lives in Dakhinakhali village of Buri Goalini Union of ShayamnagarUpazila. After five years of her marriage, she got separated from her husband. Salina Parveen returns to her father's house with her one-year-old son. Her father's poverty-stricken financial condition obligated her to

work as a day laborer at a crab fattening farm with a very low salary. Her son is now 5 years of age.

With her small income, she carried on with her life, dreaming of continuing with her son's further education. But it was hard to manage, so she borrowed a small loan from a local NGO to run the education cost of her son. Then the irony hit her hard when her village Dakhinakhali was affected by cyclones Fani, Bulbul and Amphan in last three years in a row. In cyclone Amphan, her house got collapsed. The crab fattening farm, where she was working was shut down completely after being disrupted badly by cyclones. Frustrated Selina began to worry about how to repay the loan and bear the cost of her living. She again borrowed DBT 20,000 from her neighbor, paid a portion of the loan, and minimally fixed her small house.

She started looking for a job in her neighborhood, but it was difficult to manage a new one. One day she heard that the government was going to repair the disrupted roads of her village. She thought of looking for a labor job there. At first, she was hesitant but then she realized that if she did not work there, her son and she would die without having anything to eat, let alone her son's education. It was not easy to work on the road construction site; it was so laborious. However, she had to accept that as the crab fattening, the only work she knew was no longer her livelihood.

4.4.5 View the Problem through a Religious Viewpoint

During consultation with participants, it was found that poor rural people usually are faith dependent which is an important coping strategy for them. While talking, most of the female participants showed their strong religious feelings. They believe that all the sorrows and damages are the act of god which are the consequences of their good or bad deed. It seems that when they see these sufferings from religious perspective, it helps them to come out of their miseries. They keep hoping that someday nature will reward them by eliminating the griefs and pains.

CHAPTER V

ROLE OF WOMEN IN DRR

5.1 WOMEN'S JOB IN DISASTER RISK REDUCTION VOYAGES

In disaster cases, women's roles, responsibilities and perspectives are different from men's perspectives (Jensen *et al.*, 1991). Again, women's risk reduction initiative and approaches are rather different from traditional disaster risk management strategies. From their life course and life struggles women gain empirical knowledge, experiences, skills and techniques; also, by dealing with frequent disasters in their lives. Women use their won mechanisms in reducing the damages created by disasters and to protect themselves and their families at various stages of crisis. Unfortunately, women rarely get due recognition for their sacrifice and contributions to disaster risk reduction. Women are always portrayed as the most vulnerable group of society particularly by our male-dominated culture. For this reason, their contribution and role in the broader horizon of disaster risk management remain more or less invisible. However, in the last few years, contribution of women in disaster risk reduction has begun to discuss and share widely.

In this study, the respondents reported that women have great abilities which are helpful for their families to deal with disaster situation. Based on practical experience, women perform various preparatory or risk reduction works which help them to keep their families safe and secure. Consequently, respondents believe that the disaster risk reduction activities will be more effective and efficient if the role of women is acknowledged properly and their knowledge, experience, skills, and strategies are used in the disaster risk reduction system which will be possible if women are brought to the forefront in disaster risk management journey of the state and globe.

5.1.1 Disaster Risk Reduction at Family Level

Protection of their own house and homesteads from cyclones or tidal surges is a major concern for the people living in the coastal areas. This is the most important disaster risk reduction activity women usually do before disasters. Women try to protect houses

and homesteads to make them more resilient by reinforcing walls and roofs with locally available resources and increasing the plinth level of homesteads using their long-cherished indigenous knowledge and practice. Planting a variety of seeds, saplings and trees around their houses and get prepared to save this from probable upcoming strong winds of cyclone and tidal surge is common practice for coastal women.

Study participants discussed that from their life-long experience women have learned that some special variety of trees like babul, acacia, coral, silk cotton, coconut, plum etc. and plants are very long-lived, durable and protective against strong winds, tidal surge and cyclones. Women purposively organize this plantation and carefully select the trees helpful for various purposes as well. For example, after a cyclone or tidal surge, water and kernel of coconut are used as alternative to food and drinking water. Also, wood of *Accasia* trees is very useful as firewood for cooking food.

Case Story 6: Monica Bishwas (Pseudonym), Age-27

Monica's village is located at the Buri Goalini Union of Shayamnagar Upazila, adjacent to the world-famous largest mangrove forest *Sundarban* in South-western coastal Bangladesh. After cyclone Sidr, her husband's condition became very terrible. In such a horrible situation, an NGO provided her with a tiny house on a small piece of land in the middle of a river erosion area. This gives her a temporary shelter, but her vulnerability remained as before. Monica said, *"although I am a housewife, I finished my household works in time and worked as a day laborer in someone else's house every day to earn some extra money to support my family."*

Monica was born in a poor family and she is now 27 year old. She could not pursue her education after the SSC examination due to her family's very poor financial condition. Monica's husband also has to leave his study due to financial misery of his family. Monica has a son and a daughter. Despite their hardships, she encourages her children to continue their studies

Although a poor rural woman, she always tries to repair her house using indigenous knowledge with low-cost strong local materials. She used some local plants to make the fence of their house to build it stronger. She helps voluntarily in the ongoing reconstruction work of the local embankment project which was damaged by the cyclone Amphan.

Monica received training on disaster risk reduction last year organized by an NGO and obtained some appropriate knowledge from this training. She shares this DRR training related information with local people. She helped many people especially poor elderly with food and shelter during cyclone Amphan. She showed the light of hope for good time to her neighboring people. Monica thinks that people of her area regularly face dangerous and devastating situations when disasters come, but they should not give up their confidence, hope and trust, rather everyone should address the situation proactively in the preparedness and disaster risk reduction works so that damage of disaster can be less and manageable.

Ensuring food security is one of the most important personal activities women do for their kids and families. Women know that it is very difficult to manage food after disasters and emergencies. So, they adopt different techniques of preparing and storing food items, which can be the source of energy and nutrition for the family members immediately after disasters. This type of activity is an important part of disaster risk reduction. If there is no conventional food, women collect various leaves and vegetables from their vicinity and prepare food following traditional knowledge, experience and skills. Women plant these in normal time so that this stuff could be used during crises and emergencies. Village women save and preserve fuel, matches, dried food, ropes, medicine, portable cooking stove, firewood etc. for handling the emergency situations as essential items. They also said that to cope with disaster, alternative vegetable cultivation, homestead gardening, cattle rearing, hen and duck rearing are the regular activities of their women.

Affected people talked that after cyclone and tidal surges, neighboring sweet water ponds get contaminated by saline water. To ensure sweet and drinking water during

and just after disasters, women catch and preserve water by rainwater harvesting following traditional and indigenous techniques in this respect. They dig a small well in the yard of house and install mud-made pots usually install under earth and covered with plastic sheets. These pots are useful to keep rainwater at least for 2-3 months which becomes life-saving water sources during the crisis.

Majority of the female respondents reported that they save money regularly to encounter the disaster situation and crisis so that they can use the same for maintaining their family requirements, and this is a common practice among them. They try to adopt different income-generating activities like netting, making handicrafts, labor in neighboring houses, work as day labor in the local construction projects along with their regular household works and earn some extra money to ensure the protection of their family. Women regularly save a little money in the earthen bank.

