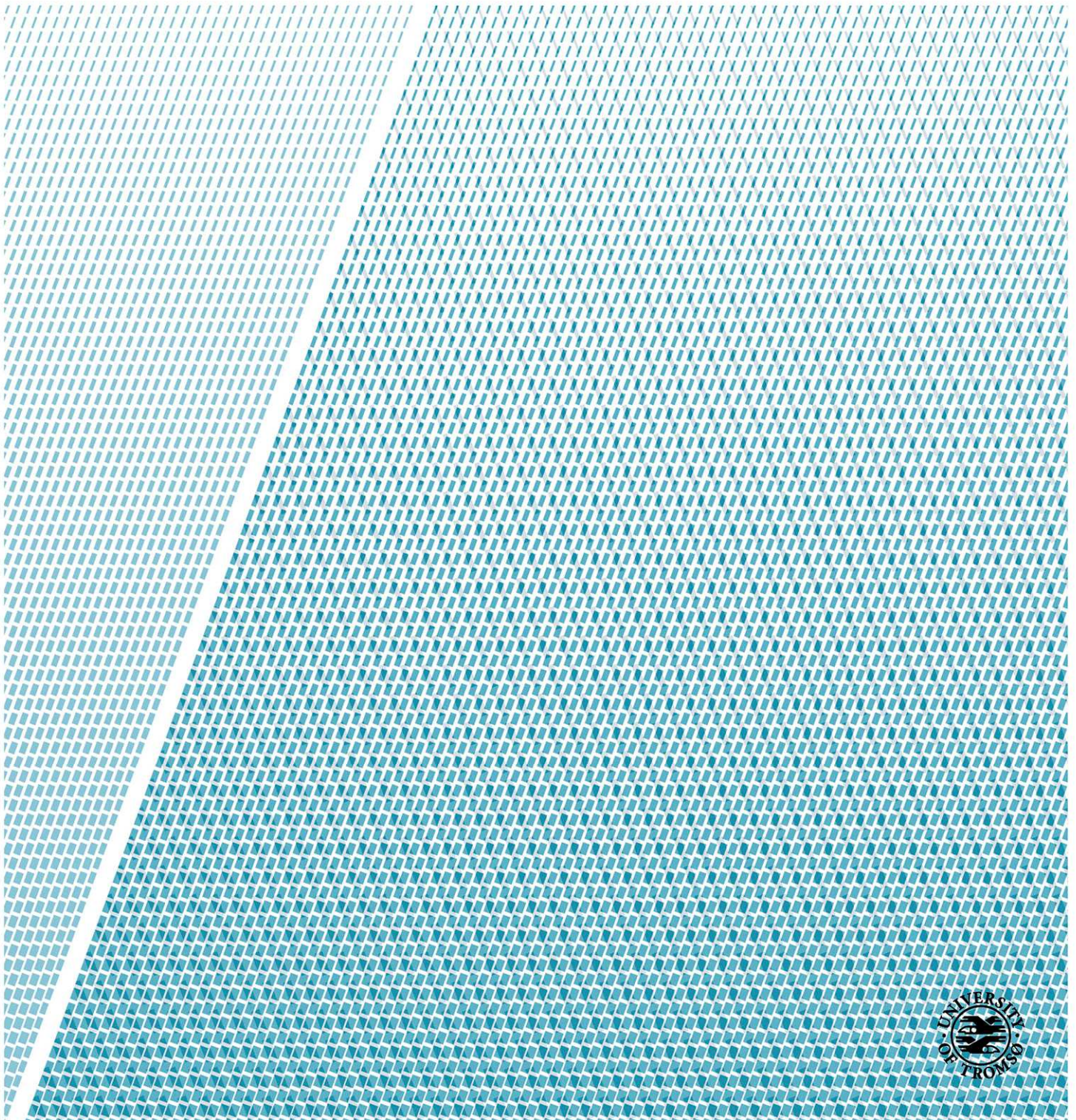


Climate Change, Human Displacement and the Potentiality of Conflict: The Case of Bangladesh

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Contents

Acknowledgement.....	iv
Abstract	vii
Abbreviations.....	viii
List of Tables.....	ix
Chapter One: Introduction	1
1.1 Introduction	1
1.2 Research Questions	3
1.3 Structure of the Study	4
1.4 Bangladesh: The Context	4
Chapter Two: Conceptual Framework	7
2.1 Understanding Climate Change	7
2.2 The Nature of Human Displacement	8
2.3 The Concept of Conflict	9
2.4 The Dimensions of Conflict	10
2.5 The Relationship between Climate Change, Displacement and Conflict: A Conceptual Framework	12
2.5.1 Environmental Change	13
2.5.2 Environmental Change and Loss of Place/Source of Living	13
2.5.3 Loss of Place/Source of Living and Population Migration	14
2.5.4 Migration and Conflict in the Society	14
2.5.4.1 State versus State Conflict	15
2.5.4.2 State versus Group Conflict	16
2.5.4.3 Group versus Group Conflict	17
2.6 Reflections	17
Chapter Three: Methodology	19
3.1 Selecting a Methodology for the Study: Qualitative Approach	19
3.1.1 Documents	20
3.1.2 Discourse Analysis	21
3.1.3 Interview	22
3.1.4 Observation	24

3.2 Ethical Consideration	25
3.3 Reflections	26
Chapter Four: Discussion	29
4.1 Observed Climate Change in Bangladesh	29
4.2 Climate Change and Human Displacement in Bangladesh	31
4.2.1 Flood	32
4.2.2 Riverbank Erosion	36
4.2.3 Tropical Cyclone	40
4.2.4 Sea Level Rise	43
4.3 Human Displacement and Conflict in Bangladesh	46
4.3.1 State versus State Conflict	47
4.3.2 State versus Group Conflict	50
4.3.3 Group versus group Conflict	53
Chapter Five: Conclusion	57
References	61

Abstract

Climate change and its adverse consequences are now being considered as one of the greatest challenges to humanity. The impacts of climate change are damaging many aspects of human environment and increasing the vulnerabilities of millions of people in different parts of the world. Various consequences of climate change such as changes in the pattern of rainfall, increases of extreme weather events, the rise of sea level due to the melting of polar icecaps and a rise in temperature are making many areas uninhabitable and decreasing the basis of subsistence due to its severe impact on agriculture (Gleditsch et. al. 2007). However, among different consequences of climate change, human displacement caused by natural disaster, both sudden and gradual, is one of the most obvious scenario in recent times. International Organisation for Migration (IOM) in a study shows that in 2008 alone, 20 million people were displaced in the face of extreme weather events compared to 4.6 million internally displaced by conflict and violence during that time (Laczko and Aghazarm, 2009). Bangladesh is one of the most vulnerable countries in the world due to climate change. The country has a history of extreme climatic events causing enormous sufferings to the lives and livelihoods of millions of people across the country. Different types of natural calamities such as floods, riverbank erosion, tropical cyclones and sea level rise have increased in terms of frequency and intensity in recent times. It has made life unsupportable in different disaster prone areas which resulted into the displacement of an increasing number of people from rural and coastal areas of the country. This scenario has also added enormous stresses on the limited capacity of the government and become a source of destabilization and conflict in different levels of the state and society. In this backdrop, the study aims to understand the process through which people get uprooted from their traditional habitat due to climate change. It also investigates the likelihood of conflict that such displacement can create in the society.

Key words: Climate Change, Natural Calamities, Displacement, Conflict, Bangladesh.

Abbreviations

AAGSP	All Assam Gana Sangram Parishad
AASU	All Assam Student's Union
AR4	Fourth Assessment Report
AR5	Fifth Assessment Report
BGB	Border Guard Bangladesh
BSF	Border Security Forces of India
CDMP	Comprehensive Disaster Management Programme
CHT	Chittagong Hill Tracts
COP	Conference of the Parties
CRI	Climate Risk Index
GDP	Gross Domestic Product
GoB	Government of Bangladesh
IOM	International Organisation for Migration
IPCC	Inter-governmental Panel on Climate Change
KII	Key Informant's Interview
LDC	Least Developed Country
MoEF	Ministry of Environment and Forest
NAPA	National Adaptation Programme of Action
NGO	Non Government Organisation
NSD	Norwegian Social Science Data Services
RMMRU	Refugee and Migratory Movements Research Unit
SMRC	SAARC Meteorological Research Council
UN	United Nations
UNDP	United Nations Development Programme
UNFCC	United Nations Framework Convention on Climate Change

List of Tables

Table 1: A working conflict typology	11
Table 2: Some major floods in recent past	33
Table 3: Status of bank erosion along the rivers of Jamuna and Ganges	37
Table 4: Trends of sea level rise in three tidal stations of coastal areas	43

Chapter One

Introduction

1.1 Introduction

The Fourth Assessment Report (AR4) of the Inter-governmental Panel on Climate Change (IPCC) published in 2007 gives us a clear picture of how climate change and its consequences are unfolding to the humanity. The AR4 is a reflection of consensus among the scientific community that climate change is happening in an unpredictable manner and human activity is largely responsible for this. The report also shows that the planet is already facing the consequences of climate change and the extent and physical consequences of climate change will be even more severe in the coming decades (Smith and Vivekanada, 2007). The purpose of this study is not to examine the findings of the scientific community about how climate is changing. Instead, the point is made to highlight that climate change is no longer a matter of rhetoric rather it is a reality and the consequences of which are unfolding to the humanity in a number of forms.

Indeed, climate change is reducing the human carrying capacity of the earth's environment. Because, various consequences of climate change are making many areas uninhabitable or decreasing the basis of subsistence due to the changes in the pattern of rainfall which consequently leads to drought and floods, increases in extreme weather patterns, the melting of polar icecaps contributing to sea level rise and a rise in temperature with its severe impact on agriculture (Gleditsch et al., 2007). In this way, climate change is damaging many aspects of human environment and thereby increasing the vulnerabilities of millions of people in different climate-sensitive areas of the world.

However, among different consequences of climate change, human displacement caused by natural disaster, both sudden and gradual, is one of the most obvious scenarios in the twenty first century. International Organisation for Migration (IOM) in a study shows that in 2008 alone, 20 million people were displaced in the face of extreme weather events in comparison to 4.6 million internally displaced by conflict and violence during that time (Laczko and Aghazarm, 2009). Stern Review (2007) further predicts that by the middle of the twenty first century, 200 million people are likely to be climate refugees because of sea level rise, frequent floods and intense drought. There are different ways through which climate change

contributes to displace people from their place of origin. For instance, sea level rise would submerge the low-lying coastal areas whereas desertification will lead to a decline of productivity thereby forcing people to move into new places for the sake of their sustenance. Besides, changes in the weather pattern will increase sudden natural disasters such as hurricanes, typhoons, extreme cold etc. which will disrupt human settlement in many areas and a change in the pattern of rainfall will make certain areas uninhabitable because of increases in floods and droughts (Gleditsch et al., 2007).

Nevertheless, the movement of people from the environmentally vulnerable areas to a new area for the sake of survival can also become a source of destabilisation and conflict in the receiving society because of the increasing demand on the limited resources. Homer Dixon (1994) suggests that population movement caused by environmental changes can result into group-identity conflict in the receiving society as the influx of migrants makes extensive social changes by altering the pattern of land distribution, economic relations and the balance of political power between different religious and ethnic groups. Ashok Swain (1996) also argues that environmental migrants create new kinds of scarcity in the receiving society which can become a source of instability and conflict. Because, the scarcity induced by migrants helps to create organized actors in the society along environmental lines who make conscious actions to exert control over the limited resources. This leads to a situation of incompatibility between different social groups which can turn into a situation of conflict at different levels of state and society. Swain suggests that such situation can lead to the formation of three different types of conflict i.e. state versus state conflict, state versus group conflict and group versus group conflicts (Swain, 1996).

Climate change and its adverse consequences are likely to be experienced at global scale but poor and developing countries are particularly vulnerable in this regard because of their lack of technical capacity to adapt with the situation as well their high dependence on agriculture which is likely to be most affected by climate change (IOM, 2008). In this regard, Bangladesh is one of the most vulnerable countries in the face of climate change due to its unique geographic location. To assess the risk of climate change, a German-based organization named 'Germanwatch' developed a dataset-The Global Climate Risk Index 2010 (CRI)-where Bangladesh is identified as the most vulnerable country in the face of extreme weather events as well as the most affected between the period of 1990-2008 (Harmeling, 2010). The vulnerability of Bangladesh is relatively very high in the face of

climate change because of its “flat and low-lying topography, high population density, high levels of poverty, reliance of many livelihoods on climate sensitive sectors, particularly agriculture and fisheries and inefficient institutional aspects” (Patwary, 2009:69).

One of the biggest consequences that Bangladesh is currently facing is an increasing number of displaced people due to sudden and gradual natural disasters. Every year an ever-increasing number of people are being displaced in Bangladesh due to various natural disasters such as flood, river bank erosion, tropical cyclones and sea level rise, the frequency and intensity of which have increased significantly in recent times (Walsham, 2010). In the previous three decades, Bangladesh has been affected by six devastating floods, of which the floods of 1988 and 1998 displaced forty five million and thirty million people respectively (Shamsuddoha et al., 2012). Besides, approximately one million people is adversely affected by riverbank erosion every year in the country (RMMRU, 2007). The three largest rivers of the country- the Padma, the Jamuna and the Ganga, have eroded 1,590 km floodplains since 1973 and made 1.6 million people homeless in the process (Nishat and Mukherjee, 2013). Furthermore, the threat from sea level rise is even more ominous. According to a study of World Bank (2000), Bangladesh will experience 10, 25 and 100 cm rise in sea level by the years of 2020, 2050 and 2100 respectively. IPCC predicts that 15 million people in Bangladesh will be displaced from coastal areas if sea level rise by 1 meter and in the case of sea level rise by 1.5 meter 18 million people will become climate refugees (Bose, 2013). In this backdrop, the study is conducted to understand the process through people get displaced from their places of origin in the face of climate change. It is also aimed to understand whether this displacement can become a source of destabilization and conflict in the country.

1.2 Research Questions

A research question is a question which gives a clear statement about what is to be investigated in the process of a research (Bryman, 2012). The present study aims to investigate the following two questions:

- How does climate change contribute to displace people in Bangladesh? and
- How does climate induced displacement can be a potential source of conflict in the country?

1.3 Structure of the Study

The thesis consists of five chapters. Chapter one introduces the main focus of the study, outlines the key research questions and presents a brief scenario about the study context. Chapter two discusses about the conceptual aspects of the study. The subjects of climate change, conflict and displacement have been discussed to get conceptual clarity about the study. Besides, the conceptual framework of Swan (1996) is also presented which has been followed throughout the study to investigate the key questions of the study. Chapter three presents about the methodological aspects of the study. The study has followed four methods to collect relevant data. The application of each of the method in the process of the present study is discussed in the chapter as well as a reflection is given to outline the advantages as well as challenges of the applied methods. Chapter four presents and discusses the findings of the study. The discussion is made to address the key questions of the study. It also discusses whether the findings support the conceptual framework of swain (1996) which is applied to conduct the study. Finally, chapter five concludes by presenting the summary of the findings of the study.

