



Western Sydney University

School of Social Sciences

**Climate Migrants in Bangladesh: Insights into Women's
Vulnerabilities and Survival Strategies**

by

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**This thesis is presented as part of the requirements for the
Award of the Degree of**

DOCTOR OF PHILOSOPHY

March 2020

ACKNOWLEDGEMENTS

It is my great pleasure to express my heartfelt gratitude and profound appreciation to my advisors, Dr. Debra Keenahan and Professor Rosemary Leonard, for the invaluable guidance, advice and attention they have given me throughout the progress of my thesis. Their enormous interest in the topic, extraordinary supervisory skills and academic and intellectual insights were exceptional. Their pleasant personalities, positive encouragement, and the time they took and the patience they showed to read and correct the chapters, despite their heavy workload, gave me moral strength and helped me to stay motivated throughout this study. I am indebted to them for all the support they have given me throughout this tough journey, without which my thesis could not have been completed on time.

My gratitude also goes to Associate Professor Nichole Georgeou and Associate Professor Daud Hassan for their excellent capacity-building support and guidance. I have learned much from their insights and wisdom. My appreciation goes to the members of the Humanitarian and Development Research Initiative (HADRI), Western Sydney University. My cordial thanks go to the office staff of the School of Social Sciences and Graduate Research School, Western Sydney University for their continuous support. My heartfelt gratitude and thanks go to all the participants of this study who patiently and generously donated their time; without them this research would not have been possible. Of course, special thanks go to the NGOs and my former colleagues in Bangladesh for supporting me during my fieldwork. I would like to thank all my teachers and friends for their unconditional support and encouragement.

I would like to thank my beautiful brother Dr. Amlan Jahid Haque and his family. My thanks also go to my lovely sister Ananna Jahid. My brother and sister have played a key role in making my dreams come true. Without their enormous inspiration and support this journey would have been incomplete. I would like to thank my relatives and in-laws specially parents-in-law who wished me good luck for my PhD programme. I must acknowledge the care and good wishes of my late uncle Dr. Abdur Razzaque, Lecturer, School of Law, Western Sydney University, Australia who passed away only three months before I finished my thesis. I believe he would have been one of the happiest people to see this thesis.

This research has unavoidably required personal sacrifices to be borne by my family members in general, and by my husband and daughters in particular. I am thankful to my beloved husband Mohammad Azizul Haque for his great sacrifice and patience, continuous guidance and encouragement throughout my study period. I am highly indebted to my lovely daughters Amirah Haque and Aunantika Jahid Haque, who have grown simultaneously with my PhD, for their great sacrifice, understanding and endless patience.

Last but not least, I would like to dedicate my thesis to my parents, Shahara Haque and the late Associate Professor A. M. M. Jahidul Haque, Department of Political Science, Rajshahi University, Bangladesh. Their love and blessings were always my key strength throughout my journey. Finally, I am thankful to almighty Allah for giving me the strength to complete this journey.

CONFERENCE PROCEEDINGS FROM THIS RESEARCH

Jahid, A., Keenahan, D. & Leonard, R. (2018), 'Role of Non-Government Organizations in The Context of Climate Migrant Women in Bangladesh', 14th Biennial Australian and New Zealand Third Sector Research Conference, Australia.

Jahid, A., Keenahan, D. & Leonard, R. (2016), 'Climate-Migrants in Bangladesh: Insights into The Vulnerabilities of the Survival Women', Social Science and Psychology Higher Degree Research Centre, Western Sydney University, Australia.

STATEMENT OF AUTHENTICATION

The work presented in this thesis is, to the best of my knowledge and belief, original except as acknowledged in the text. I hereby declare that I have not submitted this material, either in full or in part, for a degree at this or any other institution.



(Anita Jahid)
March 2020

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ABSTRACT

Bangladesh is considered one of the most vulnerable countries in the world due to its unique geographical location, and is set to become even more vulnerable in the face of the inevitable effect of climate change. Bangladesh faces many natural disasters, including tidal surges, cyclones, monsoons, river erosion and floods. Among these, riverbank erosion is considered one of the most devastating. Due to regular and intense river erosion, many families in Bangladesh experience loss of life, home, lands and livelihoods. The repeated losses of lands and livelihoods prompt internal and external emigration. In each affected community, women are more vulnerable than men because of persistent social, economic and political gender disparities. This research aims to examine the vulnerabilities and survival strategies of climate-migrant women in Bangladesh and to look for pragmatic and realistic solutions to reduce their vulnerabilities. To accomplish this, it answers five research questions. First, what are the living conditions faced by climate-migrant women? Second, what survival strategies are climate-migrant women following to address these living conditions? Third, how appropriate is Nussbaum's capabilities approach for understanding the lives of climate-displaced women in Bangladesh? Fourth, how are the capabilities and social capital of climate-migrant women in Bangladesh related to each other? And, lastly, what are the policy recommendations to improve climate-migrant women's living condition?