Case Story 7: Rumana Khatun (Pseudonym), Age- 36

“I will not let anything happen to my daughters, I have succeeded to secure housing for my family and now my daughters will continue their schooling”

Rumana Khatun, currently 36 years of age, besides performing all of her regular household chores, she plays an important role in disaster risk reduction activities in her family. She raised her home to ensure that it would not be flooded during cyclone and tidal surges. Rumana protects their tube-well with a plastic sheet so that sand and saline water do not go inside. She was actively involved in preparing plinth for her home and prevents it from eroding during the cyclone and planting strong and long-lived trees alongside the plinth. Previously regular tidal surges almost destroyed her house and homesteads nearly every year, moving and reconstructing her home became more difficult. Now with little effort and techniques of regular maintenance to her home, it becomes a resilient permanent residence. She preserves food, fuelwood and other valuable items to use them during cyclone and emergencies. Being involved with works in this way Rumana’s trust, confidence and hope increased immensely that allowed her to dream of a brighter future for her offspring.

To preserve the valuable resources (utensils, important documents, cash, jewelry etc.) of the household in a safe place covering them with plastic sheets and put them inside the long bamboos and strong roofs of their houses. They store rice, pulses, potatoes, dry food, in plastic drums apprehending the crisis those might be created by disasters.

Livestock and poultry stuff are very valuable to the rural people. Women try to protect the livestock and poultry items by elevating the level of cowsheds, poultry coops, and vaccination of the castles and poultry are common practice there. Women use various indigenous techniques to preserve seeds during normal periods regularly. They make seed storage using bamboo and sticky mud-made bags and containers those protect seeds from being moistened due to heavy rain, cyclone and tidal surges.

5.1.2 Community-based Disaster Risk Management

5.1.2.1 Awareness Raising

The female UDMC members conduct regular awareness activities in their community on disaster preparedness at family levels, crisis management, importance of DRR etc. Study participants mentioned that they participate in the UDMC meetings regularly, get disaster, disaster management and DRR related information and try to raise their voices regarding vital women issues to be highlighted and addressed. They also discuss the importance of women's participation in DRR activities implemented by Union Parishad and Upazilas. Participants said that woman has specific issues that only can be raised by the females; unfortunately, most of the time they do not get such opportunities.

Case Story 8: Geeta Kumari (Pseudonym), Age-62

Geeta Kumari, 62 years of age and a locally elected UP member, lives with her husband and children in a river erosion area, in Buri Goalini Union. Kumari was born in a traditional *Joardar* (Local landlord) family. Her father was a three-time elected UP member and her husband is also a two-time elected UP member. After getting acquainted with the political activities of her family she became interested to

involve herself in politics too. Union Parishad (UP) is the lowest tier of local government which was founded during the British colonial period. This organization is still growing in importance and necessity despite its various difficulties and limitations.

In addition to an elected UP member, Geeta Kumari is a member of the Union Disaster Management Committee (UDMC). Geeta Kumari is the first of seven children of her parents and she is currently a mother of two children. Her son and daughter are married. At present her son works as a staff of government primary school and her only daughter is a housewife. Before being elected as member of Union Parishad, Geeta Kumari was involved in various community developmental works of her neighborhood. Because of all that gracious social activities, people in this area elected her to sit in an important position, member of Union Parishad and holding this position she works for betterment and welfare of local people, particularly those who are in distress and in serious needs.

Tidal waves during cyclone Aila in 2009 wiped out Geeta Kumari's residence. The four-kilometer embankment (locally called as WAPDA embankment) was critically damaged and the entire area was flooded. At that time, despite of her personal enormous loss and damages she stood by the cyclone-affected people and gave them courage and hope to stand up and fight against the adverse situation and crisis. She asked people to survive by reconstructing broken houses, building dams through voluntary labor and resuming their income-earning activities as before.

During cyclone Aila, the major challenge she faced was to arrange emergency shelter for the affected people. At that time there was only one cyclone shelter in her area, but the number of the harmed people was huge. Despite being severely affected by the cyclone, she quickly came out of her own hardship and starts playing her role as a public representative. She spoke to the school management committee and made them agreed to allow people to use school premises as an emergency cyclone shelter. As a result, a vast number of people were able to take shelter in that school premises. Not only managing an emergency cyclone shelter for the affected people, but it was

also a big challenge for her to ensure food, bed items, medical care facilities etc. for the poor and helpless people of the area. She coordinated with the local Union Parishad Chairman and local NGOs to arrange financial support for the vulnerable poor and needy people in her village.

UP member Geeta Kumari, along with UDMC members and volunteers during the cyclones Bulbul and Amphan in 2019 and 2020, quickly evacuated people at risk from the remote areas, ensured food and other facilities at the cyclone shelter. She requested the UP Chairman and mobilized resources from the UP and involved community people to repair the local embankment which was damaged by cyclone Amphan. It helped prevent the area from being flooded by further tidal surges. Geeta Kumari took care of these risky activities just for the benefit of local needy people in person. She gave added importance to these activities because she knew that her area is prone to disasters, it is obvious that disaster will come, people cannot prevent it in any way, but at least probable damages could be reduced. This will give them hope for a fine morning and a new life.

Her family members and villagers are happy with her noble humane works and they believe that her works are incomparable. Finally, she said, *"I have dedicated that my life is just for these vulnerable people; because they do not have anyone except me. My villagers trust me and nominate me in this important position. I have no fear to lose anything. I will continue my works for the poor, needy and socially excluded people of the society as long as I live on this earth."*

5.1.2.2 Training on Disaster Management and DRR

Female UDMC members conduct and also participate disaster-related training and orientations regularly in their communities where other community leaders, local people remain present. Young participants in FGDs mentioned that they try to raise awareness related to the importance of disaster management and DRR, family level preparedness in their community. They said that they received this type of training from local NGOs.

Case Story 9: Shefali Bibi (Pseudonym), Age-57

Shefali Bibi is an elected member of Buri Goalini Union Parishad. She is 57 years of age. As a female member of UP, by default she became a member of Union Disaster Management Committee (UDMC). Then she received training on the duties and responsibilities of the UDMC. She liked the training very much and she tried to fulfil her responsibilities accordingly.

During cyclone Fani, Shefali visited house to house and warned the village people to go to the shelter and to save their valuable resources. Including her own family members, Shefali evacuated pregnant women, elderly, people with disabilities and take them to shelter.

Shefali coordinates with UDMC President, UP members, and various NGOs to provide food to the people at shelter. During cyclone Bulbul, she does the same thing, she always tries to be the side of people at danger.

During the latest cyclone Amphan, about 200 meters of the embankment of Malonch river was broken, as a result, most of the area of Dakhinakhali village was inundated and many resources were lost. Shefali Bibi arranged drinking water for the people at shelter, contacting with chairman, members, and NGOs and ensures relief or other assistance to the people.

Shefali continues to aware people and tells others to build disaster-tolerant houses. She contacts local NGOs and arranges solar light in the shelter. Her wish or dream is to be on the side of the vulnerable people for the rest of her life.

5.1.2.3 Early Warning dissemination

Early warning dissemination is one of the important activities of Cyclone Preparedness Programme (CPP) volunteers. Female members of CPP regularly organize cyclone mock drills involving the community people to raise their awareness on disasters and disaster management issues. They demonstrate the meaning of different signal

systems, safety and security measures, evacuation, first aid and health care process and the ways of access to the village women.