1.4 Bangladesh: The Context

Bangladesh, situated in South Asia, is one of the largest deltas in the world which is formed by the combined delta of the Ganges-Brahmaputra-Meghna rivers. It has a land area of 147,570 square kilometer, most of which are low and flat (MoEF, 2005). Almost 75 percent land area of the country is less than 3 meter above the sea level. The country has a network of approximately 700 rivers including its tributaries and distributaries under three large and complex river system i.e Ganges-Padma River System, Brahmaputra-Jamuna River System and Surma-Meghna River System (Islam and Miah eds., 2012). On the basis of geological formation, the country's landmass can be classified into three categories such as floodplain, pleistocene terrace and tertiary hills. Among these, floodplain constitutes 80 percent of the land whereas pleistocene terrace and tertiary hills constitute 8 percent and 12 percent respectively. Floodplains which are situated in the north-west, central, south-central and north-eastern part of the country are exposed to regular flooding whereas coastal plain land areas are exposed to cyclones and storm surges, salinity intrusion and coastal inundation. Pleistocene terrace land area is affected by moisture stress whereas flash flood is a regular phenomenon in the hilly areas (MoEF, 2005).

Bangladesh has a population of approximately 150 million of whom almost 75 percent live in the rural areas. Agriculture is the biggest sector of the economy and almost 63 percent of the workforces are involved in the agricultural sector (Walsham, 2010). It is evident that since Bangladesh got its independence in 1971, it has experienced more than three-fold increase in its GDP as well as food production which contributed to reduce the percentage of people living under poverty line from 59 percent in 1991 to 40 percent in 2005. But, still, more than 50 million people are engulfed by poverty and majority of them live in the remote and ecologically fragile areas such as flood plains, river islands and coastal regions which are extremely susceptible to different types of natural calamities (MoEF, 2009). The economy remains extremely vulnerable due to the presence of high population density, lack of adequate resources and exposure to high incidence of natural disasters (MoEF, 2005). Climate change is likely to aggravate many of these vulnerabilities with predicted increases in the frequency and intensity of various natural disasters such as floods, cyclones, storm surges, droughts etc (Walsham, 2010). It is also predicted that in the worst case scenario, the increasing natural disasters due to climate change can lead to the displacement of millions of people from the ecologically fragile parts of the country which will adversely affect the livelihood of a significant part of the population (MoEF, 2009).

IPCC in its Fourth Assessment Report (2007) mentioned Asian mega deltas in general and Bangladesh, in particular, as an area of significant concern due to the country's lack of adaptive capacity, huge number of flood plain population who are directly exposed to natural hazards and a sensitive coastal system. IPCC (2007) notes that whereas physical exposure depicts the vulnerability of the people and natural systems in the face of climate change, the lack of adaptive capacity is an area of greater concern as it leads to a hotspot of human variability. Furthermore, it is also argued that the range of adaptive capacity is largely dependent on a country's level of development because whereas resource and technology enhance the capacity, poverty limits such capacity (IPCC, 2007). In this regard, as a Least Developed Country (LDC), Bangladesh is facing a greater danger in a climate change scenario which will lead to a significant disruption in national life as well as cripple the economy of the country.

Chapter Two

Conceptual Framework

This chapter presents a conceptual framework to investigate the impacts of the climate change on human displacement and its potential conflict implications in the context of Bangladesh. Some of the key concepts of the research including climate change, human displacement and conflict are presented initially to get an idea about the issues of the study. After introducing the key concepts, the chapter presents the framework of Ashok Swain (1996) on 'Environmental Migration and Conflict: A Conceptual Framework' which has been followed throughout the research to investigate the key questions of the study. The reason for choosing this framework is that it clearly gives an idea about the process through which people get uprooted from their land of origin in the face of environmental changes and its potential conflict implications in the society. Swain (1996) points out that people are forced to leave their traditional habitat behind as they lose both their source of livelihood and place of living in the face of environmental change. He argues that the resettlement of the affected people into a new society is not the end of the problem. Rather, it becomes a source of destabilisation and conflict at different levels of state and society.

2.1 Understanding Climate Change

Climate is generally understood as the pattern of average weather in terms of the mean and variability of its quantities over a certain period of time (IPCC 2013). In this context, IPCC defines climate change as “a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer (IPCC 2013:1450)”. The United Nations Framework Convention on Climate Change (UNFCCC) in its definition of climate change makes a clear connection between human activities and climate change. According to Article 1 of UNFCCC “Climate change means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods”(UNFCCC, 1992: Article 1).

IPCC in its Synthesis Report of the Fifth Assessment Report (AR5) outlined a number of observed changes in the state of climate which is unprecedented in human history. Some key areas of concern include the following:

- The last three decades i.e. from 1983 to 2012, was reported as the warmest 30-year period of the last 1400 years
- The warming of the ocean is quite obvious. From 1971 to 2010, the upper 75 m of the ocean was warmed by 0.11 [0.09 to 0.13] °C per decade
- Sea level has risen by 0.19 m during period of 1901 to 2010. However, the most worrying scenario is since the middle of the nineteenth century, the rise has been larger compared to the previous two millennia
- It is also observed that the ice sheets of the Greenland and Antarctic have been losing mass. Glaciers melting is happening in an increasing rate worldwide. And, the spring snow cover of the Northern Hemisphere has also continued to decrease in extent (IPCC 2014: 40-42).

IPCC in its latest report predicts that by the end of the twenty first century, global surface temperature could rise between 2.8 degree and 5.4 degree Celsius. Furthermore, global sea level could rise by between 52 cm and 98 cm which will bring significant changes in global weather patterns and extreme climatic events will become more common and thereby significantly increase the misery for billions of people (Maslin 2014).

2.2 The Nature of Human Displacement

In the post-cold war era, the displacement of people within and across borders has become one of the central concerns in the international arena (Cohen and Deng, 2008). The Guiding Principles on Internal Displacement which were presented to the UN in 1998 define internally displaced persons as “persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human made disasters, and who have not crossed an internationally recognized state border”(UN Guiding Principles on Internal Displacement, 1998:1). The Guiding Principles identified four factors responsible for the internal displacement of people i.e. armed conflict, violence, violations of human rights and natural or human made disaster. However, in the present research, reflection is made only on the natural

disaster induced displacement of people which is closely connected with the issue of climate change.

Robinson (2003) identified two types of natural disaster i.e. sudden impact disaster and slow-onset disaster which cause displacement of people. By sudden impact disaster Robinson (2003) refers to floods, earthquakes, tidal waves, tropical storms, volcanic eruptions and landslides which cause massive sufferings to the life and livelihood of people. Among them Robinson (2003) identified flood as the major natural disaster which causes sudden displacement of large number of people. Robinson (2003) refers to droughts, famine, environmental degradation, deforestation and desertification as slow-onset disasters. These types of disaster do not displace people immediately, but in the long run they affect human settlement to a significant extent.

Indeed, human displacement, both sudden and gradual, has become an area of significant concern in the international arena. The International Organisation for Migration (IOM) in a study shows that in 2008 alone, 20 million people were displaced in the face of extreme weather events in comparison to 4.6 million internally displaced by conflict and violence during that time (Laczko and Aghazarm 2009). Stern Review (2007) further predicts that by the mid twenty- first century, 200 million people are likely to be climate refugees because of sea level rise, frequent floods and intense drought. There are different ways through which climate change contribute to displace people from their place of origin. For instance, sea level rise would submerge the low-lying coastal areas whereas desertification will lead to a decline of productivity forcing people to move into new places in search of sustenance. Besides, changes in weather pattern will increase the frequency of sudden natural disasters such as hurricanes, typhoons, extreme cold etc. which will disrupt human settlement in many areas and a change in the pattern of rainfall will make certain areas uninhabitable because of increases in floods and droughts (Gleditsch et. al. 2007).

2.3 The Concept of Conflict

The history of human society is also a history of conflict and struggles. It is pervasive and found almost in every aspects of human and social relationship. There is a wide range of perspectives among the scholars about the notion and nature of conflict. Kenneth E. Boulding, a well known scholar in the field of peace and conflict research, describes conflict

as ‘a struggle over values and claims to scarce status, power and resources’ (Boulding 1962:5). Such interpretation of conflict is also found from the understanding of other scholars. Ho-Won Jeong (2008) opines that conflict results due to the presence of persistence and pervasive competition between different actors ranging from intergroup to international level who want to pursue disparate interests and values that underlie the basis of power in their relationship. Ho-Won Jeong (2008) further argues that in a situation of conflict, the actions and counteractions of the contending parties are evolved with a view to controlling the behavior of others where violence may be used to get dominance over power, prestige and material interests (Jeong 2008). In such a situation, Ho-Won Jeong (2008) suggests that conflict gets manifested because of the interplay of two factors i.e. perceived goal incompatibilities and attempt to control each other’s choice, which inevitably lead to adverse feelings and behavior toward each other. Furthermore, Peter Wallensteen (2007) suggests that conflict is the result of interplay between three elements i.e. actors, issues and actions. He defines conflict as “a social situation in which a minimum of two actors (parties) strive to acquire at the same moment in time an available set of scarce resources” (Wallensteen 2007:15). So, based on the notion of different scholars, it can be said that conflict is a situation where two or more actors try to achieve an incompatible goal which inevitably leads to differences and hostilities in their relationships.

2.4 The Dimensions of Conflict

Singer (1996) primarily classified conflicts into interstate wars and extra-systematic wars. Interstate war means war between two or more independent states whereas extra-systematic wars mainly imply wars against colonial powers. Singer (1996) further classifies two kinds of non-interstate conflict i.e. civil conflict and increasingly complex intra-state wars. In civil conflict, one of the contending actors may be an insurgent or revolutionary group within the territory of the state. In the case of complex intra-state wars, the challenges are likely to emanate from culturally defined groups such as ethnic or racial groups, religious groups etc. Holsti (1996), like Singer (1996), has also broadly classified conflict into international (interstate) conflict and non-interstate conflict. Holsti (1996) suggests that international conflicts can be grouped into five categories i.e. conflict over territory, economy, nation-state creation, ideology and human sympathy (i.e. ethnicity and religion). Holsti (1996) argues that non-interstate conflict can also take different forms such as decolonizing wars of national

liberation, internal wars based on ideological goals and state-nation conflict involving armed resistance by ethnic, language or religious groups.

Ramsbotham, Woodhouse and Miall (2015) make a comparison between Singer’s (1996) classification of conflict and Holsti’s (1996) classifications of conflict and come to the conclusion that both views are more or less similar. Based on the argument of Singer (1996) and Holsti (1996), Ramsbotham, Woodhouse and Miall (2015) provide three types of non-interstate conflict in addition to interstate conflict. The three kinds of non-interstate conflict offered by Ramsbotham, Woodhouse and Miall (2015) are revolution/ideology conflict, identity/secession conflict and factional conflict. Here, Ramsbotham, Woodhouse and Miall (2015) add a new dimension of conflict i.e. factional conflict in addition to the dimensions made by Singer (1996) and Holsti (1996).

Table 1: A working conflict typology

Conflict type	Example
Interstate	Gulf War 1991
Non-interstate	
Revolution/ideology	Algeria
Identity/secession	Srilanka
Factional	Liberia

Source: Ramsbotham, Woodhouse and Miall (2015: 77)

According to Ramsbotham, Woodhouse and Miall (2015) revolution/ideology conflict takes place with a view to changing the nature of the government. The underlying goal may be to change from capitalist to socialist system or from dictatorship to democracy or from secular to religious state. With the end of the Cold War there is an obvious decline of socialist movements but, the movement for democracy and religious extremism is still evident in different parts of the world. Identity/ secession conflict evolves around the relative status of communities or communal groups in relation to the state which may include struggle for access, autonomy, secession or control. Finally, factional conflict is not a contention on the basis of revolutionary-ideological or identity- secessionist issues, instead, it evolves around competing interests or power struggles of political or criminal factions. Such conflict includes coups d’etat, intra-elite power struggles, criminality, warlordism etc. where the sole purpose

of the contending actors is to usurp, seize or retain state power with a view to advancing their economic and other interests (Ramsbotham, Woodhouse and Miall, 2015).

2.5 The Relationship between Climate Change, Displacement and Conflict: A Conceptual Framework

The available literature on the issue of climate change, displacement and conflict is embedded in the study related to environment and conflict. Among a wide range of scholarly contributions in this area, I have decided to apply Ashok Swain’s (1996) model on ‘Environmental Migration and Conflict: A Conceptual Framework’. This is because the model given by Ashok Swain (1996) is a good starting point to understand how environmental destruction can uproot people from their places of origin by destroying their place of living and their sources of livelihood. He suggests that the decision to migrate for the sake of survival is not a voluntary one, rather, people choose to migrate when life becomes uninhabitable in their place of origin due to adverse impacts of environmental changes. Swain (1996) in his framework also shows that the resettlement of the displaced people in the new society is not the end of the problem but it leads to the onset of new kinds of problems as the environmental migrants create different kinds of stresses in the receiving society which can potentially turn to instability and conflict at different layers of the state and society.