This research followed a qualitative approach and focused on feminist perspectives to mark its research boundary. To explore the answers to the research questions, this thesis applied a theoretical framework that incorporated Nussbaum's capabilities approach and social-capital theory. Twenty climate-migrant women and ten key informants affiliated with government agencies and non-governmental organisations in Bangladesh were interviewed. To examine the lives of climate-migrant women, this study has been conducted in two areas: climate-migrant women's lives in their place of origin and at their destination. Therefore, the field study was conducted in two districts (national administrative unit) prone to river erosion as a place of origin – Bogra and Sirajganj – and Bangladesh's capital city, Dhaka, as destination for the women's internal migration. Data have been collected through observational field visits and life-story interviews with the climate-migrant women. Open-ended interviews were conducted with the key informants. This research has used Nussbaum's capabilities lists and social capital, and examined the relationships between them, in the context of climate-migrant women in Bangladesh to identify the women's vulnerabilities and survival strategies. For the

data analysis, this research employed content analysis based on Nussbaum's 10 lists and thematic data-analysis technique to analyse the life stories from interviews, the researcher's field observations and key informants' open-ended interviews. This study also includes the perspective of insider researcher, as the researcher was born and brought up in Bangladesh. Moreover, due to the researcher's prior experiences of working with destitute women around the world, including Bangladesh, she has developed a deeper understanding and empathy for them. Based on the evidence collected from field visits in the research areas, this thesis has identified three themes (before, during and after disasters) to provide a broad interpretation of the participants' narratives, ideas, actions and strategies.

The research findings explore both the antecedents and consequences for the situation of climate-migrant women in Bangladesh. First, the study results show that the cultural and religious constraints that these women experienced kept them from achieving resilience after river-erosion events. Second, the study indicates how the constraints on their resilience became more intense after each event and made them increasingly vulnerable to natural disasters. Further analysis has found that the women's significant reliance on their bonding networks upheld their capabilities and survival strengths. Thus, the loss of bonding networks due to emigration caused severe disempowerment in their lives. Third, this study explores the suitability of Nussbaum's capability lists as a useful framework to examine the current living conditions of climate-migrant women's lives in Bangladesh. Fourth, this thesis also finds that social capital is interwoven with the capabilities of climate-migrant women in Bangladesh. Accordingly, this study examines social affiliation as one of 10 capabilities as described by Nussbaum, and finds that the social-affiliation capability indicates the bonding networks of the climate-migrant women that constitute their social capital. According to this study, climate-migrant women's lives depend significantly on their social capital, which is severely affected by recurring natural disasters. Moreover, this social capital allows the functioning of Nussbaum's other nine capabilities to achieve their wellbeing. In addition, this research reveals that the list of capabilities proposed by Nussbaum does not comprehensively address the context of climate-migrant women in Bangladesh. Accordingly, this research claims that specific information about climate-migrant women's vulnerabilities and survival strategies in Bangladesh is inadequate for meeting their resilience needs; therefore, there are no well-targeted strategies to support them. Based on the overall findings, this thesis includes recommendations to reduce their vulnerabilities. Finally, the findings of this research suggest that to uphold the capabilities of the climate-migrant women in Bangladesh, there is a need

for a women-friendly policy that is inclusive and need-based – one that goes beyond the existing support and socio-economic conditions to provide practical help and sustainable support for a better quality of life.

Keywords: Climate-migrant women, vulnerabilities, survival strategies, capabilities, social capital, bonding networks, Bangladesh

CHAPTER ONE

INTRODUCTION AND OVERVIEW

1.1 INTRODUCTION

This thesis aims to explore the socio-cultural issues linked to climate-migrant women in Bangladesh and analyse their survival strategies and support mechanisms within the frame of Nussbaum's capabilities approach (Nussbaum 2011) and social capital (Bourdieu 1986; Coleman 1990; Putnam 1995). Climate-migrant women are those who have lost land due to river erosion or repetitive floods, as a result of which they have moved from their home or are considering moving (Ahmed & Neelormi 2007; Kniveton et al. 2008; Islam & Shamsuddoha 2017). Accordingly, the purpose of this study is to gather information to provide new insights and knowledge about the growing number of climate-migrant women in Bangladesh and contribute to disaster literature. This research uses a qualitative method and thematic analysis to address the research questions.

This introductory chapter frames the overall study problem by providing a background to the issues related to climate-migrant women in Bangladesh. Following the statement of the problem, Nussbaum's Capabilities Approach (Nussbaum 2011), social capital (Bourdieu 1986; Coleman 1990; Putnam 1995) and climate-change disaster studies in the global and Bangladeshi contexts are introduced to identify gaps in the current literature and, accordingly, determine the research objective and questions.