Case Story 10: Sharmin Banu (Pseudonym), Age-27

Almost every year Buri Goalini Union is affected by different disasters like, cyclones, tidal surges, salinity, flood, waterlogging and so on. People of this Union lose their lives and resources due to the hit of disasters. Residing in this adverse situation, people of this area cannot run off this area mainly because of their poverty and incapability. Twenty seven years old Sharmin Banu was born and grew up here in this Union. Her family has suffered a lot when their valuable assets were swept away by cyclones Sidr in 2007, and again by the cyclone Aila in 2009. In earlier times, Sharmin did not know anything about disaster management and preparedness. She received disaster-related training organized by the CPP in 2010. Then she started thinking about how to save and support disaster-affected people in their crisis moment. From the CPP, she got the responsibility to disseminate the cyclone early warning and helping people to evacuate. Whenever she started this voluntary work, she immediately thought about her family and her future because she realized that she can play important role in her family. She works as a tailor to support her family. Her sick father cannot do any work so the responsibility of the family falls on Sharmin's shoulder. She is trying heart and soul in carrying out the responsibilities of her family.

During the cyclones Fani (2019), Bulbul (2019) and Amphan (2020), Sharmin played an important role. She was responsible to hoist disaster signals and warned the village people and asked women from house to house to pack and save their valuable assets, documents including dry food, drinking water, medicine etc. Sharmin also tells her parents and other senior male members to be vigilant, pack up all their valuables and rush to the nearest shelter before cyclone hits. She evacuated the children, young girls, elderly, pregnant women, challenge members and send them to the cyclone shelter when the danger signal was disseminated.

As there is not enough sweet water and food in the cyclone shelters, she communicated with the UP chairman and various NGOs to make food and water available there. She arranges clean clothes and soap, especially to ensure women's health care. There was no lighting system in the cyclone shelter, she coordinated with the UP chairman and various NGOs and requested them for arranging the lighting system. As a result, a solar light was installed at the Dakhinakhali Cyclone Center sponsored by an NGO immediately after cyclone Amphan in 2020.

Sharmin cares not only for herself but also for her family and neighbors and all distressed people in their village. She received some food items from the UP chairman in the aftermath of the disaster. However, the people of the village also cooperated with her initiatives so that all facilities could be availed, and relief items are distributed transparently. Her cherished dream is to make every one of her locality aware of disaster situation, keeping in mind that preparedness and disaster risk reduction can help everyone to reduce the risk of the people living in her village.

5.1.2.4 Multi-hazard risk assessments

Some FGD and KII participants mentioned that they were involved in the risk assessments and community action plan formulation processes conduct by UP and NGOs. Participants try to ensure the issue of the woman is included in these risk assessments and action plans preparation processes.

5.1.2.5 Small Scale Mitigation Activities

Study respondents reported that they took part in the reconstruction works of embankment and improvement of evacuation routes, shelter facilities and road constructions.

CHAPTER VI

CONCLUSION AND RECOMMENDATIONS

6.1 SUMMARY OF THE FINDINGS

Women in Bangladesh play a crucial role in their families to face the challenges of disasters. They are the first line of defense for their families in all kinds of emergencies. Unfortunately, in our society contributions of women in protecting, recovering and reconstructing their families and communities before, during, and after disasters are always remaining unrecognized. Society often manifests women as victims of disaster but not as the power.

Bangladesh is considered one of the most vulnerable places to natural disasters in the world due to its geographic, demographic, and socioeconomic position. Cyclone, storm surge, flood, riverbank erosion, etc. are not a sudden phenomenon here. These are very regular and common events especially to the coastal and char land peoples of Bangladesh. In recent days it is observed that in Bangladesh total number of casualties due to natural disasters is gradually decreasing (SFA). But still, then women and children are most at risk of these undesirable events. Women and girls are severely marginalized all over Bangladesh, but the problems are much more magnified in coastal and char areas where life is more challenging, hard, and conservative. Women of these areas are practically house-bound and hardly participate with common men outside their families.

In the social context of Bangladesh, men are the heads of the families and take all responsibilities in community matters, like communications accessibility, information accessibility, etc. But this leaves women disempowered and extremely vulnerable because they do not have available information unless men share it with them. Also, strict compliance of Purdah limits their participation in regular community activities. Having limited scope in receiving disaster-related information, women take a major role in disaster preparedness from the very past. But the role of women in disaster

management is totally neglected; especially their role in disaster preparedness and aftermath of the disaster is still on a low-key profile. Women attend to children, the disabled, elderly, and other family members, and do all other household works but their active participation and contributions are still recognized non-remunerative and always underestimated.

Because of the socio-cultural context of Bangladesh, women become vulnerable in many ways. Women usually have to get clear approval from their husbands to go outside the home for any purpose. Without husbands' permission, they do not have the right or social ability to move towards safe shelter centers leaving their homes even during a disaster. Rather than fleeing to the nearest shelter center, women get feared they would be blamed if their home is looted. Moving out for job searching among men is high in coastal and char areas of Bangladesh; which leave women responsible for managing the household.

Not only the vulnerability of women but the historical contributions of women in various stages of disaster and emergency management need to be properly recognized. Women need access to safe housing or shelter. Special protections against the increased risk of sexual and physical violence must be ensured in emergencies and shelter centers. To ensure gender equity women must be enabled to take on a bigger role in disaster preparedness and response.

It is evident that different types of domestic violence increase during and just after the disaster. Mainly as men lose their minimum income opportunities in this time and they lose their financial ability to run their own families that creates some emotional imbalance among them. Out of these situations, men usually get angry upon their wives, though illogically, which aggravates unkindness against women. Despite these unfavorable familial and socio-economic conditions, women survive disasters and continue playing their vital role as a family caregiver, disaster, and emergency manager with their indigenous knowledge and lifelong survival experiences.

Usually, women are the first responder to the family needs after a disaster. It is observed that after the disaster women's housekeeping workload increase enormously. They collect scattered household items, wash and dry clothes, beds, and other items that are scratched and damaged. They face the burden of looking after children, the elderly, the challenged, and others who are suffering from injuries and other diseases. Women are the first to provide nursing care to the most affected family members.

Secondly, women play a potential role in disaster preparedness. They become more active in preparing their families for disasters. Ensuring food security for family members, women take on the responsibilities of preparing and storing food items, which can be the source of energy and nutrition for the family just after the disaster. Thirdly, protecting houses and homesteads to make them more resilient by strengthening walls and roofs with locally available resources, increasing the plinth level of households, elevating the level of cow sheds are a common practice.

It was experienced that women preserve fuel, matches, dried food, ropes, medicine, portable cooking stove, collect firewood and preserve for disaster situations as essential items apprehending emergencies. Adopting different income-generating activities like netting, making handicrafts, manual labor in neighbor house, work as day laborers in other places, etc. women ensure the financial protection of their family. To cope with disaster alternative vegetable cultivation, homestead gardening, cattle rearing, hen and duck rearing, etc. are regular activities of women.

Women shoulder considerable risks to collect drinking water from long distances, walking through chest-high water, or swimming to collect fresh and clean water during the flood. It is also noted that women use various techniques to take water out of the tube wells so as not to mix it with floodwater and to purify the water in absence of fuelwood or medicine.

In addition to the disaster management policy, Bangladesh also has a national women's development policy. There is a clear statement about women's involvement and women's leadership in the policy. But there is no good coordination between the

Ministry of Disaster Management and the Ministry of Women and Children. There is a need to coordinate at the policy level between the two ministries to ensure the contribution of women in disaster risk reduction.