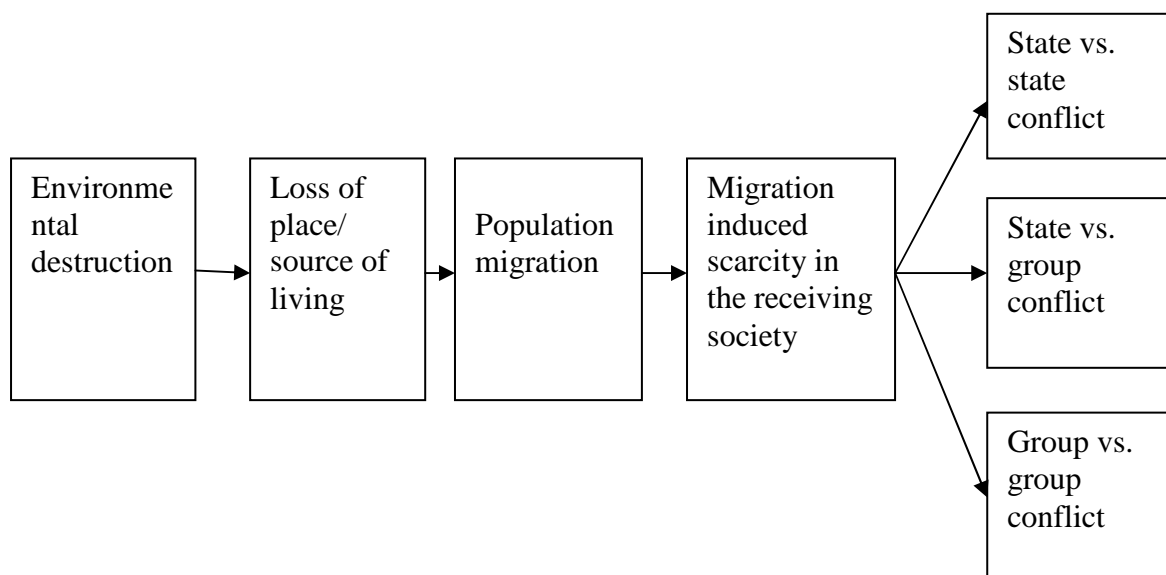


Figure: Ashok Swain's (1996) model on environmental destruction, population migration and types of conflict

2.5.1 Environmental Change

Swain (1996) argues that environmental damage is the result of increasing human interaction with the biosphere, the consequences of which are now being felt on a global scale. He argues that the increasing human intervention in the natural system is taking place due to changes in the demographic, economic, institutional, technological, agricultural and behavioural pattern of human environment which is destroying renewable resources such as fresh water, soil, forests, air, atmosphere and climate, oceans and biodiversity across the planet. The consequences of such environmental damages according to Swain (1996) are pushing an increasing number of people towards the subsistence margin- particularly in the developing countries.

2.5.2 Environmental Change and Loss of Place/Source of Living

According to Swain (1996) environmental destruction can inevitably lead to the loss of place and source of living for millions of people particularly in the developing countries. He elaborates a number of processes through which this can happen. Swain (1996) argues that the gap between the availability of resources and human needs is widening everyday due to the reduced productivity in agriculture, expansion of desert, decreasing forest cover, lack of fresh water, changes in the pattern of climate and extinction of species. It is estimated that since World War II, approximately 1.2 billion hectares of land have suffered from modest to serious soil degradation due to human activity (Olderman et.al., 1990). Developing countries are likely to suffer disproportionately in the face of climate change due to their high dependence on agriculture. The rise of temperature is contributing significant decline in rice production in many rice producing countries. Besides, the humid tropical areas are likely to suffer from excessive rainfall, which consequently can lead to soil erosion and crop losses. Similarly, semi-arid areas are likely to be drier which will make it difficult for agricultural production. Because of these changes, the resource base is fading away in the environmentally degraded areas from where human beings depend for their sustenance. As agriculture is the main source of income in the developing countries, so a significant decline in the agricultural production means that millions of people will lose their source of subsistence in those countries (Swain, 1996).

In addition to the decline in agricultural output, environmental destruction can also hamper the industrial productivity in many areas. The shortage of fresh water can result into the

shutdown of many industries, particularly industries which rely upon the supply of water to run their production. Besides, environmental destruction can also reduce the availability of primary resources for some industries such as forest and fishing industries, which can consequently lead to the closure of those industries. As a result significant number of people will lose their jobs in those sectors; finally, the rise of sea level caused by climate change will lead to the loss of living space and sources of livelihoods for millions of the people in many low-lying countries such as Bangladesh, Maldives and Egypt (Swain, 1996).

2.5.3 Loss of Place/Source of Living and Population Migration

Swain (1996) suggests that the loss of living space and the means of sustenance in the face of environmental destruction would cause large scale migration as life becomes insupportable to their traditional habitat. Swain (1996) suggests that people primarily do not want to leave their traditional habitat behind in such situation. Rather, they want to stay in their own land as long as they can and cope with the impacts of the environmental changes. The decision to migrate is made when their hope for survival in their native land fades away. However, Swain (1996) asserts that population migration in the face of environmental changes is not only a phenomenon of our time. It is a common trend throughout human history as deforestation, desertification, drought and other environmental destructions forced people to flee from their homes in the past. But, the most alarming case in our time is the danger of a huge mass exodus in the face of growing environmental destruction that can turn out to be a human crisis in our time. Such movement is taking place within and across international borders as well as from rural to urban areas (Swain, 1996).

2.5.4 Migration and Conflict in the Society

The movement of the affected people from environmentally vulnerable areas to more secure places for the sake of survival is likely to create a situation of instability and chaos at different levels of the state and society. One of the immediate consequences of population movements from one society to another is that it adds enormous pressures on the receiving society and induces resource scarcity. Swain (1996) suggests that in a situation of increasing resource scarcity under such circumstances, various social actors might feel insecure with the availability of natural resources which in turn can lead them to take purposeful action based on a zero-sum standpoint to secure their interests. This situation can create organized actors on resource distribution and related issues which can eventually create incompatibility

between different actors. As a result, Swain (1996) argues that an attitude of intolerance and antagonism may develop towards each other which can lead to three kinds of conflict at different levels of state and society that include:

- State versus state conflict,
- State versus group conflict and
- Group versus group conflict.

2.5.4.1 State versus State Conflict

Swain (1996) argues that conflict between states may emerge in situations of cross-border migration. People are forced to leave their traditional habitat behind due to a significant reduction in agricultural and industrial production as well as massive deforestation and loss of fishing habitats due to environmental changes. The cross border migration is likely to happen in a situation of severe and widespread environmental destruction and where the opportunity of sustenance in nearby urban areas is bleak. But, the cross-border environmental migration is likely to strain the relation between sender and receiving state. Swain (1996) suggests that the migrants can create different conflict inducing situations between sender and receiving state.

At the early stage, the question of giving permission of the migrants to enter the territory of the receiving state may strain the relation between the two states. Once migrants enter into a new society, it creates structural challenges by increasing demands on the limited resources of the receiving society. Due to their struggle with the local population over the control of resources, it becomes a political concern for the receiving state. The environmental migrants also create pressure on the host state to safeguard their wellbeing. In some cases, migrants can deteriorate the law and order situation of the receiving society. Such situation can force the receiving state to stop the flow of migration at its border or repatriate the migrants into their country of origin which can potentially create conflict with the sender state. Besides, environmental migrants might also involve themselves in anti-government activities targeting their country of origin, which can also create a conflict situation between the two states. In such a situation, the sender state might blame the host state to provide support to the migrants to carry-out those antigovernment activities and thereby becomes a breeding ground of contention between the sender and receiving state (Swain, 1996).

There are various instances in the international arena where trans-border migration caused by environmental destruction was responsible to create conflict between states. The violent internal clashes in Mauritania and Somalia in 1989 over the migration flow of Arab pastoralists from Mauritania to Somalia due to increasing desertification in Mauritania, the conflict between Somalia and Djibouti in 1980s over the issue of migrant Issaqs and the Ethiopia-Somalia border tension in the early 1980s are clear manifestations of how environmental migrants can destabilize relations between states (Swain, 1996).

2.5.4.2 State versus Group Conflict

The second type of conflict that Swain (1996) suggests may emerge out of this scenario is state vs. group conflict. The decline of rural economy due to reduction in agricultural output, fish catching, deforestation and soil and river bank erosion caused by environmental changes is likely to force the affected villagers to migrate to nearby urban areas for the sake of their survival. Developing countries which are affected most by the consequences of environmental changes often lack the resources to take preventive measures to protect the rural economy in such a situation. The process of urban migration, in addition to creating various social problems, brings the environmentally affected people into close physical proximity, which helps them to organize and claim compensation from the government. Besides, they can also easily get the attention of environmental activists and media in the urban area who can be sympathetic to their cause. This helps them to intensify their movement against the state authority. In this way, environmental migrants bring the conflict from the distant rural setting to the door step of the state administration (Swain, 1996).

The potentiality of the environmental migrants in the urban areas to destabilize the government can be understood from the incidence in Ethiopia in 1974 when urban based environmental migrants played a significant role in overthrowing the then Ethiopian Emperor Haile Selassie. The incidence of Sudan in 1985 is another glaring instance in this regard. The extensive drought in the countryside of Sudan created massive rural-urban migration which resulted into serious riots and organized violence in the city areas and eventually led to the downfall of President Nimeri in 1985 (Swain, 1996).

2.5.4.3 Group versus Group Conflict

According to Swain (1996), the third type of conflict that may arise out of this situation is group vs. groups conflict. Swain (1996) suggests that environmental migrants put enormous pressure on the receiving society as they are likely to increase the demand for the basic necessities of life including food, employment opportunities etc. which may hurt the way of life of the local people. Besides, the influx of migrants in the receiving society, particularly in developing countries, adds pressure on common property resources such as water, grazing areas and forests which can also be damaging to the interest of the local people. All these kinds of scarcity arising due to the influx of migrants could promote a sense of nativism among the local inhabitants. The feeling of nativism then create an attitude of us vs. them, where natives start to consider the migrants as aliens of their society and organize themselves as a group to protect their own interests as well as exert pressure on the migrants to return to their original homes. This situation then can lead to native -migrant conflict in the society (Swain, 1996).

The native-migrant hostility, according to Swain (1996), can eventually lead to riots and internal wars in the host society. However, such conflict may take place in situations of internal as well as cross-border migration of environmentally displaced people. In situations of cross-border migration, in addition to being a cause of state vs. state conflict, environmental migrants can also fuel conflict within the society of the host state. Particularly, states which are multiethnic in nature and where environmental migrants are identified with any of the major ethnic group are more vulnerable under such circumstances (Swain, 1996).

2.6 Reflections

The impacts of climate change are increasingly being felt at the global level due to the changes in global temperature as well as an increase in natural disasters-both sudden and gradual, which are resultantly turning some parts of the planet uninhabitable. As a result, an increasing number of people affected by the impacts of climate change are moving to a new place for the sake of their survival, which consequently leads to different socio, economic and political instability in the receiving society. This situation is particularly hazardous in societies which do not have the ability to cope with such stresses due to its limitation in terms of resources, technical know-how and governance.

The model given by Ashok Swain (1996) titled 'Environmental Migration and Conflict: A Conceptual Framework' has been presented to investigate the question of how climate change contribute to the displacement of people in Bangladesh and whether such displacement can be a potential source of conflict in the country. The model gives a clear idea about how environmental change can uproot people from their place of origin and can become a source of instability and conflict. It is obvious that on the one hand, people face losses in their source of living due to the reduction of resource bases from which they reap sustenance and on the other hand, they are also in danger of losing their place of living due to the rise of sea level. The combination of such factors forces people to search for a new place for living. The model also shows that the movements of people from one place to another do not automatically lead to a conflict situation. Rather, it creates a new kind of scarcity in the receiving society which brings incompatibility between different actors and inevitably leads to different kinds of conflict at different levels of state and society. For this reason, the model given by Ashok Swain (1996) gives a clear background to investigate the relation between climate change, displacement and conflict in the context of Bangladesh.

Chapter Three

Methodology

This chapter outlines the methodological aspects of the study. The study has followed the qualitative approach in collecting and interpreting the data. The qualitative approach has been applied because of its interpretive nature which helps to develop meanings through the examination of data from different sources. Four main methods have been applied in this regard that include documents, discourse analysis, interview and non-participant observation. The study has followed the ethical principles in every steps of the research. The Norwegian Social Science Data Services (NSD) was notified at the beginning of the study. An informed consent was taken from the participants before arranging the interview and the confidentiality regarding respondent's identities and data has been maintained throughout the research process.

3.1 Selecting a Methodology for the Study: Qualitative Approach

There are two approaches in collecting and interpreting data in social research that include qualitative approach and quantitative approach. In the case of quantitative research, the data is collected in the form of number whereas in qualitative research, the data is collected in the form of words and pictures (Neuman, 2011). Among these two approaches, the present study has followed the qualitative approach to collect and interpret data. In qualitative research, the stress is given on the qualities of processes, meanings and entities which are not measured in relation to quantity, amount, intensity or frequency (Denzin and Lincoln, 2000). It tries to address the what, when, where and how questions of a problem. In this way, qualitative research relates to the meanings, concepts, definitions, characteristics, symbols and descriptions of things under the study (Berg, 2007). Indeed, the selection of qualitative approach is influenced by its interpretive nature which allows understanding the social world through an analysis of the interpretation of that world by its participants (Bryman, 2012). In this regard, a rigorous effort is made to interpret the meanings of data from different sources in a way so that it can address the research questions in a meaningful way. Hence, four main methods have been followed throughout the research to collect relevant data which include:

- Documents
- Discourse analysis
- Interview and
- Observation.

3.1.1 Documents

Bryman (2012: 543) defines documents as ‘materials that can be read and the development of such materials have not particularly done for social research but they are preserved and made available for analysis and such materials are important to the study of social researcher’. Scott (1990) refers documents as written texts which are developed by individuals and groups to meet their own practical needs. In this regard, Grix (2001) suggests that as documents are developed with a purpose and based on specific assumptions, so, the researcher needs to be conscious about the origin, purpose and the primary audience of the documents. Bryman (2012) mentions about five different types of documents relevant for social research. These include: personal documents in the form of diaries, letters and autobiographies, official documents of the state, official documents of private organizations, media reports and virtual documents available on the internet.

In the present study, a wide variety of documents are studied to collect relevant information. The reports of the Ministry of Environment and Forest of the Government of Bangladesh regarding the issues of climate change are investigated to get information about the scenario of climate change in Bangladesh and its socio economic impacts. The fourth and fifth Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC) – a body of the United Nations dedicated for the study of climate change, are followed to understand the reality of climate change and its adverse consequences upon human society. The reports of various international organizations such as International Organisation for Migration (IOM), International Alert etc. as well as government agencies such as German Advisory Council on Global Change, Stern Review and others are examined to understand the linkage between climate change, human mobility and conflict. Furthermore, the reports of the various local NGOs in Bangladesh, research institutions who have done extensive works in this area are studied to get detailed information about the magnitude of the problem in the country. Besides, different media outlets such as newspaper article, special reports are also followed to collect relevant information regarding the study. Finally, documents which are available in

the internet in connection with the study are also collected and studied to collect further information which can enrich the study. However, with regard to the internet documents, the validity and reliability of the sources are examined to ensure the authenticity of the information.

3.1.2 Discourse Analysis

Discourse analysis is also followed in the study where a wide range of texts covering the issues of climate change, conflict and human mobility are collected and analysed to investigate the key questions of the study. According to Tonkiss (2012:406) “discourse can refer to a single utterance or speech act (from a fragment of talk, to a private conversation, to a political speech) or to a systematic ordering of language involving certain rules, terminology and conventions (such as legal or medical discourse)”. The second aspect of the Tonkiss (2012) definition is a point of importance here as it gives a scope to examine the ways through which discourse play a crucial role in forming specific ways of understanding about a particular issue. In this regard, Hall (1992) argues that discourse includes a group of statements which provide a certain form of understanding about an issue. For this reason, Foucault (1972) argues that discourse does not simply mean any language or speech acts, instead, discourse refers to the process through which language contributes to develop field of knowledges and practices. The importance of discourse analysis lies in the fact that it helps to get insight about the means through which speech and texts contribute to the creation of social meanings and forms of knowledge about a topic. Hence, language is considered as the object of inquiry for discourse analysis. In discourse analysis, language is not simply understood as a means of communication, but, it is conceived as a domain where people’s understanding about the social world is actively shaped. For this reason, language and texts which shape and reproduce social meanings, facts and identities are considered as sites for discourse analysis (Tonkiss 2012).

The subject of climate change has become an issue of significant attention in recent times. It has become an area of investigation for researchers and academicians and a matter of concern for policy makers and governments. This results into the development of diverse perspectives about climate change, its impacts on human society and polity and means to handle it. The study has carefully sorted out and analysed relevant academic, policy, legal and media discourses regarding climate change and its impacts on human society. Tonkiss (2012)

suggests that discourse analysis can be carried out in four key stages of the research process i.e. defining the research problem; selecting and approaching data; sorting, coding and analyzing data and presenting the analysis. In the present study, discourse analysis has particularly been made at the initial stage of the research to define the research problem as well to develop a conceptual framework for the study. Various scholarly contributions have been collected and analysed to lay the conceptual foundation of the study. Primarily, the works of Ashok Swain (1996), Homer Dixon (1994), and Peter Gleditsch (2007) are particularly collected and carefully studied to understand the relation between climate change, human displacement and conflict in the society. Based on their studies, an extensive work has been done throughout the research period to collect and interpret similar studies of other scholars in the form of journal articles, book chapters, commentary etc. with a view to answering the questions of the study. Besides, various international agreements and conventions such as United Nations Framework Convention on Climate Change (UNFCCC), various agreements of the Conference of the Parties (COP) are also examined to understand the magnitude of the problem.

3.1.3 Interview

To collect primary data a field study was carried out in Bangladesh at the beginning of the study. During the time of field study, interview method was mainly followed as it is one of the most commonly applied methods in qualitative research to collect primary data. Kvale (1983) argues that the purpose of qualitative interview is to get the perspectives of the interviewee in relation to the interpretation of the meaning of certain area. Kvale (2009) also refers qualitative interview as a construction site of knowledge because it helps to develop new understanding about the problem through the process of mutual discussion. Bryman (2012) argues that interview is useful because it helps to understand the behavior, attitudes, norms, beliefs and values of the respondents as well as others relevant to the research problem. However, interview process needs to cover a range of activities. Neuman (2011) gives a list of activities that need to be covered up in the process of interview such as asking questions, listening, recording and taking notes of the respondent's perspectives, the interpretation of which gives respondent's insights, feelings and experience regarding the research problem. In qualitative research, there are two main types of interview which include semi-structured interview and unstructured interview. In the case of semi-structured interview, the researcher generally follows an interview guide including a list of questions or some specific topics to be asked about, which are more general in their framing. In this case,

both the researcher and the respondents have great deal of flexibility about how to ask and respond to the questions. Unstructured interview, the second type of qualitative interview, is understood as an informal interview where the researcher is unlikely to use any specific kind of questionnaire and the types of questions can also differ from interview to interview (Bryman, 2012).

In the present study, semi- structured interviews were carried out in Bangladesh during June-July, 2015. An interview guide was developed and followed to conduct the interview. The interview guide consisted four categories of questions i.e. the reality of climate change in Bangladesh, its influence on the frequency and intensity of natural calamities, the scenario of human displacement and the possible emergence of conflict out of such scenario. The interview guide initially consisted of ten questions. But, during the time of interview many questions were asked beyond the interview guide to get relevant answer. The semi-structured interview was preferred because of its flexibility to go beyond the interview guide and ask further question to clarify the respondent's view in relation to research question.

A total of 10 interviews were conducted during that time of which 9 interviews were taken through face to face discussion and 1 interview was taken through email communication. The interviewee's consisted of five different categories of people which included researcher, environmental activist, journalist, government official and academia. From each category, two respondents were selected for the purpose of the interview. The interviews were based in Dhaka-the capital of Bangladesh. It was Key Informant's Interview (KII) where respondents were selected on the basis of their expertise in relation to the research area. The purposive sampling method was followed to select the respondents. Purposive sampling was used to ensure that the respondents were easily accessible and have adequate knowledge about the research problem. All of the ten respondents were male. It is a major drawback of the interview process. However, I wanted to take interviews of two female researchers who were working on that particular area. But, they were outside the country during the time of the field work and I couldn't able to communicate with them through email also.

After selecting the respondents, an email was sent to all the potential respondents explaining the project and sought their cooperation in this regard. Most of them responded positively after which time for arranging the interview was discussed. The time and place for interview was fixed on the basis of respondent's convenience. Six of the interview was conducted in the

offices of the respective respondents. Three of the interviews were conducted privately. One respondent was not possible to meet physically and in that case the interview was conducted through email communication. However, there were some disturbances particularly in conducting the interview which happened in the respondent's office environment. The staffs and colleagues of the respondent's office visited several times for their official purposes during the time of discussion which was an obstruction in the interview process. There were no such obstructions in the interviews which were conducted in the private settings. Everybody was interviewed once and each interview lasted for approximately one hour. All of the interviews were recorded. However, the respondent's permission was taken beforehand to record the interview.

3.1.4 Observation

In addition to conducting interview, an observation was also conducted during the time of the field research to get a broader comprehension about the context of the study. Observation is one of the methods of qualitative data collection where the behavior, actions and interactions of the people are observed in their natural settings to get a detailed understanding about people's everyday ways of life and the socio-cultural context where such action takes place (Hennink, Hutter and Bailey, 2011). Researcher can play two kinds of role during the time of observation which includes participant observation and non-participant observation. Participant observation demands an active engagement on the part of the researcher in the everyday life of the people of the society and requires living with the community people for a long period of time. On the other hand, non-participant observation does not require the researcher to actively engage with the everyday life of the society. Instead, in non-participant observation, researcher observes the social activities, events and people's behavior from a distance and tries to get insights about the social context of the study (Hennink, Hutter and Bailey, 2011). There are different aspects of observation. Hennink, Hutter and Bailey (2011) highlights about the three aspects of observation which include: first, observing people's mode of behavior in their natural settings by watching their everyday activities, listening to their languages and how they use it and their pattern of interaction with each other; second, getting insights about the non-verbal communication of the people by watching their gesture and body language towards each other; and finally, observing location or social settings to understand the pattern of activities taking place in a particular location.

In the present study the observation was carried out in the district of Bhola- one of the coastal districts in Bangladesh which locates in the southern part of the country under Barisal division. The reason for selecting Bhola for observation is influenced by the fact that this area is particularly regarded as one of the most vulnerable areas of the country in the face of natural calamities. It was a non-participant observation. Non-participant observation was followed due to the time constrain. The field study was carried for two months in Bangladesh during June-July 2016. So, it was not possible to stay in the community for a long period of time which is a demand of participant observation. The third aspect of the observation as suggested by Hennink, Hutter and Bailey (2011) i.e. observing location or social settings, was particularly followed during the time of observation. Observation was carried out in the Ramdaspur of Bhola Sadar upazila and Char Kukri Mukri of Char Fashion upazila. The scenario of erosion and flood was observed during that time. It was evident in Char Kukri Mukri that crops in the field were severely damaged due to floods. In Ramdaspur, it was seen that road communication from one area to another stopped as erosion completely damaged the nearby road. The picture of those scenarios was taken in a camera during the time of the visit in those places. Besides, notes have also been taken about the observed things in those two areas. In the context of the present research, observation has contributed to get broader understanding about the problem of the research on the ground. Particularly, it has given deeper insight about the research context which helped the interpretation of data at the later stage of the study.

3.2 Ethical Considerations

Ethical issues have been given due consideration throughout the research as it is connected to the integrity of the study. Hence, ethical principles offered by Diener and Crandall (1978) have mainly followed during the time of data collection in field research. Diener and Crandall (1978) suggest four areas of ethical consideration in social research which include: whether there is harm to participants, whether there is a lack of informed consent, whether there is an invasion of privacy and whether deception is involved.

The study has followed the ethical principles in every steps of data collection and analysis. At the beginning of the study, the Norwegian Social Science Data Services (NSD) was notified about the project. After getting approval from the NSD, a field study was conducted in Bangladesh to conduct interviews with regard to the study. The respondent's information

have been preserved in a way so that they are not subject to any potential harm or harassment in relation to their information. For this reason, confidentiality has been maintained regarding their identities and all of the records have been destroyed after translating the responses into paper and emphasis has been given to keep their information anonymous. Before, conducting the interview the participants were informed about the study and their consent was sought. In this regard, after getting the approval about the project from the NSD, an information letter was sent to all the respondents through email where a brief overview about the project was mentioned and the necessity of conducting the interview in relation to the study was also given. Furthermore, the information letter also contained information about who would have access to the research data and how their personal data would be preserved and protected in the research process. The privacy of the respondents is protected by maintaining anonymity and confidentiality in the research process and taking informed consent from them before arranging the interview (Bryman, 2012). Finally, no sort of deception is made in any process of the research. The participants were clearly informed about the background and purpose of the study and their participation in the study was voluntary.

3.3 Reflections

It is evident that data have been collected from four different sources including documents, discourse analysis, key Informants Interview and non-participants observation. All of the methods applied have contributed immensely to get relevant information for the study. For instance, the study of different documents helped to get evidence about the scenario of climate change in Bangladesh, the state of various natural calamities such as floods, riverbank erosion, tropical cyclones and sea level rise and its impacts on human society and the situation of population movement and its consequences in the receiving society. It helped to get both macro level and micro level scenario of climate change in Bangladesh. Particularly, government documents helped to get broader perspective about the issue whereas documents from different organizations and individuals helped to get micro level perspective about the problem such as impacts of calamities on specific areas, victims coping strategies, social dynamics in influencing individual decisions to move from one area to another and so on. In this way, the findings of those documents contributed significantly to address the key questions of the study. However, there were also challenges to select, study and extract information from the documents. Because, documents are generally prepared to meet specific purposes. Hence, the major difficulty was to ensure the reliability and validity

of the information extracted from those documents. In this context, two strategies were followed to overcome such difficulties. Initially, before selecting a document, the sources were carefully examined to ensure the legitimacy of the documents. Then, a sincere effort was made to get unbiased information from those documents. It has been made by bringing the information of more than one document in the process of analysis.

Discourse analyses helped to define the research problem, formulate research questions and to develop the conceptual framework of the study. At the early stage of the research there were some challenges to frame the research problem as well as research questions which needed to be investigated in the process of research. But, the study of academic, legal, policy and media discourses in relation to climate change, displacement and conflict helped to dispel such difficulties. It helped to get a specific focus about the research problem. Furthermore, discourse analysis also helped to get clarity about the conceptual issues of the study. Particularly, the work of the Ashok Swain (1996), Homer Dixon (1994) and Peter Gleditsch (2007) at the initial stage helped to get conceptual clarity about the relation between climate change, human displacement and conflict in the society. However, the major challenge in the discourse analyse was to identify and study the relevant discourses. Because, there are enormous academic, policy, legal and media discourses in the field of climate change. Even there are many academic discourses which don't support the idea that climate change has any influence on human mobility and conflict in the society. In such situation, instead of going through all the available discourses, the effort was made to study the discourses which have relevance in relation to the research problem.

The key informant's interview helped to get perspectives from the ground about the research problem. The interview with people from different background such as academia, policy makers, environmental activists, journalists and researchers helped to get deeper and broader insights about the problem of climate change, human displacement and conflict in Bangladesh. Though, no victim's interview was taken in the process but all of the key informants had extensive experiences in working closely with the affected people in different projects dealing with the issue of climate change which helped to understand the vulnerabilities of the people affected by climate change. However, the major challenges were the interview was conducted at the initial stage of the research and the interviewees were also talked once. The interview was conducted in June-July 2016. But, I developed my theoretical foundation of the study during August-November, 2015. After setting the conceptual

framework, I found that many of the information that I collected during my field visit was irrelevant to the study. In some cases, I also felt the necessity of talking with the respondents again to get clarity about some of the responses but due to time and financial constrain it was not possible to conduct the interview again. To overcome this difficulty, I relied heavily on documents information to discuss and investigate the key questions of my study. Furthermore, the non-participant observation in some parts of Bhola-one of the most disasters prone areas in Bangladesh helped to see the context during the time of the field research. The observance of erosion and flood in Ramdaspur and Char Kukri Mukri of bhola district helped to see the loss and damages to people's life and livelihoods in the face of natural calamities which helped to analysis the findings from different sources of the study.

Chapter Four

Discussion

This chapter presents and discusses the findings of the study. The discussion is made to address the two key questions of the study i.e. how does climate change contribute to displace people in Bangladesh? and how such displacement can be a potential source of conflict in the country? The chapter is divided into three parts. Part one discusses about the present climate change scenario in Bangladesh. Part two discusses about the linkages between climate change and human displacement in Bangladesh and finally, part three deals with the possibility of conflict that climate induced displacement can cause into different levels of state and society. It is evident that Bangladesh has already experienced significant changes in the state of its climate which contribute to increase the frequency and intensity of various natural calamities such as floods, riverbank erosion, tropical cyclones and sea level rise. The increases in the frequency and intensity of natural calamities incur enormous losses on the lives and livelihood options of the millions of people across the country as it leads to homelessness, landlessness and the loss of livelihood opportunities which consequently displace people from their place of origin. However, the movement of people from the environmentally vulnerable areas to relatively safe places is not the end of the problem. Rather, it creates enormous pressures on the government as well as receiving society due to resource scarcity which creates and complicates different conflict scenario in the country.

4.1 Observed Climate Change in Bangladesh

Swain (1996) argues that environmental damages are taking place all over the world which are destroying the renewable resource base such as fresh water, air, atmosphere and climate, oceans and biodiversity across the planet. In this regard, Bangladesh is one of the most vulnerable countries in the face of global environmental change. The country has already been subject to climate change as increasing surface air temperature is quite evident and the pattern of rainfall is also changing which are damaging many aspects of lives and livelihoods of the people of Bangladesh. The Fourth Assessment Report of the IPCC (2007) presents a number of observed changes in the climate trends, variability and extreme events in Bangladesh. The Fourth Assessment Report (2007) suggests that from 1985 to 1998, an increasing trend was obvious in case of average temperature in Bangladesh. During that period, the average temperature is observed to be increased by approximately 1°C in May and

0.5°C in November. The report also indicates that there has been an increasing trend in the average rainfall in the country. Since 1960s, there have been high anomalies in the case of decadal rain average. The country has been subject to severe and recurring floods since 1980s. An increasing trend has also been observed in the frequency of monsoon depressions and cyclones formation in the Bay of Bengal (Patwary, 2009).