After the disaster of 1970, the cyclone Preparedness Program (CPP) was established. During the formation of CPP, it was observed that no women were volunteering for the CPP. But currently, one-third of the CPP volunteers is a woman. The increasing disaster is a reality in the current context. It is important to understand the responsibilities, duties, and position of a rural woman.

After disaster, individuals, families, and society all need ability to return to normal life. Women play a more important role in this. Women play a key role in the family. In the early days when a female CPP volunteer would go out wearing a volunteer vest with a mouth speaker, people would say a lot of negative things. But when they saw girl's contribution to the cyclone warning dissemination and evacuation work, they changed their mindset. She said that women have been able to break down the negative notion that women cannot do risky work.

It is important to think of women as a driving force, not just a passive recipient. Women's participation in the Disaster Management Committees (DMC) is increased according to the direction of the SOD, but it is not enough to increase the number of women, it also important to enhance their opportunity to contribute. The participation of women in the current disaster management committees is negligible. For example, the UDMC has only 3-4 women out of 30-34 members. Which is not enough to ensure female leadership. With only three women members out of 34 members, a woman cannot talk about their strong position. Not only the numbers of the woman in the committees should be increased, but also their leadership qualities should be developed.

Sometimes, women are not encouraged to take part in the decision-making process. But women can contribute significantly in formulating and implementing local-level community-based interventions. Women along with men should be able to play a more

effective role in ensuring risk-free lives by contributing to disaster planning and implementation. This requires cooperation of all parties involved in disaster management.

Women should be ensured equal opportunity and access to both short-term and long-term livelihood opportunities by the authorities concerned. In the short-term, disaster relief for cash projects should be made available to women. And, in longer-term planning, income-generating activities like kabikha, tabikha, VGF, etc. targeted to women must be included. The special health care needs of women must be addressed sufficiently. Government safety-net programs, like special allowances, must be extended to the widow, old age, single female-headed household, pregnant women, lactating mothers in time. Relief packages should be designed for women to provide for their health and nutritional needs. Reproductive health care must be provided during and after disasters to prevent and reduce illnesses and disabilities during pregnancy and labor.

6.2 CONCLUSION

Expedition of this study began in searching the answers on what roles the disaster affected women of south-western coastal region of Bangladesh play in disaster risk reduction. Also, the vulnerabilities and challenges women encounter in different phases of disasters and the ways and means they apply to address the crisis situation.

Following the qualitative approach and case study and grounded theory methods of research, essential information was collected through observation, face to face interview, focus group discussion (FGD) and document analysis techniques.

Data provided by the disaster affected rural women (adolescent girls, housewife, widow, elderly, with disabilities etc.), UDMC members, community leaders, CPP volunteers, UP Chairmen and members, UNO and NGO workers substantiate the study objectives and assumptions.

It was observed in this study, although disaster affected rural women of coastal areas become seriously vulnerable and challenged by facing continuous disaster hits, but their

inherited and grounded indigenous capacity and resources make them able to stay alive and continue their everyday lives.

Besides lifelong nonstop fighting against different natural and human made disasters these women never admit defeat, rather bounce back strongly for their survival even with minimum satisfaction. It is the sacred responsibility of concerned authorities to investigate the situation further deeply, and acknowledge and support their role, endeavor and initiatives through useful training, access, participation and effective development programs.

6.3 RECOMMENDATIONS

- Almost all relevant acts, policies and plans significantly mentioned on ensuring gender equity at national and local level, but effective implementation of the same remain a big concern. Responsible institutions, ministries, and departments need to undertake tangible initiatives to execute these plans with proper training, orientation so that women get opportunities in playing meaningful roles in disaster preparedness and response initiatives at all level.
- Rural women need access to safe shelter, drinking water, health and sanitation, relief assistance, and special protections against the increased risk of physical and sexual violence in emergency situations.
- Women need equal opportunity and access to both short-term and long-term earning opportunities. This study demonstrated that women depend on various aids and external supports to cope with the consequences of disasters. So, it is important for government and national and international organizations to design, introduce and implement more shock-responsive social protection programme targeting women living in the disaster affected hot-spots.
- Special relief packages should be arranged for rural women to support their health and nutritional needs. Also, reproductive health care must be provided during and after disasters to prevent and reduce infection, disease and disabilities during menstruation, pregnancy and labor.

- To deal with disaster related challenges, appropriate awareness sessions, camps, training might be organized regularly in disaster susceptible areas in order to inform, sensitize, make conscious and proactive the community people particularly for the benefit of adolescent girls, young women, older and person with disabilities.
- Women of the vulnerable areas should be provided with proper orientation and training regularly to improve their capacities, skills, attitude and abilities in the areas of rescue, first aid and relief operation, disaster management and risk reduction.
- Voluntarism must be developed further and encouraged in the communities involving students, youths and interested local groups assigning specific tasks before, during and after catastrophes.
- NGOs and local initiatives might be encouraged to create employment opportunities for the women in the disaster-affected areas.
- All the relief, rehabilitation and restoration activities must be on right based approach rather than a mere philanthropic or leniency-based welfare approach.
- While reviewing the literature it was observed that in most of the studies and researches, focus was given usually to the vulnerability of women. But women have extraordinary capacities to deal with disasters. It is expected that not merely the weaknesses, limitations, and vulnerabilities, but also the exceptional and remarkable capacities and sequential contributions of rural women in various stages of disaster management need to be extensively recognized, documented and commonly visible to societies.

6.4 FURTHER STUDY

Considering the study findings, discussions, and suggestions of the respondents, it is meaningful in formulating some vital recommendations for the use of policymakers, program managers, research scholars, and general readers. Two distinct natures of recommendations are offered below:

One of the limitations of the study was focusing only on the coastal cyclone which limits its area of observation. Due to focusing only on the coastal cyclone, it was not

possible to portrait the multi-hazard dimension on women's vulnerability. At the same time, it has created further opportunities to explore the vulnerability of women in terms of multi-hazard dimensions through appropriate studies.

The study concentrated mainly on the vulnerabilities of women in a disaster situation, but it is well recognized that women are not only the face of vulnerability. They are apparently leading the disaster preparedness at their family and community level. Role of women in disaster management from a resilience perspective should be studied furthermore to make sure their representation at the national level.

The risk and vulnerability of disaster are not always same in urban and rural setup. Women's vulnerabilities might be different in terms of urban and rural disaster settings. Therefore, further study is needed to depict the situation of women in rural and urban settings.

Climate change is creating new dimensions to disaster risk, vulnerability, and resilience. So, the changing roles of women in terms of climatic hazards and disasters should be studied.

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APPENDIX-1 FGD GUIDELINE (FOR FEMALE RESPONDENTS)

ভূগোল ও পরিবেশ বিভাগ

ঢাকা বিশ্ববিদ্যালয়

গবেষণা এলাকাঃ ঘূর্ণীঝড় প্রবণ এলাকাঃ

বুরিগোয়ালিনী ইউনিয়ন, শ্যামনগর, সাতক্ষিরা

দুর্যোগ ঝুঁকিহ্রাস কার্যক্রমে নারীর ভূমিকা অনুসন্ধান ও মূল্যায়ন

মাঠ পর্যায়ের তথ্যভিত্তিক এই গবেষণাটি ঢাকা বিশ্ববিদ্যালয়ের ভূগোল ও পরিবেশ বিভাগের অধীনে এমফিল প্রোগ্রামের গবেষণা কার্যক্রমের অংশবিশেষ এবং এ গবেষণার স্থান হিসেবে সাতক্ষিরা জেলার শ্যামনগর উপজেলার বুরিগোয়ালিনী ইউনিয়নের দুটি গ্রামকে নির্বাচন করা হয়েছে। মাঠ পর্যায়ের সংগৃহীত তথ্যাদি শুধুমাত্র ছাত্র-ছাত্রীদের শিক্ষা ও গবেষণা কার্যক্রমে ব্যবহৃত হবে। এ বিষয়ে সম্মানিত উত্তরদাতাদের মূল্যবান সময় ও তথ্য দেয়ার জন্য ভূগোল ও পরিবেশ বিভাগ বিশেষভাবে কৃতজ্ঞ থাকবে।

এফজিডি গাইডলাইন-নারী

সমীক্ষা এলাকাঃ গ্রাম ইউনিয়ন.....