However, a more comprehensive picture about the state of climate change in Bangladesh is quite obvious from the study of Nishat and Mukherjee (2013). According to the findings of Nishat and Mukherjee (2013), there have been changes in the temperature and the rainfall pattern of the country. The study found that in the previous 40-years time span (from 1967 to 2007), the mean seasonal temperature increased between 0.4 to 0.65 degree Celsius. During that time winter became warmer with simultaneous rise in the level of minimum temperature. Similarly, summer becomes hotter with an increase in the level of maximum and minimum temperature. During the time of winter (December to February), the minimum temperature increased by 0.45 degree Celsius and during the time of the monsoon (June to early-October) the rise of minimum temperature happened by 0.52 degree Celsius. The level of maximum temperature is also observed to be increased over the years. The pre-monsoon period (March to May) maximum temperature increased by 0.87 degree Celsius and the post-monsoon (late-October to November) experienced a rise in the level of maximum temperature by 0.42 degree Celsius. An increase in the level of minimum temperature during the time of winter is reported in the 25 out of 34 climate observatories of Bangladesh Meteorological Department. An increase in the level of maximum temperature is reported in almost all the stations of the Bangladesh Meteorological Department (Nishat and Mukherjee, 2013).

In addition to a rise in temperature, Bangladesh has also experienced an increase in the pattern of rainfall throughout the year. The mean annual rainfall in the country is approximately 2347 mm of which fourth-fifth of the rainfall happens during the period of monsoon (June to early October). The data of the Bangladesh Meteorological Department shows an increase in the mean seasonal rainfall. It is observed that the pre-monsoon (March to May) and monsoon (June to early October) experienced about 100 mm increase in the mean seasonal rainfall. Though, the rainfall is minimum during the time of winter compared to other time of the year, but, the recent trend shows an increase in the winter rainfall. An increasing trend in the winter rainfall is observed in the 27 out of 32 rainfall observatories of Bangladesh Meteorological Department. This trend is significant in the coastal areas of

Sitakunda, Patuakhali, Kutubdia and in Khulna where the mean seasonal rainfall during the time of winter increased by 1.2-2.1 mm/year. A rise in the pre-monsoon rainfall is also obvious in the 18 out of 32 meteorological stations of Bangladesh Meteorological Department and the increase is significant in the coastal regions of Kutubdia, Mongla, Sandwip and Rangamati (one of the three hill districts) where the mean seasonal rainfall is observed to be increased by 8-13 mm/year. The monsoon rainfall is found to be increased in 18 out of 32 meteorological stations of Bangladesh Meteorological Department which is significant in the coastal districts of Kutubdia, Mongla, Sitakunda and Teknaf where the mean seasonal rainfall is observed to be increased by 21-42 mm/year. The post-monsoon rainfall is found to be increased in the 24 out of 34 meteorological stations of Bangladesh Meteorological department which is significant in the coastal regions of Khepupara, Kutubdia, Mongla and Teknaf where an increase in the mean seasonal rainfall is happened by 12-24 mm/year (Nishat and Mukherjee, 2013).

So, it is obvious that Bangladesh has experienced an increasing trend in the case of average temperature as well as rainfall pattern. Over the past few decades, summer has become hotter due to the increase in the level of both maximum and minimum temperature. Similarly, winter has also become warmer and shorter with simultaneous rise in the level of minimum temperature. An increase in the pattern of average rainfall is also quite evident throughout the year. Even an increasing trend of rainfall is evident during the time of winter which used to experience minimum rainfall in the past. Such changes in the pattern of temperature and rainfall adversely affect the lives and livelihoods of millions of people in Bangladesh.

4.2 Climate Change and Human Displacement in Bangladesh

Swain (1996) suggests that environmental change does not directly cause human displacement, rather, it produces different kinds of adverse socio economic consequences which ultimately cause large scale migration. Swain (1996) particularly points out that environmental changes result into loss of place and source of living for millions of people which force them to move into a new place for their sustenance. He particularly points out that such changes significantly decline agricultural production due to the increase of temperature, excessive rainfall, expansion of desert, scarcity of fresh water etc. which consequently increase gaps between human needs and available resources in the affected societies. In addition to a reduced agricultural productivity, environmental changes also affect

the industrial output due to fresh water water scarcity and decline in the availability of primary resources. Furthermore, Swain (1996) notes that the affected people besides losing their sources of living due to a decline in agricultural and industrial productivity, also losing their living space due to sea level rise. The combination of all these factors (i.e. environmental changes and its adverse consequences on people's sources of living and living place) inevitably causes large scale migration as life becomes insupportable in their traditional habitat.

Bangladesh is suffering immensely due to the impacts of climate change which are making enormous losses on life and livelihood options of the millions of people across the country. One of the scenarios that is obvious in recent times is a growing number of displaced people in the face different kinds of natural hazards which are increasing in terms of frequency and intensity due to a changing climate. So, the following discussion is an attempt to understand the magnitude of the problem and underlying factors which force people to leave their traditional habitat behind and settle into a new place. Based on a review of secondary literatures four types of natural hazards have been discussed i.e. floods, river bank erosion, tropical cyclones and sea level rise to understand its impacts on the lives and livelihoods of the affected communities. The discussion is made to understand how such natural calamities which are increasing in terms of frequency and intensity due to a climate change scenario are pushing millions of people into marginal lines and displacing them from their roots.

4.2.1 Flood

Flood is one of the most common forms of natural disaster in Bangladesh. Almost one quarter of the country is affected by flood every year and in every four to five years the country is afflicted by a massive flood which inundates almost sixty percent of the country and incurs enormous sufferings to the lives of the affected people and destroys infrastructure, housing, agriculture and livelihoods (MoEF, 2009). It happens due to the low-lying topography of the country which is criss-crossed by several hundred rivers and tributaries (Rayhan and Grote, 2007). Besides, two-thirds area of Bangladesh is less than five metres above sea level which makes the country more vulnerable to river and rainwater flooding and tidal flooding in the coastal areas (MoEF, 2009). The combination of geographical location, population density and poverty adds complication to such scenario. In the last few decades the country has experienced an increase in the intensity and frequency of floods. A record of 53 years (1954-

2007) depicts that most of the devastating floods of the country happened after 1980 and small scale flood have also become more frequent since 1975 (Nishat and Mukherjee, 2013).

Table 2: Some major floods in recent past

Year of flood	Consequences
1984	Submerged over 50,000 sq. km with an estimated loss of US\$ 378 million
1987	Submerge over 50, 000 sq. km with an estimated loss of US\$ 1 billion.
1988	Submerged 61% area of the country with an estimated loss of US\$ 1.2 billion and made more than 45 million homeless.
1998	Submerged about 100,000 sq. km.(out of total land area of 147,570 sq.m.) with an estimated loss of US\$ 2.8 billion which also created 30 million people homeless.
2004	Submerged 38% area of the country with an estimated loss of more than US\$ 2 billion and affected the life and livelihoods of 3.8 million people.
2007	Submerged around 32,000 sq. km with an estimated loss of more than US\$ 1 billion.

Source: MoEF (2009:9)

It is argued that flood has become more frequent due to the impacts of climate change.¹ Nishat and Mukherjee (2013) suggest that there are several ways that climate change affects the scenario of flood. Due to climate change, the pattern of extreme rainfall changes in terms of its frequency and intensity which inevitably increase the intensity of flood. Besides, due to the rise of sea level, the discharge of upstream river water happens slowly which consequently raise the level of river water and flood the inland. Furthermore, changes in the temperature and the precipitation pattern change the soil moisture, groundwater recharge and runoff which can intensify the flood in climate sensitive areas (Nishat and Mukherjee 2013). In this connection, Arnell et al. (1996) argues that global warming is likely to increase the frequency and intensity of flood in many parts of the world. IPCC (2001) also suggests that a minor change in the state of climate is likely to affect the frequency and intensity of flood in Bangladesh and India. McGuffie et al. (1999) suggests that the intensity of rainfall is likely to increase due to concentration of greenhouse gases. Karmakar and Shrestha (2000) suggests that the yearly rainfall in Bangladesh would increase 295.94 mm by 2050 and 542.55 mm by

¹ Key Informant's Interview in Dhaka, Bangladesh on August 3, 2015.

2100 as global warming is likely to increase the intensity of south-west monsoon. To assess the impact of climate change on the pattern of flood in Bangladesh, Mirza et al. (2001) conducted a study and argued that future change in the pattern of precipitation will increase the magnitude, frequency and duration of floods in Bangladesh. The study shows that if temperature rises by 2 degree Celsius than a twenty year return period of flood in the Ganges, Brahmatpura and Meghna river will be changed to 13, 15 and 5.5 years respectively. World Bank (2013) also predicts that there will be a 29% increase in the average flood areas in Bangladesh if temperature increases by 2.5%.

It is found that flood increases the vulnerability of the rural people which influences the movement of people from rural to urban areas. In rural areas people are largely depended on agriculture for their livelihoods. But, the recurrent floods put heavy impact on agricultural sector by destroying crops every year. In such scenario, the affected people are more likely to move into urban centers in search of alternative employment opportunities.² A number of studies were made in Bangladesh on the linkage between the occurrence of flood and people's decision to migrate and the findings of those studies suggest that flood is one of the underlying factors in influencing people to leave their traditional habitat behind and settle in a new place. However, the studies suggest that displacements that happen due to flood are both temporary and permanent. In most of the cases, people tend to back to their places of origin when the flood ends. But, if people are subject to recurrent flood and hope for survival fades away in their place of origin then they decide to move to a new place permanently (Walsham, 2010). Rahane and Grote (2007) conducted a study on the impacts of flood on rural-urban migration in Bangladesh and found that the frequent incidences of flood lead to homelessness, landlessness and force people to migrate into new places. Rahane and Grote (2007) found that people in the rural areas of Bangladesh can not cope with the prolong effects of disruptions in labour market, price fluctuation and consumption deficiency due to flood and in such cases their choice of migration is often influenced by the desire to replenish the asset values damaged by the floods. The study found that the movement happens in three forms i.e. village to village, village to nearby city and village to outside of the country. The study was conducted on 589 households and found that 89 percentage of the migration happened from village to nearby city. The study also found that people who are employed in the agriculture sector and depend on the local labour market are the most affected by flood

² Key Informant's Interview in Dhaka, Bangladesh on July 29, 2015

and more likely to migrate to cope with the losses. Eighty three percent respondents of the study identified unemployment and lack of capital market formation because of flood as the underlying factor for migration (Rahane and Grote, 2007).

The study of Paul (2003) following 1998 flood in Bangladesh found that the decision to migrate is motivated due to the damages in assets which make it difficult for the affected people to survive during and aftermath of the flood. The study found that in areas where victims get adequate compensation for their losses through an organized relief initiative are less likely to migrate to a new place (Paul, 2003). The Comprehensive Disaster Management Programme (CDMP) (2014) conducted a study in nine districts of Bangladesh which are relatively more vulnerable to environmental hazards to assess the trend of displacement due to the impacts of disaster and climate change. The study was conducted on 926 households and found that due to floods 62 percent of the households faced temporary displacement and 0.4% displaced permanently. In this case, the study suggests that flood is more likely to cause temporary displacement and the victims are likely to move into embankments, elevated roads, shelter center and neighbours and relatives houses. The study also found that people who are employed in the agricultural sector constitute the highest percentage of the displaced people as they are the worst victims in situation of flood (CDMP, 2014).

The findings from different studies show that flood is a common natural calamity in Bangladesh which causes enormous sufferings to people's lives as it destroys the infrastructure, housing, agriculture and livelihoods of the affected people. The situation of climate change is aggravating the situation further due to an increase in the frequency and intensity of rainfall, sea level rise which consequently slows down the discharge of river water and a rise in temperature. It is evident that over the years flood has contributed to displace a significant number of people from their place of origin. This clearly support the framework of Swain (1996) as he argues that environmental changes and its resultant consequences lead to the loss of place and sources of living of the affected people and cause large scale migration as life becomes insupportable to their original places. It is obvious from the study that flood leads to homelessness, landlessness and destruction of livelihood opportunities and thereby force people to move into new places for the sake of their sustenance. Furthermore, as Swain (1996) points out that agriculture is the most vulnerable sector in the face of environmental change, it is evident from the findings that people who are employed in agriculture and depend on local labour market are the worst victims of flood and

constitute the highest percentage of displaced people. The findings of the study show that displacements that happened due to flood are both temporary and permanent and people generally are more likely to return their original places aftermath of the flood. Permanent displacement happens when people are subject to recurrent floods and their hope for survival completely fades away in their traditional habitat. This is also in line with the argument of the Swain (1996) as he mentioned that people do not leave their traditional habitat primarily rather try to cope with the impacts as long as they can and only decide to shift when their hopes in their original places diminish completely. Moreover, it is obvious that relief and rehabilitation programmes have an influence on human mobility during and aftermath of the flood which is not given in the framework. It is evident that when people get timely assistance during and aftermath of the flood to cope with the damages they are more likely to stay in their original places.

4.2.2 River Bank Erosion

Bangladesh is popularly known as a land of rivers which consists of around seven hundred rivers including its tributaries and has a length of approximately 24,140 kilometer, which makes it as one of the largest networks of rivers in the world (Islam and Miah eds., 2012). While these rivers are regarded as blessings for the country as millions of people depend on it for their livelihoods, but it is also a source of sufferings for many people as they are exposed directly to different kinds of natural disasters. Riverbank erosion is one of them which causes enormous sufferings to millions of people living along the banks of those rivers (Nishat and Mukherjee, 2013). The northwest part of the country is particularly more vulnerable to riverbank erosion. Riverbank erosion adversely affects about one million people every year in Bangladesh. It creates social marginalization for the affected people by destroying their households and weakening social and material circumstances (RMMRU, 2007). It is found that three largest rivers of the country- the Padma, the Jamuna and the Ganga, have eroded 1,590 km floodplains since 1973 and made 1.6 million people homeless in the process (Nishat and Mukherjee, 2013). Another study shows that from 1982 to 1992, 106,300 hectares of mainly agricultural land was lost due to erosion of the Ganges, Brahmaputra and Meghna rivers (RMMRU, 2007).

Table 3: Status of bank erosion along the rivers of Jamuna and Ganges.

Bank erosion along the Jamuna River during the period 1973–2009			Bank erosion along the Ganges River during the period 1973–2009		
District	Eroded area (ha)	Accredited area (ha)	District	Eroded area (ha)	Accredited area (ha)
Kurigram	18,510	40	Nawabganj	5,160	11,990
Gaibandha	9,220	920	Rajshahi	1,220	1,340
Jamalpur	11,810	4,880	Natore	1,920	140
Bogra	10,500	1,880	Kushtia	12,180	1,220
Sirajganj	22,400	2,410	Pabna	2,440	8,290
Tangail	10,920	-	Rajbari	5,470	2,700
Pabna	1,770	-	Total	28,390	25,680
Manikganj	5,700	10			
Total	90,830	10,140			

Source: CEGIS (2010)

Climate change is likely to aggravate the situation of river bank erosion due to increased rainfall and consequent flooding of the mainlands. The IPCC in its Fourth Assessment Report (2007) suggests that climate change will lead to an increased rainfall during the time of monsoon in the region of South Asia which will significantly increase the flow of water in the river systems. Rahman et al. (2010) suggests that such increase of river water flow will contribute to change the flood regimes and increase bank erosion. Walsham (2010) also argues that an increase in the pattern of average monsoon rainfall will lead to a higher level of erosion along the major rivers of Bangladesh which consequently further the sufferings of millions of people by destroying their homes and agricultural land. According to a study of CDMP (2014), it is argued that 10 percent increase in the discharge of Jamuna river-one of the three largest river in Bangladesh, will increase river bank erosion by 25 percent along its banks. In the case of the river Padma, 10 percent increase in the discharge of river water will increase the risk of erosion by 9 percent (CDMP, 2014).

Displacement due to riverbank erosion is quite severe in different areas such as Sirajgonj, Jamalpur and Gaibanda where people have lost their houses, agricultural land and local level small industries in the face of erosion. Even many educational institutions and health care facilities have also lost into rivers in those areas. Unfortunately, people who used to be quite well off in their society suddenly lost everything i.e. houses, properties and businesses and turns out to be a destitute person which leads to social marginalization. Reportedly, these uprooted people in addition to moving into cities also try to move outside the country to change their fate. In recent times, there have been many instances of human trafficking to

Malaysia and Thailand through sea route and many people are found to be from Sirajgonj-one of the most severely erosion affected districts in Bangladesh.³ The magnitude of the scenario is also obvious from different studies. A survey by CDMP (2014) on 926 households in 29 severely hazard prone unions under 8 districts shows that 20 percent household under the study were displaced permanently due to river bank erosion and 79 percent households found to be belonged to the ‘in-between’ temporary and permanent displacement category. The study refers ‘in-between’ category to three kinds of displaced people i.e. people who were displaced due to the fear of erosion but their homestead land still exist in their place of origin, people who were displaced to a place which is very close to the erosion prone area and thereby at constant risk of further displacement and people who have displaced to a nearby embankments and do not have any willingness to be permanently displaced. The study finds that these people have either stronger connection to their place of origin or they don’t have the better opportunity to resettle permanently in a safer place or their lives and livelihoods evolve around rivers which compel them to stay close to rivers. The study shows that people were displaced as erosion destroyed their homestead and agricultural land in their place of origin and didn’t have any alternative option to sustain their life in their place of origin (CDMP, 2014).

Uddin and Basak (2012) conducted a study in the districts of Sirajganj and Gaibanda to assess the effects of riverbank erosion on the livelihood of the affected communities and its associated displacement. The study shows that riverbank erosion leads to loss of homestead, agricultural lands and production of the affected households. The combined effects of these losses lead to an erosion of income of the affected households which consequently force them to leave their place of origin and resettle in a new place, particularly in the urban areas. However, the study shows that at the initial stage of displacement, people generally relocate themselves in the nearest possible areas and search for employment opportunities to sustain their life. They decide to migrate in a distant place or urban centers when they fail to sustain themselves in those areas (Uddin and Basak, 2012).

An empirical study by Arseneault et al., (2015) conducted in 10 chars (river islands of Bangladesh) of Kurigram and Gaibanda, two districts in the north-western part of Bangladesh, involving 350 participants to assess the impact of riverbank erosion on char

³ Key Informant’s Interview in Dhaka, Bangladesh on July 6, 2015.

lands (river islands of Bangladesh) shows that almost all of the participants experienced multiple displacements (on an average six times) in their life time. This scenario of multiple displacement is also obvious from a study of Abrar and Azad (2004) which was conducted on 200 erosion affected household in the North West of Bangladesh and found that the affected households were displaced 4.46 times on an average. The study shows that the victims of erosion were subject to loss both in material terms and social terms. The erosion lead to a loss in assets, savings and income due to damages in homes, crops, land, trees, poultry and livestock (Abrar and Azad, 2004).The displacements are mainly found to be happened at the local level, within the same char or the nearby chars (Arseneault et al., 2015). This trend of local level displacement in the erosion prone areas is also obvious from a study of Zaman (1991) which was conducted in eight villages of Kazipara upazilla (sub-districts) in the Brahmaputra-Jamuna floodplain and found that 88 percent of the households which were displaced in the face of erosion resettled within 3.2 kilometres of their last area of displacement. Abrar and Azad (2003) argue that the lack of adequate opportunity to sustain their life and livelihoods compel the affected households to remain near to the riverbank in spite of having the risk of further displacement. However, the study of Arseneault et al., (2015) suggests that in addition to environmental issues in the erosion prone areas, forced migration also happen due to corruption, lack of transparency and complexity in the legal system of land redistribution which is a clear indication of poor governance on the part of the state in the erosion affected areas.

The abovestated findings show that riverbank erosion has become a nightmare for millions of people in Bangladesh living close to rivers. Climate change has a negative impact in this regard as it causes an increase in the rainfall pattern which consequently increases the flow of river water and makes the erosion more severe and destructive. It is obvious that erosion increases social marginalization of the affected people by destroying their households, lands and livestock which consequently displace them from their roots and compel them to resettle in new places. This is in line with the view of Swain (1996) as he argues that environmental destruction results into loss of place and source of living which force people to move into new places for their survival. As Swain (1996) highlights that people force to migrate from the environmental degraded areas due to the destruction of resource bases from where people get their sustenance, it is evident from the study that riverbank erosion results into a loss of assets, savings and income due to the destruction of people's homes, crops, land, trees, poultry and livestock. To cope with such losses people force to move into new places to

maintain their sustenance. Though some people move into urban areas but majority of the displacement is obvious to happen at the local level. Furthermore, the situation of multiple displacements is obvious in the case of riverbank erosion which is found to happen as people continue to live close to the rivers despite the risk of further displacement. However, in addition to environmental factors that Swain (1996) solely focuses, it is evident from the study that governance failure due to excessive corruption, lack of transparency and complexity in the legal system concerning land redistribution can also increase the trend of displacement in the affected areas.

4.2.3 Tropical Cyclone

Bangladesh is affected by tropical cyclones nearly every year of which a severe cyclone strikes in every three years (MoEF, 2009). The cyclones generally hit during summer (April-May) and post-monsoon seasons (October-November). From 1887 to 1995, 154 tropical cyclones hit the country of which 43 were severe cyclones. From 1995 to 2009, the country further hit by five severe cyclones of which two in 1997 and one in 1998, 2007 and 2009 respectively (Dasgupta et al., 2010). For this reason, UNDP labels Bangladesh as the most vulnerable country in the world in the face of tropical cyclones (UNDP, 2004). Murty and El-Sabh (1992) state that Bangladesh is the receiver of 40% of damages of storm surges in the world.

Climate change is likely to increase the intensity and frequency of tropical storms in countries like Bangladesh. Different studies claim that in the last 35 years the intensity and frequency of tropical cyclones increased due to climate change (Emanuel 2005). Scientific study suggests that the intensity of tropical cyclone and storm surges will increase due to the rise in the surface temperature of the sea (Dasgupta et al., 2010). The IPCC in its Fourth Assessment Report (2007) also shows that since mid 1970s the greater intensity of cyclones can be attributed to the increased trend in the surface temperatures of the sea. The report also suggests that climate change and its resultant warming of sea-surface will result into more severe cyclones with higher peak wind intensity and precipitation (IPCC, 2007). Furthermore, the World Meteorological Organisation (2006) argues that if the projected one meter rise in sea level happens within this century because of global warming, it will significantly increase the vulnerability to tropical cyclones and storm surges.

The vulnerability of Bangladesh to tropical cyclones and storm surge is severe due to its long coastal zones and high population density in the coastal areas. The coastal areas of Bangladesh consist of approximately 47,000 square kilometers which cover around 32 percent of the total land area of the country (Karim and Mimura, 2008). Besides, 28 percent population of the country resides in the coastal areas which make them directly exposed to tropical cyclones (Mallick, 2011). For this reason, tropical cyclones and storm surges bring enormous cost to the lives and livelihoods of the millions of people living in those areas.

Displacement due to such calamity in the coastal areas is a common phenomenon. Though, there is no exact data available on the total number of displaced people from coastal areas due to tropical cyclones and storm surges but there are some studies which present the general pattern of displacement in those areas. Walsham (2010) conducted a study to assess the evidence of migration due to the impacts of climate change in Bangladesh. The study of Walsham (2010) suggests that tropical cyclone is responsible for huge displacement during and after the storm. For instance, cyclone Aila which hit the country in 2009 affected 3.9 million people and displaced 76,478 families only in Satkhira and Khulna- two of the affected districts in the coastal regions (Walsham 2010). However, the study suggests that such displacement happened locally and people are likely to return to their original places as soon as possible. But, many people in the affected areas are found to live in the high embankments for a longer period of time as their villages are faced with repeated inundation during high tide due to the damage of breached embankments caused by storm surge. In such situation, affected people are faced with severe consequences and tend to move into new places in search of livelihoods. The study also found that when the victims receive adequate assistance to recover their losses, they are less likely to migrate into new places (Walsham, 2010).

Islam et. al (2015) conducted a study in four of the most vulnerable coastal districts in the face of cyclones and storm surges- Shatkhira, Bagerhat, Barguna and Bhola, to assess the scenario of displacement from cyclone-affected coastal areas of Bangladesh. Islam et. al (2015) conducted a micro level investigation on forty displaced people to understand their reasons of displacement. The study found that people in the coastal areas are primarily employed in agriculture and fishing. But, the recurrent cyclones and storm surges led to the destruction of arable land and fishing equipment which consequently result into a loss of income and capital and force people to migrate into new places. People are likely to move

into urban areas due to better earning opportunities. The study suggests that if the victims are provided with adequate financial support and alternative employment opportunities in the post cyclone period, they are more likely to stay in their place of origin and recover their damages due to calamity.

Mallick and Vogt (2014) conducted an empirical study after Cyclone Aila in 2009-which incurred enormous sufferings to the lives and livelihoods of the millions of people to understand the scenario of population in the cyclone affected areas. The empirical study was conducted in the 12 villages of Satkhira district which was severely hit by the cyclone Aila in 2009. The study shows that people are forced to migrate into new places due to losses and damages in their livelihood options in the face of cyclones and storm surges. The study finds that most of the people in the coastal areas are small-scale marginal farmers and fisherman which make them more vulnerable in the face of natural hazard like cyclone. In such situation, people are forced to leave their place of origin in search of new employment opportunities to maintain their family. It is also found that due to the breaches of embankments, the agricultural lands were submerged for a long time which limit both the productivity and labour options in the affected areas after the cyclone. The study shows that after cyclone Aila in 2009, people in the affected areas received emergency assistance to sustain their life. But, with the end of emergency support and because of the victims lack of capacity to maintain livelihoods, they started to move into other places particularly in the urban areas (Mallick and Vogt, 2014).

The abovestated findings clearly present the vulnerability of Bangladesh in the face of tropical cyclones which bring enormous sufferings to the lives and livelihoods of many people in the coastal areas of Bangladesh. This situation is aggravated by the fact that coastal areas cover almost 32 percent areas of the country and 28 percent population live in those areas. It is obvious that climate change contributes to increase severity of the cyclones due to increasing sea surface temperature and a rise in sea level which cause higher peak wind intensity and storm surges. The study shows that displacement due to tropical cyclones has become a common phenomenon in the coastal areas of Bangladesh as it destroys the source of sustenance of the people. Such findings clearly justify the argument of Swain (1996) that environmental changes and its resultant consequences on the lives and livelihood opportunities of the affected people lead to a loss of place and source of living and consequently cause large scale migration from the vulnerable areas. It is obvious that the

majority of the people in the coastal areas consist of small-scale farmers and fisherman which increase their vulnerability in the face of cyclones and storm surges. It is evident from the study that cyclones and storm surges destroy arable land and fishing equipments which lead to a loss of income and capital and push the victims to move into new places to maintain their sustenance. It is also obvious that though some people move into urban areas but majority of the displacement happens at the local level. As Swain (1996) suggests that people want to remain in their traditional habitat and cope with the consequences as long as they can, it is obvious from the findings that the decision to move permanently out of the traditional habitat does not come first. Rather, the victims are more likely to return to their original habitat soon aftermath of the cyclone and the decision of permanent migration comes when their options to maintain their sustenance completely fades away. However, the findings also show about the importance of emergency assistance and the availability of alternative employment opportunity to curb the flow of displacement as people are more likely to stay in their place of traditional habitat when they get adequate financial support to cope with the damages.

4.2.4 Sea Level Rise

Bangladesh is one of the most vulnerable countries in the face of sea level rise due to its flat and low-lying topography and high population density. The country has witnessed a change in the trend of tidal level in different coastal stations and the future projection is even more ominous. A study by SAARC Meteorological Research Council (SMRC) (2003) which was carried out to assess the relative sea level rise in the coastal areas of Bangladesh gives an understanding about the severity of the problem. By using a 22 years of historical data (from 1977 to 1998) at three tidal stations of Hiron Point, Char Changa and Cox's Bazar, the study found that sea level increased by 4.0 mm/year at Hiron Point, 6.0 mm/year at Char Changa and 7.00 mm/year at Cox's Bazar which are many times higher than the mean rate of global sea level rise over 100 years (SMRC, 2003).

Table 4: Trends of sea level rise in three tidal stations of coastal areas

Tidal Station	Region	Trend of sea level rise (mm/year)
Hiron Point	Western	4.0
Char Changa	Central	6.0
Cox's Bazar	Eastern	7.8

Source: SMRC (2003)

Different studies predict a further rise in sea level which is likely to incur huge losses on the habitats and the biodiversity in the coastal areas. According to a study of World Bank (2000), Bangladesh will experience 10, 25 and 100 cm rise in sea level by the years of 2020, 2050 and 2100 respectively. The National Adaptation Programme of Action (NAPA) predicts a sea level rise of 14, 32 and 88 cm in Bangladesh by the year of 2030, 2050 and 2100 respectively (NAPA, 2005).