উপজেলা.....সাক্ষাৎ গ্রহীতাদের নাম

রোল নংঃ সাক্ষাৎ গ্রহণের তারিখ আলোচনায় অংশগ্রহণকারীর সংখ্যা

..... পেশার ধরন

১। আপনার অঞ্চলে কী কী দুর্যোগ সংঘটিত হয়?

ক) ঘূর্ণীঝড় (সংঘটনের সময় ও কারণ

.....)

খ) জলোচ্ছাস (সংঘটনের সময় ও কারণ

.....)

গ) শিলাবৃষ্টি (সংঘটনের সময়

.....)

ঘ) লবনাক্ততা (সংঘটনের সময় ও কারণ

.....)

ঙ) অন্যান্য (নির্দিষ্ট করে বলুন

.....।)

২। আপনার এলাকায় সর্বশেষ কোন দুর্যোগটি সংগঠিত হয়েছে এবং কোন সালে?

ক) আশ্ফান

খ) মোরা

গ) মহাসেন

ঘ) আইলা

ঙ) সিডর

চ) অন্যান্য (নির্দিষ্ট করে বলুন).....

৩। সাম্প্রতিক (২০১৯-২০) সময়ে দুর্যোগে আপনি কীভাবে ক্ষতিগ্রস্ত হয়েছেন?

ক্ষতিগ্রস্ত খাতসমূহ	ক্ষতির ধরন *	পরিমাণ	আনুমানিক ক্ষতি (টাকায়)
ক) কৃষি ফসল (ধান ও অন্যান্য ফসল)			
খ) মাছের ঘের/পুকুর			
গ) গবাদিপশু			
ঘ) হাঁস-মুরগী			
ঙ) বসতবাড়ী			
অন্যান্য (নির্দিষ্ট করে বলুন)			

* ১। ব্যাপক ২। আংশিক ৩। সামান্য ৪। তেমন কোন ক্ষতি হয়নি

৪। দুর্যোগকালীন সময়ে এলাকার লোকজন এবং আপনি প্রধানত কোথায় আশ্রয় নিয়েছিলেন?

ক) নিজ বাড়িতে

খ) নিকটস্থ আত্মীয়ের বাসায়

গ) অস্থায়ী আশ্রয়কেন্দ্রে (নির্দিষ্ট করে বলুন)

ঘ) নিকটস্থ শহরে (শহরের নাম উল্লেখ করুন)

ঙ) রাস্তা/বাঁধের উপরে

চ) অন্যান্য (নির্দিষ্ট করে বলুন)

৫। দূর্যোগের সময় আপনি নারী হিসেবে সাধারণত কি ধরনের সমস্যার সম্মুখীন হয়েছিলেন?

১।
২।
৩।
৪।
৫।
৬।
৭।
৮।

৬। দূর্যোগকালীন সময়ে আপনিকি অস্থায়ী আশ্রয়কেন্দ্রে আশ্রয় নিয়েছিলেন? হ্যা..... না.....।

৭। উত্তর হ্যা হয়ে থাকলে, আশ্রয়কেন্দ্রে কি কি সমস্যার মুখোমুখি হয়েছিলেন?

ক)

খ)

গ)

ঘ)

৮। উপরোক্ত সমস্যাগুলো আপনি কিভাবে মোকাবেলা করেছিলেন?

ক)

খ)

গ)

ঘ)

৯। দূর্যোগ মোকাবেলায় (দূর্যোগের আগে) আপনি নারী হিসেবে সাধারণত কি ধরনের প্রস্তুতিমূলক কাজ করে থাকেন?

দূর্যোগের আগে	কিভাবে করেন
ঘরের মেঝে উঁচু করা	
ঘর শক্ত করে বাধা	
অর্থ সঞ্চয় করা	
পানি সংরক্ষনের জন্য কূপ খনন করা	
খাদ্য সংরক্ষন করা	
জ্বালানি কাঠ মজুদ করা	
অন্যান্য (নির্দিষ্ট করে বলুন).....	
তেমন কিছু করিনা	

১০। দূর্যোগ মোকাবেলায় (দূর্যোগের সময়) আপনার এলাকার/পরিবারের নারীরা সাধারণত কি ধরনের প্রস্তুতিমূলক কাজ করে থাকেন

দূর্যোগের সময়	কিভাবে করেন
পরিবারের সদস্যদের নিরাপদ স্থানে সরিয়ে নেওয়া	
গৃহস্থালির মূল্যবান সম্পদ নিরাপদ স্থানে সংরক্ষন করা	
গবাদি পশু নিরাপদ স্থানে সরিয়ে নেওয়া	
ঔষধ-পত্র সংরক্ষন করা	
নিরাপদ স্থানে যাতায়াতের জন্য নৌকা ভাড়া করা	
পরিবারের খাদ্যের সংস্থান করা	
অন্যান্য (নির্দিষ্ট করে বলুন).....	
তেমন কিছু করিনা	

১১। দূর্যোগ মোকাবেলায় (দূর্যোগের পরে) আপনার এলাকার/পরিবারের নারীরা সাধারণত কি ধরনের প্রস্তুতিমূলক কাজ করে থাকেন

দূর্যোগের পরে	কিভাবে করেন
বাড়িঘর মেরামত করা	
ত্রাণ সংগ্রহ করা	
গৃহস্থালির মূল্যবান সম্পদ নিরাপদ স্থানে সংরক্ষণ করা	
পরিবারের সদস্যদের প্রাথমিক চিকিতসা প্রদান করা	
গবাদি পশু নিরাপদ স্থানে সরিয়ে নেওয়া	
ঔষধ-পত্র সংরক্ষণ করা	
নিরাপদ স্থানে যাতায়াতের জন্য নৌকা ভাড়া করা	
পরিবারের খাদ্যের সংস্থান করা	
অন্যান্য (নির্দিষ্ট করে বলুন).....	
তেমন কিছু করিনা	

১২। দূর্যোগের আগে, দূর্যোগের সময় ও দূর্যোগের পরে আপনি সাধারণত যে ধরনের প্রস্তুতিমূলক কাজ করে থাকেন, তা করতে গিয়ে আপনি কি ধরনের সমস্যার সম্মুখীন হয়েছিলেন?

ক)

খ)

গ)

ঘ)

১৩। আপনি কি দূর্যোগের আগে কোন সতর্ক সংকেত পেয়েছিলেন? (টিক দিন)

হ্যাঁ

না

১৪। যদি আগের উত্তর হ্যা হয়ে থাকে, তাহলে কত ঘন্টা আগে সতর্ক সংকেত পেয়েছিলেন

.....

১৫। কোন মাধ্যমে সতর্ক সংকেত পেয়েছিলেন?

1= টিভি
2= রেডিও
3= ইউনিয়ন দুর্যোগ ব্যবস্থাপনা কমিটি (UDMC)
4= গ্রাম উন্নয়ন কমিটি
5= কমিউনিটি ভলান্টিয়ার
6= মোবাইল ফোন
7= মৌখিক ভাবে গ্রামের অন্যদের কাছ থেকে
8= এনজিও
9= মসজিদের মাইক
১০=অন্যান্য

১৬। আপনি বা আপনার পরিবারের কেউ কি দুর্যোগ মোকাবেলায় প্রস্তুতি বা ঝুঁকিহ্রাসের কোন প্রশিক্ষন পেয়েছেন?

.....

১৭। যদি আগের উত্তর হ্যা হয়ে থাকে, তাহলে কি প্রশিক্ষন পেয়েছেন?

.....

১৮। সরকারি বা স্থানীয় পর্যায়ে দুর্যোগ ঝুঁকিহ্রাস পরিকল্পনায় নারীদের ভূমিকা আপনি গুরুত্বপূর্ণ মনে করেন কেন?

ক)

খ)

গ)

১৯। যদি আগের উত্তর হ্যা হয়ে থাকে, তাহলে সরকারি বা স্থানীয় পর্যায়ে দুর্যোগ ঝুঁকিহ্রাস পরিকল্পনায় নারীরা কি ভূমিকা পালন করতে পারে বলে আপনি মনে করেন?

ক)

খ)

গ)

২০। দুর্যোগ ঝুঁকিহ্রাস পরিকল্পনায় আপনার ভূমিকা আপনার পরিবারের অন্যান্য সদস্যরা কিভাবে দেখেন?

ক)

খ)

গ)

২১। দুর্যোগ ঝুঁকিহ্রাসে নারীদের নেতৃত্ব আপনার এলাকায় সরকারি ও বেসরকারি পর্যায়ে কিভাবে মূল্যায়ন করা হয়?

ক)

খ)

গ)

২২। দুর্যোগের পর কোন সাহায্য/সহযোগিতা পেয়েছেন? ক) হ্যাঁ খ) না

উত্তর হ্যাঁ হলে নিচের প্রশ্নগুলোর উত্তর দিন?

সাহায্যের ধরন	সাহায্যকারী সংস্থা	পরিমাণ	মন্তব্য
ক) শুকনো খাবার (চাল, মুড়ি, বিস্কুট প্রভৃতি)			
খ) নগদ অর্থ			
গ) চিকিৎসা সেবা			
ঘ) অন্যান্য (নির্দিষ্ট করে বলুন)			

২৩। দুর্যোগ পরবর্তীতে আপনাদের এলাকায় ত্রাণ কার্যক্রম কেমন ছিল?

ক) পর্যাপ্ত (মন্তব্য করুনঃ

.....)

খ) অপর্যাপ্ত (কেন? মন্তব্য করুনঃ

.....)

২৪। দুর্যোগের সময়/ পরবর্তীতে সরকারী/বেসরকারী প্রতিষ্ঠান ক্ষয়ক্ষতি মোকাবেলা/ কাটিয়ে উঠার জন্য কোন পদক্ষেপ নিয়েছেন কি না?

ক) হ্যাঁ খ) না

(উক্ত হ্যাঁ হলে পদক্ষেপসমূহ উল্লেখ করুন)

প্রতিষ্ঠানের নাম	পদক্ষেপের ধরন	মন্তব্য
ক) দুর্যোগ ও ত্রাণ মন্ত্রণালয়		
খ) জেলা/ উপজেলা প্রশাসন		

গ) জেলা দুর্যোগ ও পুনর্বাসন অফিস		
ঘ) বাংলাদেশ পানি উন্নয়ন বোর্ড		
ঙ) স্থানীয় কৃষি বিভাগ		
চ)		
ছ) স্থানীয়/দেশীয় এনজিও (নির্দিষ্ট করুন)		
জ) কমিউনিটিভিত্তিক প্রতিষ্ঠান (নির্দিষ্ট করুন)		

(আমাদেরকে সময় ও মূল্যবান তথ্য দেয়ার জন্য আপনাকে ও আপনার পরিবারের সকলকে অশেষ ধন্যবাদ)

APPENDIX-2 FGD GUIDELINE (FORE MALE GROUP RESPONDENTS)

ভূগোল ও পরিবেশ বিভাগ

ঢাকা বিশ্ববিদ্যালয়

গবেষণা এলাকাঃ ঘূর্ণীঝড় প্রবণ এলাকাঃ

বুরিগোয়ালিনী ইউনিয়ন, শ্যামনগর, সাতক্ষিরা

দুর্যোগ ঝুঁকিহ্রাস কার্যক্রমে নারীর ভূমিকা অনুসন্ধান ও মূল্যায়ন

মাঠ পর্যায়ের তথ্যভিত্তিক এই গবেষণাটি ঢাকা বিশ্ববিদ্যালয়ের ভূগোল ও পরিবেশ বিভাগের অধীনে এমফিল প্রোগ্রামের গবেষণা কার্যক্রমের অংশবিশেষ এবং এ গবেষণার স্থান হিসেবে সাতক্ষিরা জেলার শ্যামনগর উপজেলার বুরিগোয়ালিনী ইউনিয়নের দুটি গ্রামকে নির্বাচন করা হয়েছে। মাঠ পর্যায়ের সংগৃহীত তথ্যাদি শুধুমাত্র ছাত্র-ছাত্রীদের শিক্ষা ও গবেষণা কার্যক্রমে ব্যবহৃত হবে। এ বিষয়ে সম্মানিত উত্তরদাতাদের মূল্যবান সময় ও তথ্য দেয়ার জন্য ভূগোল ও পরিবেশ বিভাগ বিশেষভাবে কৃতজ্ঞ থাকবে।

এফজিডি গাইডলাইন-পুরুষ দল

সমীক্ষা এলাকাঃ গ্রাম ইউনিয়ন.....

উপজেলা.....,.....সাক্ষাৎ গ্রহীতাদের নাম

রোল নংঃ সাক্ষাৎ গ্রহণের তারিখ আলোচনায় অংশগ্রহণকারীর সংখ্যা

..... পেশার ধরন

১। আপনার অঞ্চলে কী কী দুর্যোগ সংঘটিত হয়?

ক) ঘূর্ণীঝড় (সংঘটনের সময় ও কারণ

.....)

খ) জলোচ্ছাস (সংঘটনের সময় ও কারণ

.....)

গ) শিলাবৃষ্টি (সংঘটনের সময়

.....)

ঘ) লবনাক্ততা (সংঘটনের সময় ও কারণ

.....)

ঙ) অন্যান্য (নির্দিষ্ট করে বলুন

.....।)

২। আপনার এলাকায় সর্বশেষ কোন দুর্যোগটি সংগঠিত হয়েছে এবং কোন সালে?

ক) আশ্ফান

খ) মোরা

গ) মহাসেন

ঘ) আইলা

ঙ) সিডর

চ) অন্যান্য (নির্দিষ্ট করে বলুন).....

৩। সাম্প্রতিক (২০১৯-২০) সময়ে দুর্যোগে আপনি কীভাবে ক্ষতিগ্রস্ত হয়েছেন?