The predicted sea level rise is likely to have severe consequences on human settlement. Rising sea level erodes and swamps low-lying land areas, which, in coastal and swampy (Haoar) areas can be quite extensive. Inundation will physically flood homesteads, agricultural fields and other land such as lands used for pisciculture, manufacturing and service sector production or commercial purposes which will bring enormous sufferings to the life of huge number of people living in those areas. As millions of people live in the coastal and low-lying areas so it is argued that homelessness and landless due to sea level rise will create internally displaced people at such an extent which is unprecedented in human history.⁴ Different studies in this context also depict the magnitude of the threat. According to Bose (2013), about 35.1 million people (28% of the total population) live in the coastal zones of Bangladesh which inevitably increases the vulnerability of the country to the predicted sea level rise. The IPCC predicts that Bangladesh will lose 17000 square kilometer of its land if sea level rise by 1 meter which will affect 15 million people living in the coastal areas and in the case of sea level rise by 1.5 meter, 22,000 square kilometer of the country's land will be submerged under water and 18 million people will become climate refugee (Bose, 2013). World Bank projected a rise of sea level by 1 meter in the coastal areas of Bangladesh by the end of the 21st Century which will inundate 15 to 17 percent of the total land areas of the country and displace approximately 20 million people from their place of origin (World Bank, 2000). According to a study of Ali (2000), approximately 2500, 8000 and 14000 square kilometer of land of the country will be flooded in the face of a sea level rise by 0.1m, 0.3m and 1.0m respectively. Another study by Barnett (2003) suggests that 5.5 million people living on the delta of Ganges in Bangladesh will be displaced in the face of a sea level rise by 45cm. The study of Rabbani et al. (2010) shows that only 10 centimeters rise in sea level will flood 15 percent area of Sundarban- the largest mangrove forest in the world which locates in the south west coast of Bangladesh, and a rise by 60 centimeters would submerge the forest

⁴ Key Informant's Interview in Dhaka, Bangladesh on June 17, 2015.

completely. It is worth noting that 500,000 to 600,000 people completely depend on Sundarban for their livelihood by extracting natural resources from the forest such as fishing, woodcutting and collecting thatching materials, honey, beeswax and shells (Rabbani et al., 2010). So, the likely disappearance of the forest in the face of a 60 centimeters of sea level rise would also destroy the employment opportunity of half a million of people who would have no other option but to move into other places for the sake of their sustenance.

Furthermore, one of the most severe consequences that is affecting the livelihood pattern in the coastal areas due to sea level rise is salinity intrusion. Salinity intrusion from the sea destroys productive capacity of agricultural land and fresh water fisheries and damages river-based irrigational systems. Saline intrusion also damages subterranean fresh-water aquifers whose consequences are equally destructive and this has already started to happen in several areas such as Bhola, Satkhira, Barishal, Faridpur and Noakhali. As a result, millions of uprooted villagers over the last few decades have streamed into urban centers, especially in Dhaka-the capital of the country.⁵ According to a study of Shamsuddohea et.al (2007) saline water from sea enters about 250 kilometers inside the sea during the time of dry season. National Adaptation Programme of Action (NAPA) (2005) shows that out of 2.85 million hectares of land in the coastal and offshore region of Bangladesh, approximately 1.2 million hectares of arable land have been affected by different labels of soil salinity. Sea level rise creates salinity impacts on three areas i.e. surface water, groundwater and soil which is contributing a decline in agricultural productivity by degrading soils and reducing the availability of fresh water (Patwary, 2009). Different studies show that the salinity in some coastal land has become so severe that those lands are no longer being used for agricultural purpose and the predicted scenario of climate change is likely to aggravate the situation further (Shamsuddohea et.al, 2007). However, the problem of salinity and its resultant consequences on the pattern of people's livelihood is also affecting the human settlement in the coastal areas. Some studies show that people are moving into new places for the search of employment opportunities as their livelihood options have been reduced in their place of origin due to salinity intrusion and its resultant consequences on the agricultural sector. A study by Comprehensive Disaster Programme (2014) shows that 14% households under study were displaced permanently and 82% of the households under study were displaced temporality due to salinity intrusion. However, the study shows that salinity intrusion was not

⁵ Key Informant's Interview in Dhaka, Bangladeshon July 14, 2015

the sole reason for such displacement. Rather, it combined with other factors such as river bank erosion, flood and cyclones which forced them to move into a new place for the sake of their survival (CDMP, 2014).

The abovementioned findings depict that sea level rise is no longer a matter of prediction rather it is a reality in Bangladesh and the global climate change scenario is likely to aggravate this situation further. The most worrying picture is the rate of such rise which is clearly much higher than the average global sea level rise. It is obvious from the findings of a 22 years record of sea level rise at different coastal points in Bangladesh which show that the recorded sea level rise in those areas is significantly higher than the average global sea level rise over 100 years. This gives us an indication about the danger that the country is facing right now which can become a nightmare if the predicted rise of sea level happens in future. The severity of the problem can reach beyond imagination as 28% population of the country live in the coastal areas. For this reason, different studies show that 15 to 20 million people are likely to displace in the coastal areas of Bangladesh by the end of the 21st century due to the predicted sea level rise as people living in the coastal areas will lose their living space in the face of predicted sea level rise. Such findings are clearly in consistent with the framework of Swain (1996) as he suggests that environmental changes, particularly, the rise of sea level will result into the loss of living space and sources of sustenance for millions of people in many low-lying countries which will inevitably cause large scale movement from the coastal areas. It is also evident that sea level rise is increasing salinity intrusion in different coastal areas of the country which is reducing agricultural productivity due to soil degradation and the lack of fresh water availability and thereby forcing people to migrate into new areas to sustain their life. However, the findings from available studies show that salinity intrusion alone does not create displacement. Rather, it combines with other natural hazards such as riverbank erosion, flood and tropical cyclones to influence people's decision to leave their traditional behind and settle into a new society.

4.3 Human Displacement and Conflict in Bangladesh

This section discusses about the second question of the study to understand how climate induced displacement can become a source of conflict in Bangladesh. Swain (1996) suggests that the movement of people from one place to another in the face of environmental changes can be a source of destabilization and conflict in the society. Such conflicts are likely to arise as migrants induce resource scarcity in the receiving society which leads to the development

of an attitude of antagonism and intolerance towards each other. Swain (1996) argues that this situation can be a breeding ground for conflict at different levels such as between states (state vs. state) and within state (state vs. group and group vs. group). Bangladesh, in recent times, have experienced an increasing movement of people from coastal and other environmentally vulnerable areas as life becomes insupportable in those areas. In this regard, the following discussion is an attempt to understand whether such movements of people which are growing in number are becoming a source of destabilization and conflict at different levels of state and society.

4.3.1 State versus State Conflict

Swain (1996) suggests that cross-border movement of people in the face of environmental changes can result into conflict between receiving and sending states. Swain (1996) argues that migrants can generate conflict inducing scenarios in the receiving state by increasing demand on its limited resources, competing with the local population over the control of resources, deteriorating law and order situation, serving in favour of any local or political elites etc. which can destabilize the receiving society and become a political concern for the host state. In such cases, the receiving state is likely to stop migration at its border and repatriate the migrants from its territory back to the country of origin which can potentially strain the relation with the host state.

India and Bangladesh have a number of unresolved issues such as enclaves, sharing of river waters, trade liberalization and illegal migration. Among these, the issue of illegal migration tops the list and has become a source of contention between these two neighbouring countries over the years (Bidwai, 2003). India's claim about the presence of 20 million illegal migrants from Bangladesh into its territory has been rejected by the successive governments of Bangladesh who termed such claim as baseless (Islam and Islam, 2011). However, the movement of people across the border had been evident since the partition of the Indian subcontinent in 1947 (Islam and Islam, 2011). But, since late 1970, the issue of environmental migration has started to come into fore. Bose (2013) claims that every year approximately one million people in Bangladesh are displaced due to flood and river bank erosion and some of the displaced people illegally cross the Indo-Bangladesh border which has created a scenario of illegal infiltration into India over the years. Sanjoy Hazarika, a renowned Indian scholar, argues that the cross border movements of people from India to

Bangladesh happen due to a desperate condition and it is a matter of survival for this migrant people (Hazarika, 2004).

Bose (2013) points out that the growing number of environmental migrants since late 1970 was mainly caused due to the construction of Farakka barrage by the Indian government. The Farraka barrage was built by the Indian government in 1975 near the border of Bangladesh despite the repeated objection from Bangladesh, a co-riparian state about its adverse effects on the lives and livelihoods of many Bangladeshi people. Since the construction of the Farakka Barrage, it has become a nightmare for the people of Bangladesh as it caused severe environmental destruction in the south-western part of Bangladesh and led to the displacement of a significant number of people from that area as it diminishes the fishing and navigation sector, adversely affected the agricultural output and caused a change to the fluvial geomorphology of the delta (Bose, 2013). A study on the Farakka withdrawal and Environmental destruction in Bangladesh by Swain (1996) shows that Farakka barrage has caused severe environmental destruction in the south-western part of Bangladesh and resulted into loss of sources of living for a significant number of people living in those areas. It is found that the barrage contributed to a decline in agricultural productivity, reduced the opportunity of fishing, caused severe river-bank erosion and increased the number of serious floods in the region. The sufferings of the people in the area have also aggravated as it also led to a reduction in navigational facilities and industrial output, accelerated the process of deforestation and created scarcity for drinking water. All these factors have contributed to displace a significant number of people from south-western Bangladesh, many of whom crossed the border and became illegal migrant in India since late 1970 (Swain, 1996).

However, the influx of environmental migrants from the late 1970 has become a source of government instability, civil disobedience and ethnic violence in India. The violence first erupted in the state of Assam in early 1980s between the migrants and the member of the All Assam Gana Sangram Parishad (AAGSP) and All Asam student's Union (AASU). It was fuelled in 1983 when the ruling Congress Party won the state legislature election allegedly taking the support of the migrants despite the resistance of the native Assamese organization who boycotted the election on the ground that voter lists included the names of the migrants and their allegations against the ruling party to use migrants as their vote bank. The situation ultimately led to a severe violence between the native Assamese and the Bangladeshi migrants which cost more than 3000 lives. In one of the brutal cases in 1983, the native

Assamese attacked a village called Nellie and killed 1700 migrants in just five hours (Hazarika, 1993). Similar violence also happened in 1994 when a native tribal group of Assam attacked a relief camp and killed 60 migrants on the 23rd of July 1994. The other cities like Bombay and New Delhi have also witnessed violence between migrants and local people. In Bombay, the growing number of the migrants and their high demand in the local labour market because of low wage served as a cause of anger to the native Hindu labour force. This situation eventually led to indiscriminate killings of the migrants by Hindu fanatics in the early 1993 (Swain, 1996). To uproot the migrant, the reactionary groups have even used a slogan saying “save the nation, save identity. Let’s take an oath, no food, no job and no shelter to Bangladesh”(Islam and Islam, 2011:36).

Due to this scenario of increasing violence in different parts of India between migrants and local people and threat from the Hindu fanatics against the government to take stern action against the Bangladeshi migrants, the Indian government decided to expel all Bangladeshi migrants from its territory in 1992 and at the early stage took action to forcibly deport fifteen thousands Bangladeshi migrants from the region of Delhi. However, this decision has caused a diplomatic row during that time as Bangladesh protested immediately over such unilateral action and refused to accept those people unless India provides adequate documents to prove the claim that the migrants are from Bangladesh. The then Prime Minister of Bangladesh claimed that those people are not the citizens of Bangladesh. The tension was defused after a talk at the level of foreign ministry in November 1992 (Swain, 1996). In 2003, the relation between these two countries strained again when India’s Border Security Forces (BSF) tried to push back more than 200 nomadic people into the border of Bangladesh and Bangladesh refused to accept those people (Pattanaik, 2014). On that issue, the Border Guard Bangladesh (BGB) (named as Bangladesh Rifles during that time) and the Border Security Forces of India (BSF) came to the point of violence (Bhattacharjee, 2014). As Bangladesh rejected the claim of the Indian government about the presence of illegal Bangladeshi migrants into India, the Indian Government has applied push back policy and started to fence the border, which has strained the relations between the two countries several times in the past (Pattanaik, 2014).

From the above discussion, it is evident that the cross border movement of people in the face of environmental destruction has become a subject of contention between India and Bangladesh. This situation justifies the position of Swain (1996) who argues that the cross

border movement of people can destabilise relation between sender and receiving state due to various socio political impacts in the host society. It is obvious in the case of Assam where the ruling Congress party in the early 1980 allegedly used the migrants as their vote bank to win the election which consequently created severe resentments among the native Assamese and led to a violent conflict with the migrants. Furthermore, in the case of Bombay, it is evident that the competition of the migrants with the local labour force led to a massacre of the migrants in the hands of the Hindu fanatics. As Swain (1996) argues that the destabilizing impacts of the migrants in the host society will force the host government to repatriate migrants into its country of origin which can disturb the bilateral relation with the sending state, it is evident that due to the increasing cases of violence between migrants and the local people in Assam, Bombay and other areas, Indian Government since the early 1990s, have adopted a policy to deport the migrants from its territory back to Bangladesh which led to diplomatic setbacks between this two neighbouring countries. It is obvious that Bangladesh has consistently refused to accept those migrants claiming that they are not citizens of Bangladesh and termed such claim of the Indian government as baseless. It is also evident that the policy of push back that Indian Government has started to apply in the border area has brought the border security forces of the two countries into a conflicting situation on a number of occasions. This scenario gives a worrying picture about the future. Because, in the case of 1 meter sea level rise in the coastal areas of Bangladesh, which is predicted to happen by the end of the twenty first century, will consequently displace 15 to 20 million people and submerge a significant part of the plain land of the country. Besides, the increasing trend of floods, erosion and cyclones are likely to aggravate the scenario further. In such case, the inevitable question is where these millions of people will go? It can not be denied that under such circumstances, the cross-border movement of people will become inevitable and unstoppable as well. Given the current complexity in the India-Bangladesh relations over the issue of migration, it can be said that such scenario will deteriorate the current complexity and result into increased tension between these two countries in future.

4.3.2 State versus Group Conflict

Swain (1996) suggests that the environmentally affected rural people are more likely to migrate into the urban areas for the sake of their sustenance. Swain (1996) suggests that this process of urbanization brings the environmentally affected people closer which help them to organize and demand adequate compensation from the government. But, the governments of developing countries which are going to suffer disproportionately in the face of

environmental changes do not have the required resources to meet with the demands of those people. In such situation, the environmental migrants can wage movement against state authority to realize their demand which can create a situation of conflict between state and environmental migrants. Swain (1996) refers such conflict as state versus group conflict.