ক্ষতিগ্রস্ত খাতসমূহ	ক্ষতির ধরন *	পরিমাণ	আনুমানিক ক্ষতি (টাকায়)
ক) কৃষি ফসল (ধান ও অন্যান্য ফসল)			
খ) মাছের ঘের/পুকুর			
গ) গবাদিপশু			
ঘ) হাঁস-মুরগী			
ঙ) বসতবাড়ী			
অন্যান্য (নির্দিষ্ট করে বলুন)			

* ১। ব্যাপক ২। আংশিক ৩। সামান্য ৪। তেমন কোন ক্ষতি হয়নি

৪। দুর্যোগকালীন সময়ে এলাকার লোকজন এবং আপনি প্রধানত কোথায় আশ্রয় নিয়েছিলেন?

ক) নিজ বাড়িতে

খ) নিকটস্থ আত্মীয়ের বাসায়

গ) অস্থায়ী আশ্রয়কেন্দ্রে (নির্দিষ্ট করে বলুন)

ঘ) নিকটস্থ শহরে (শহরের নাম উল্লেখ করুন)

ঙ) রাস্তা/বাঁধের উপরে

চ) অন্যান্য (নির্দিষ্ট করে বলুন)

৫। দূর্যোগ মোকাবেলায় (দূর্যোগের আগে) নারীরা সাধারণত কি ধরনের প্রস্তুতিমূলক কাজ করে থাকেন?

দূর্যোগের আগে	কিভাবে করেন
ঘরের মেঝে উঁচু করা	
ঘর শক্ত করে বাধা	
অর্থ সঞ্চয় করা	
পানি সংরক্ষণের জন্য কূপ খনন করা	
খাদ্য সংরক্ষণ করা	
জ্বালানি কাঠ মজুদ করা	
অন্যান্য (নির্দিষ্ট করে বলুন).....	
তেমন কিছু করিনা	

৬। দূর্যোগ মোকাবেলায় (দূর্যোগের সময়) আপনার এলাকার/পরিবারের নারীরা সাধারণত কি ধরনের প্রস্তুতিমূলক কাজ করে থাকেন

দূর্যোগের সময়	কিভাবে করেন
পরিবারের সদস্যদের নিরাপদ স্থানে সরিয়ে নেওয়া	
গৃহস্থালির মূল্যবান সম্পদ নিরাপদ স্থানে সংরক্ষণ করা	
গবাদি পশু নিরাপদ স্থানে সরিয়ে নেওয়া	
ঔষধ-পত্র সংরক্ষণ করা	
নিরাপদ স্থানে যাতায়াতের জন্য নৌকা ভাড়া করা	
পরিবারের খাদ্যের সংস্থান করা	
অন্যান্য (নির্দিষ্ট করে বলুন).....	
তেমন কিছু করিনা	

৭। দূর্যোগ মোকাবেলায় (দূর্যোগের পরে) আপনার এলাকার/পরিবারের নারীরা সাধারণত কি ধরনের প্রস্তুতিমূলক কাজ করে থাকেন

দূর্যোগের পরে	কিভাবে করেন
বাড়িঘর মেরামত করা	
ত্রাণ সংগ্রহ করা	
গৃহস্থালির মূল্যবান সম্পদ নিরাপদ স্থানে সংরক্ষণ করা	
পরিবারের সদস্যদের প্রাথমিক চিকিতসা প্রদান করা	
গবাদি পশু নিরাপদ স্থানে সরিয়ে নেওয়া	
ঔষধ-পত্র সংরক্ষণ করা	
নিরাপদ স্থানে যাতায়াতের জন্য নৌকা ভাড়া করা	
পরিবারের খাদ্যের সংস্থান করা	
অন্যান্য (নির্দিষ্ট করে বলুন).....	
তেমন কিছু করিনা	

৮। দূর্যোগের আগে, দূর্যোগের সময় ও দূর্যোগের পরে নারীরা সাধারণত যে ধরনের প্রস্তুতিমূলক কাজ করে থাকেন, তা করতে গিয়ে তারা কি ধরনের সমস্যার সম্মুখীন হন?

ক)

খ)

গ)

ঘ)

৯। আপনি বা আপনার পরিবারের কেউ কি দুর্যোগ মোকাবেলায় প্রস্তুতি বা ঝুঁকিহ্রাসের কোন প্রশিক্ষন পেয়েছেন?

.....

১০। যদি আগের উত্তর হ্যা হয়ে থাকে, তাহলে কি প্রশিক্ষন পেয়েছেন?

.....

১১। সরকারি বা স্থানীয় পর্যায়ে দুর্যোগ ঝুঁকিহ্রাস পরিকল্পনায় নারীদের ভূমিকা আপনি গুরুত্বপূর্ণ মনে করেন কেন?

ক)

খ)

গ)

১২। যদি আগের উত্তর হ্যা হয়ে থাকে, তাহলে সরকারি বা স্থানীয় পর্যায়ে দুর্যোগ ঝুঁকিহ্রাস পরিকল্পনায় নারীরা কি ভূমিকা পালন করতে পারে বলে আপনি মনে করেন?

ক)

খ)

গ)

২০। দুর্যোগ ঝুঁকিহ্রাস পরিকল্পনায় নারীর ভূমিকা আপনার পরিবারের অন্যান্য সদস্যরা কিভাবে দেখেন?

ক)

খ)

গ)

১৩। দুর্যোগ ঝুঁকিহ্রাসে নারীদের নেতৃত্ব আপনর এলাকায় সরকারি ও বেসরকারি পর্যায়ে কিভাবে মূল্যায়ন করা হয়?

ক)

খ)

গ)

১৪। দুর্যোগের সময়/ পরবর্তীতে সরকারী/বেসরকারী প্রতিষ্ঠান ক্ষয়ক্ষতি মোকাবেলা/ কাটিয়ে উঠার জন্য কোন পদক্ষেপ নিয়েছেন কি না?

ক) হ্যাঁ খ) না

(উক্ত হ্যাঁ হলে পদক্ষেপসমূহ উল্লেখ করুন)

প্রতিষ্ঠানের নাম	পদক্ষেপের ধরন	মন্তব্য
ক) দুর্যোগ ও ত্রাণ মন্ত্রণালয়		
খ) জেলা/ উপজেলা প্রশাসন		
গ) জেলা দুর্যোগ ও পুনর্বাসন অফিস		
ঘ) বাংলাদেশ পানি উন্নয়ন বোর্ড		
ঙ) স্থানীয় কৃষি বিভাগ		
চ)		
ছ) স্থানীয়/দেশীয় এনজিও (নির্দিষ্ট করুন)		
জ) কমিউনিটিভিত্তিক প্রতিষ্ঠান (নির্দিষ্ট করুন)		

(আমাদেরকে সময় ও মূল্যবান তথ্য দেয়ার জন্য আপনাকে ও আপনার পরিবারের সকলকে অশেষ ধন্যবাদ)

APPENDIX- 3 SOCIO-ECONOMIC INFORMATION OF THE STUDY AREA

Buri Goalini Union

Buri Goalini Union is situated in ShyamnagarUpazila of Shatkhira district. The Union was established in 1950 by the East Pakistan government. It is about 17 Km from Upazila headquarters and 72 km from Shatkhira district headquarters. At present, the Union is famous for crab fattening. About 42% of people of Buri Goalini Union are engaged in crab fattening. They thought crab fattening is better than shrimp farming. The UP complex is located at Buri Goalini. The total area of the Union is 43.10 sq. Km. The Malonchiriver separated the Union from Sundarban.