In recent times, Bangladesh has experienced an increasing movement of people into urban areas. Every year approximately 500,000 people move into the city of Dhaka- the capital of Bangladesh (Friedman, 2009). Most of this people come from the coastal and rural areas which have already been facing the consequences of sea level rise, salinity intrusion, tropical cyclones and severe floods and they start to live in the slums. It is estimated that seventy percent slum dwellers of the Dhaka city are the victims of environmental shocks (McPherson, 2015). According to the Census of Slum Areas and Floating Population 2014, there are 13,938 slums and 22,27,754 slum dwellers in the urban areas covering city corporations, municipalities and Upazila headquarters across the country (Bangladesh Bureau of Statistics, 2015). However, the growing number of slums and slum dwellers in the urban areas has also become a source of destabilization for the government of Bangladesh. There were many incidences when the government took initiatives to evict slums from the urban areas, the slum dwellers became organized and violently clashed with the law enforcing agencies. For instance, on January 21, 2016 when the government authorities conducted an eviction drive in one of the capital's slum area-Kalyanpur, the slum people protested violently which injured four people including a member of law enforcing agencies (The Daily Star, January 22, 2016).

Political instability is a common phenomenon in Bangladesh. It is obvious that opposition political parties use the slum people to execute different political programmes like hartals, blockade, procession etc. They exploit the vulnerability of this people and use them to create political violence in the urban areas.⁶ In such context, though this vulnerable people do not fight for their own cause, but the anti-government forces exploit their vulnerability and use them to destabilize the government. Besides, during the time of election, candidates of political parties also use the slum and rootless people as their vote bank which create tension during the election.⁷ Moreover, terrorist and extremist groups can also be benefitted by this displaced people. The threat of terrorism is quite evident in Bangladesh. Poor and vulnerable

⁶ Key Informant's Interview in Dhaka, Bangladesh on July 29, 2015

⁷ Key Informant's Interview in Dhaka, Bangladesh on August 3, 2015

people can easily be mobilized and thereby can serve as a recruiting ground for the terrorist groups which will inevitably increase the risk of terrorism in the country.⁸ The slum people in the urban areas are also involved in different criminal activities. Many people living in the slums and the streets are adopting crime as their survival strategy as they do not have employment, shelter and even food which undermine the safety and security of the citizens of the state.⁹ Furthermore, frustration may erupt among the young displaced people due to the lack of opportunity which can motivate them to agitate against the state.¹⁰ There is a saying that poverty is the mother of revolution. Bangladesh, as a developing country does not have the required resources to deal with the situation of an increasing number of displaced people. In such situation, there is a potentiality that the displaced people who were economically vulnerable in their origin and marginalized further due to environmental consequences can wage movement against the state to ensure their wellbeing which can lead to state failure.¹¹

From the aforementioned discussion, it is obvious that environmental migrants are moving into urban areas in big numbers for the sake of their survival. This process of urbanization has also become a breeding ground for instability and conflict in the urban areas. It is evident that most of the displaced people live in the slums- most of which are illegally built on public properties. It is obvious that they engage into violent clash with the state forces when the government wants to evict such slums which are inhabited by thousands of people. This scenario obviously justifies the argument of the Swain (1996) that environmental migrants are likely to bring conflict from rural areas to the door step of the state administration. However, a different conflict scenario is also evident in this context which is not given in the framework of Swain (1996). It is obvious that the environmentally displaced people are not organized themselves to fight for their own cause. Rather, other actors such as opposition political parties, terrorist groups are exploiting their vulnerabilities and using them for their purpose. In this way, the displaced people are complicating the existing political and social difficulties of the state which increases challenges to the stability of the government. They have also become a concern for public safety and security due to their involvement in the criminal activities which consequently diminish people's trust and confidence on the capacity of the government and thereby reduce its legitimacy to the public. Furthermore, it is obvious that the situation can get more complicated in future as an increasing number of people are

⁸ Key Informant's Interview in Dhaka, Bangladesh on August 3, 2015

⁹ Key Informant's Interview in Dhaka, Bangladesh on July 29, 2015

¹⁰ Key Informant's Interview in Dhaka, Bangladesh on August 3, 2015

¹¹ Key Informant's Interview in Dhaka, Bangladesh on August 3, 2015

displacing from environmentally vulnerable coastal and rural areas and moving into urban places. In such context, the inability of the government to cope with the situation due to its limited resources can potentially pave the ground for state collapse.

4.3.3 Group versus Group Conflict

Swain (1996) suggests that environmental migrants create different types of scarcity in the receiving society due to increasing demand on the limited resources, employment opportunities, food and other basic necessities of life which can hurt the local people. Swain (1996) argues that such situation can contribute to develop a sense of nativism among the local people which help them to organize as a group to protect their interest. The local people are likely to see the migrants as outsiders and exert pressure on them to return to their place of origin which can lead to a situation of native-migrant conflict in the society. Swain (1996) terms such conflict as group versus group conflict.

The situation in the Chittagong Hill Tracts (CHT) of Bangladesh is a glaring example of how migration can lead to conflict within a society between the local people and the migrants. The Chittagong Hill Tracts situates in the south-eastern part of Bangladesh and is quite familiar as a land of indigenous people, resided by thirteen indigenous ethnic groups (Panday and Jamil, 2009). This region used to enjoy a special status during the time of British Colonial rule and the non-indigenous people were prohibited to settle in the region under the CHT Regulation Act 1900 (Gain, 2007). After the end of the colonial rule in 1947, the special status was abolished and the area was opened for settlement for the non-indigenous people. As a result, large scale migration of non-indigenous people happened in the region who began to occupy land and resources of the indigenous people. After the independence of Bangladesh in 1971, a massive resettlement programme was undertaken during 1979-83 under the direct sponsorship of the government and approximately 500000 non-indigenous people were resettled in the region (Panday and Jamil, 2009), the majority of which were environmentally displaced people from different coastal areas, victims of different natural calamities such as flood, riverbank erosion and tropical cyclones (Suhrke, 1993). The influx of such massive movement of people changed the demographic ratio of the region and pose enormous challenge to the identity, culture and economic security of the indigenous people (Panday and Jamil, 2009). The indigenous people responded with an armed movement which came into halt in 1997 through a peace treaty (Zahed, 2013). But, the violent clashes between the

settlers and the indigenous people over the use of land have become a common phenomena in the region (Amnesty International, 2013).

However, except the situation of the CHT, there is hardly any evident case of group vs. group conflict between the displaced people and local people in the receiving society. But, experts warn that in a country with limited resources, the potentiality of social division along resource distribution is very high in societies which are the recipients of the growing number of displaced people. Because, when people move into a new society, they create scarcity on the available resources which can lead to a problem of resource distribution. This situation is likely to develop an attitude of we people vs. they people between the natives and the migrants which will deepen the social division.¹² It is also argued that though Bangladesh is largely a homogenous country, still there exists a strong possibility of an emergence of the identity based conflict in the receiving society of the displaced people. Because, when people move into a new society, they are not only physically move, but they also bring their own culture, religion, language with them. So, when they settle in a new society, they can also become a source of cultural threat as the culture of displaced people may contradict with the culture of the receiving society.¹³

From the abovestated discussion, it is obvious that the growing number of displaced people can lead to social division and conflict in the receiving society. In the case of CHT, it is evident that the resettlement of the displaced and rootless people into the region has created division along ethnic lines. This has resulted into a persistence conflict between the settlers and indigenous people in the region. This instance supports the position of the Swain (1996) that environmental migrants lead to native- migrant conflict in the receiving society due to increased competition over the control of the limited resources. In the case of CHT, it is evident that the settlers occupied and used the land of the indigenous people which severely challenged the life and livelihoods of the indigenous people. However, it is evident that the government has played a significant role in the conflict between the settlers and the indigenous people. Because, government carried out the resettlement programme and brought the displaced and rootless people who became homeless due to flood, riverbank erosion and other natural calamities from different parts of the country into the CHT region. Though, the instance of such conflict is not evident in urban areas as well as other parts where the

¹² Key Informant's Interview in Dhaka, Bangladesh on August 3, 2015

¹³ Key Informant's Interview in Dhaka, Bangladesh on August 3, 2015

displaced people are moving but the potentiality of destabilization is quite high. It is predicted that the growing number of displaced people can create problem in resource distribution as well as become a source of cultural threat to the host society which can lead to social division and destabilization in different parts of the country.

Chapter Five

Conclusion

The study is conducted to investigate two key questions - how does climate change contribute to displace people in Bangladesh? and, how does climate induced displacement can be a potential source of conflict in the country? To address this two questions, the conceptual framework of Swain (1996) is followed and data have been collected from four different sources such as documents, discourse analysis, key informants interview and non-participant observation.

The findings of the study suggest that climate change has become a reality to Bangladesh as the country has already been subject to increasing surface temperature. Summer has become hotter due to the increase in the level of both maximum and minimum temperature. Similarly, winter has become warmer and shorter with simultaneous rise in the level of minimum temperature. Besides, an increase in the pattern of average rainfall is also evident throughout the year. Such changes in the state of climate are affecting many aspects of lives and livelihoods of the millions of people in Bangladesh.

It is evident from the study that climate change is contributing to increase the frequency and intensity of natural calamities in the country. The study has identified and discussed four types of natural calamities such as floods, riverbank erosion, tropical cyclones and sea level rise- the frequency and intensity of which have increased significantly due to a scenario of climate change. It is evident that flood has become more frequent and severe due to a combination of increased rainfall, sea level rise and a rise in temperature. The study shows that the country has experienced most of the devastating floods after 1980 and the frequency of small scale floods have also increased since 1975. The findings show that the increased rainfall is also aggravating the scenario of riverbank erosion on the banks of all major rivers in Bangladesh as it increases the flow of water in the river system. The severity of the erosion is obvious from the erosion rate of three largest river of the country- the Padma, the Jamuna and the Ganga which combinedly have eroded 1,590 km floodplains of the country since 1973. In the case of tropical cyclones, it is evident that Bangladesh is affected by tropical cyclone almost every year of which a severe cyclone strikes in every three years. The country is also rated as the most vulnerable country in the world in the face of tropical cyclones by a

study of United Nations Development Programme (2004). It is evident that the greater intensity of cyclones since mid 1970s has largely been caused due to the increases of sea surface temperature. The increased temperature is also causing sea level rise which is posing even more danger to the lives and livelihoods of the millions of people in Bangladesh as 28 percent population of the country presently live in the coastal areas. It is evident from a record of 22 years (1977-1998) in three coastal areas of the country that the rate of sea level rise in those areas during that time frame is many times higher than the mean rate of global sea level rise over 100 years.

The findings of the study suggest that various natural calamities such as flood, riverbank erosion, tropical cyclones and sea level rise which are increasing in terms of frequency and intensity due to climate change are displacing people from their roots in the rural and coastal areas of Bangladesh. It is obvious that such calamities lead to a situation of homelessness, landlessness and destruction of livelihood opportunities which result into the loss of assets, savings and income of the affected people. In such situation, people are forced to leave their traditional habitat behind and move into new places for the sake of their sustenance. The study shows that displacements are both temporary and permanent. In the case of flood and tropical cyclones, the victims are more likely to return to their place of origin when the calamity ends. Permanent displacement takes place when the victims hope for survival completely fades away in their origin and become subject to recurrent disasters. In the case of riverbank erosion, the situation of multiple displacements is also obvious. It happens because in the case of riverbank erosion majority of the displacement happen at the local level and people continue to live close to the river despite the risk of further displacement. It is also evident from the study that people who are employed in fishing, agricultural sector and local labour market are the worst victims in the face of such calamities and constitute the highest percentage of displaced people. The findings show that the mobility of the displaced people takes into three directions i.e. nearby villages, urban areas and outside of the country. Furthermore, it is evident from the findings that in addition to environmental factors relief and rehabilitation programme as well as the issue of transparency and complexity of the local government can also influence individual decision to migrate. When victims get enough assistance in the post disaster situation to cope with the losses and damages they are less likely to leave their places of origin. Besides, the problem with land redistribution due to excessive corruption of the local level government and complexity in the legal system also

has an influence behind individual decision to leave their locality from the erosion affected areas.

It is evident that increasing displacement of people is complicating many political, economic and social difficulties of the country and thereby becoming a source of destabilization and conflict. The study shows that the movement of the displaced people within and across borders is creating ground for tension and conflict at different levels of state and society. The study examines three types of conflict i.e. state vs. state conflict, state vs. group conflict and group vs. group conflict based on the framework of Swain (1996) which may erupt out of this scenario. The findings show that the issue of illegal migration across border has already become a source of diplomatic row between Bangladesh and India. Given the current scenario, it is very likely that such movement may increase in future as growing number of people continue to displace in the face of various natural hazards which can complicate the bilateral relation with India further. It is also obvious that the displaced people have also become a source of threat to the stability of the government in Bangladesh. However, it is evident that the displaced people are not organized themselves. So, they don't challenge the government as a particular group. But, other organized actors of the state such as opposition political parties, terrorist groups etc. are exploiting the vulnerability of this displaced people and using them to carry out different types of violent activities within the state to destabilize the government. Hence, though it can not be directly justify as a state versus group conflict but they are being used by other groups which is complicating the existing political difficulties of the country. Furthermore, the resettlement of the displaced and rootless people in the region of CHT has created social division along ethnic lines between indigenous people and the settlers which is a clear instance of group versus group conflict. Though, such conflict is non-existent in other parts of the country but in a country with limited resources like Bangladesh the potentiality of social division along resource distribution is quite high in societies which are the recipients of the growing number of displaced people.

The framework of Swain (1996) which is applied to conduct the study is largely justified by the study findings. As Swain (1996) claims that environmental destruction cause population migration due to the loss of place and source of living in their origin, the findings of the study also show that different types of natural calamities which have increased in term of frequency and intensity over the years lead to homelessness, landlessness and destruction of livelihood opportunities and thereby uprooted affected people from their origin. However, the findings

also depict some new aspects in the process which is not mentioned by Swain (1996). For instance, it is evident that relief and rehabilitation programme can influence individual decision to leave their place of origin as victims are more likely to stay in their places when they get timely and adequate assistance in the post disaster period to cope with the losses. It is also obvious that corruption of the local government obstructs the transparency in the rehabilitation programme which also has an impact on victims' choice to move into a new place for their sustenance. Furthermore, as Swain (1996) points out such migration can result into three types of conflict i.e. state vs. state conflict, state vs. group conflict and group vs. group conflict, the findings also indicate that there are evidences of such conflict in Bangladesh and the situation is likely to aggravate in future if displacement continues to happen. There are evidences of bilateral tension between Bangladesh and its neighbouring country India over the issue of illegal cross-border movement of people, the ethnic clashes between indigenous people and the settlers in the region of Chittagong Hill Tracts (CHT) have become a source of severe social division in the region and the displaced and vulnerable people are also used by different actors such as opposition political parties and terrorist groups which have become a source of destabilization for the government. However, the findings in relation to conflict also show some new aspects which is not discussed by Swain (1996). This is particularly in relation to state vs group conflict. In Bangladesh, it is evident that the displaced people as a group do not challenge the establishment of the state. Rather, they are used by other organized groups like political opposition and terrorist groups and thereby complicate the existing political and social difficulties of the country.

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