Buri Goalini Union is situated beside the world-famous mangrove forest Sundarban at Shatkhira district under ShyamnagarUpazila. This is the southeast part of Shatkhira District. The Kholpetua River is flowing by the east side of the Union, at the west side there is Isshoripur Union, and the Atulia Union is situated on the north side of Buri Goalini Union. This Union is spaded about 44 square kilometers long from east to west. There are 20 villages in 9 wards of this Union.

Present statistics say 19% of people of this area depend on the forest, 42% of people depend on crab fattening, 16% people depend on shrimp farming, 23% of people depend on agriculture, day labor, and other occupations for their livelihood. 64% percent (approx.) people are living below the poverty line. The main occupations of the population are crab fattening, shrimp farming, agriculture, fishing, day labor, van/auto bike puller, and small trades. The main crops are paddy and vegetables grow here. There are lots of forests cultivated by the government and private farmers. Fishing is considered a major livelihood and children are engaged in fishing boats resulted in the deprivation of their rights which is the capital concern of education. The total literacy rate in the Union is 45.50%, of which male 51.80% and female 39.44% (Census 2011). There is no government and private Bank in this Union but it has 4 medium size village markets. However, there are NGOs, Asa, BRAC, Shushilan, Caritas, Grameen Bank, NGF who are involved in the microcredit/financing program. Shushilan and CNRS are working on good governance. In the winter season, the people

suffer for lack of work and earning ways then they go far from here to earn for their livelihood.

Buri Goalini Union is one of the most vulnerable Union of ShyamnagarUpzilla. The Union is situated on the bank of Kholpetua River which separated the Union from Sundarban. The total area is coastal belt so Cyclone, heavy rainfall, and the tidal wave hits almost every year and affects the people, damages their houses and crops, increase their sufferings which make them poor/ultra-poor. Sidr of 2007 and last Aila in 2009 affected badly on the whole population of this Union. After the impact of these natural disasters nowadays the people of this area are trying adaptation to climate change and mitigation. In the rainy season paddy, vegetables, and other crops are usually damaged by waterlogging. Fish farmers lose their fishes due to an overflow of water. There are only three Cyclone shelters at the Union. The Union Disaster Management Committee (UDMC) has assessed the disaster vulnerabilities and developed a disaster preparedness and response plan with the support of LCBCE - UNICEF.

According to the Population Census 2011, The Union has a total population of 24913 in 5760 households and population density is 1069 per sq Km. There is a variation on total household and population of the Union as “the holding assessment 2014” which was conducted by Union Parishad, itself, and enumerated the total population 24588 and the number of households 6111. The Union Parishad claimed that the holding assessment is updated and correct. Around 66.15% populations are Muslim, 33.51% are Hindu and 0.34% are from other religions.

According to the Census 2011, total child population in the Union from 0 to 19 years is 9926 which is 39.84% of total population (0-4 is 2,090, 5-9 is 2,781, 10-14 is 2,845 and 15-19 is 2,210. Community data provides more age-specific information than census data and the total child population from 0 to 18 years is 8,912, 0-1 year is 230, 1 to 2 years 333, 5 to 6 years 267, and 6 to 10 years 1849. This gives a decreased population number than Census as usual.

A significant number of children of one year old do not have a birth certificate. Community data shows that only 146 children have birth certificates out of 951 children. The Union Parishad is well equipped for providing services for ensuring birth registration of children. It is served by a Secretary and two UISC Entrepreneurs. This progress happened with the support of the District, Upazila administration, UNICEF, and NGO's joint efforts. The UP is providing free services to children below two years.

There are 38 children with disabilities in the Union. Few of them are attending school and many of them do not have the opportunity to attend school as the school does not have a physical structure or friendly environment that encourages them to stay. Data are not available neither with the community or the government department on how many children are attending schools and how many do not attend.

Some children are detached from their families. However, the community does not have information on whether these children are all orphans or where they are engaged. The UP is trying to collect the real information and accordingly make a plan for their survival.

The Union has one secretary who is responsible for all the activities in the UP including birth registration. According to the UP Act 2009, the UP should have at least another staff who will look after the accounts and other administrative issues. However, the UISC Entrepreneurs are providing support in birth registration. The Union is also served by a government social worker.

According to the community the Union has 104 children who are engaged with the informal labour force. Children are mainly engaged in agricultural works, fishing, and non-formal sectors like in the tea stall and small hotels and restaurants. And these children are out of school. Though some of the children are getting conditional cash transfers from the government supported by UNICEF, it is not able to cover all of the children out of school.

According to the survey conducted by the DPE, the Union has a total of 669 pre-school-aged children of which 669 children are enrolled in pre-primary classes run by

government schools. There are two PPE centers run by BRAC and they covered 52 children but they are out of education department status. As community data, there are 768 PPE aged children and out of which 679 enrolled in GO and NGO run PPE Center. NGOs do not conduct any survey on how many eligible children are in the Union rather they use the departmental data and enroll children within the surrounding of the school. According to the community people, many children do not attend pre-primary classes because of a lack of early learning centers or schools within their reach (within a kilometer) and for poor road communications.

At the primary level, there are 2487 children of 6-10 years old and out of them, 2429 are enrolled in the primary schools run by Government and NGOs. According to this data, 52 children are not enrolled in the primary schools in the Union. Many children are attending Madrassa for their education both at the primary and secondary level and data are not available. Community data of this age group differs with the administrative and according to them the total number of children from 6 to 10 years are 2834 and enrolled in school 2718. The JCF one of the national NGOs covered 305 out-of-school children through 12 ABAL centers. At the secondary level, there are 2297 children are enrolled in different schools (Girls: 1084 & boys: 1213) students are enrolled in four secondary level registered schools and two Madrassa within the Union. The community has no data on who do not attend secondary school. If we consider the child population data (Census 2011), the secondary school-going children are 4310 or more and the school enrolment is only 2867 which means that a large number of children (1443) are not enrolled or do not attend in or dropped out from secondary education.

There are 12 posts for Head Teachers and 48 posts for Assistant Teacher sanctioned in 12 GPS and presently 2 Assistance Teacher posts are vacant. According to the Government policy standard, the teacher-student ratio for PPE is 1:30 and for the primary class, the ratio is 1:45. There are 2429 children enrolled in 12 GPS and a few schools (2) do not follow this standard and the average class size of these schools is more than 50 PPE children /teacher. Discussion with different school teachers and community, it is found that a few of the schools are overcrowded and more than 60

children are enrolled in each class. This overcrowds hampers the learning process of the children.

DPHE does not have a record of the number of tube wells, Rainwater harvesting, PSF, and pipeline supply water points in the Union. According to the Census 2011, 1400 households have been covered by tube wells. This figure widely varies with the community data. Community data shows that the Union has 84 tube wells, 65, RWHS, and 63 PSF out of these 53 are not functioning. A total of 2311 households do not have access to safe water out of 6111 households.

According to the Government Policy, every 5 households should have one safe water points. Sanitation coverage: Sanitation coverage in the Union is fair. The Union has 5,760 (Census 2011) households where 1822 households (32%) have hygienic latrines, 3,620 households have unhygienic latrines and 317 households do not have any latrines. Community data widely varies with this data. A total of 3778 households have hygiene latrines and 2333 households use unhygienic latrines out of 6111 households

The Union is served by a 0.50 (one for two Unions) tube well mechanic who is responsible only for the DPHE provided water points. There is a Sub-Assistant Engineer in Upazila.