This chapter has eight sections. Section 1.1 is an overview of the overall impact of climate change in Bangladesh and the vulnerabilities of climate-migrant women. Section 1.2 describes the migration phenomenon due to climate change in Bangladesh. Section 1.3 clarifies the statement of the problem for this study. Section 1.4 discusses the relevance of the capabilities approach and Section 1.5 relevance of social capital in the context of climate-migrant women in Bangladesh. Sections 1.6 and 1.7 include the research objectives and questions and the significance of this study. Section 1.8 provides an overview of this thesis.

1.1.1 Climate Change in Bangladesh

Issues leading to global warming and climate change have arguably become a global priority. Climate change alludes to the build-up of greenhouse gases in the atmosphere that causes rising temperatures, melting ice caps and a rising sea level (Hulme 2009, 2015; Nishat et al. 2013; Delaporte & Maurel 2018; Bernzen, Jenkins & Braun 2019). Whether the build-up of greenhouse gases is irreversible or whether the earth is experiencing a period of unusual, but not abnormal, global warming and consequent climate variability is disputed (Hoffman 2015; Carrico & Donato 2019; Iqbal 2019). The United Nation's Intergovernmental Panel on Climate Change (2007) warns that the build-up of greenhouse gases has been significant in the last four decades and climate change around the world appears to be accelerating. However, there is no doubt that climate change is a highly contested notion that has tended to polarise opinions around the scientific veracity of the evidence and to cause significant problems regarding food, water, human movement, welfare and security across the world, and hence has significant social consequences (Alston 2013; Islam et al. 2017; Masud et al. 2017; Subhani & Ahmad 2019; Alam et al. 2020). While the focus of world attention is mostly on the economic and environmental consequences of major climate events, there is also increasing concern about the social impacts of potential climate change.

Bartlett et al. (2010) has suggested that the impacts of climate change are not spread equally in terms of location, economic status, gender or age. Due to its geographical situation, Bangladesh has been called a country of disasters, and is considered to be one of the countries most vulnerable to climate change (Alam, Alam & Mushtaq 2017; Islam 2017; Siddique 2017; Bernzen, Jenkins & Braun 2019; Evertsen & Geest 2020) in fact, Kreft, Eckstein and Melchior (2017) have ranked it as the sixth-most affected by human climate change. Other scholars such as Rawlani and Sovacool (2011) and Momtaz and Asaduzzaman (2019) note that Bangladesh contributes little to global greenhouse gas emissions, but it is one of the most vulnerable countries to tropical cyclones and the sixth-most vulnerable to floods.

Bangladesh experiences extreme climate events frequently, such as flood, drought, cyclonic storm surges, riverbank erosion, salinity intrusion and waterlogging (Jordan 2015; Alam 2017; Tanny & Rahman 2017; Kabir & Arafat 2018; Sultana, Thompson & Wesselink 2020). These natural disasters cause significant loss of life and damage to infrastructure and economic assets, severely affect food, water, health and energy security, and have an impact

on the lives and livelihoods of many people (Food and Agriculture Organization 2011; Alam, Alam & Mushtaq 2017; Ingham, Islam & Hicks 2018; Bernzen, Jenkins & Braun 2019; Alam et al. 2020). These increasing natural hazards, which are caused or exacerbated by climate change, affect many Bangladeshi socio-economic sectors and create physical, socio-economic and ecological vulnerabilities (Ahsan 2014; Alam, Alam & Mushtaq 2017, Momtaz & Asaduzzaman 2019; Evertsen & Geest 2020).

Natural disasters such as riverbank erosion in Bangladesh are considered one of the most destructive hazards in terms of socio-economic losses (Alam 2017; Bhuiyan, Islam & Azam 2017; Khan, Nabia & Rahman 2018; Alam et al. 2020). River erosion due to climate change is known as a slow, silent, and devastating disaster (Mollah & Ferdaush 2015; Rahman, Islam & Rahman, 2015; Alam, Alam & Mushtaq 2017; Sultana, Thompson & Wesselink 2020). Around 283 locations, including 85 towns and growth centers, along Bangladesh's riverbanks have been identified as significantly vulnerable to river erosion (Shetu et al. 2016; Bhuiyan, Islam & Azam 2017; Khan, Nabia & Rahman 2018; Sultana, Thompson & Wesselink 2020). Approximately 8,700 hectares of homestead and farming land are lost due to riverbank erosion every year and, about 15–20 million people are at risk from the effects of river-erosion consequences (Centre for Environmental Geographic Information Systems 2012; Rahman, Islam & Rahman 2015; Sultana, Thompson & Wesselink 2020). As a result, a large number of people become homeless due to riverbank erosion and migrate to their nearest cities (Das 2011; Bhuiyan, Islam & Azam 2017; Ingham, Islam & Hicks 2018; Iqbal 2019; Evertsen & Geest 2020).

The Government of Bangladesh is implementing the 2016-2020 Five Year Plan (FYP) to address these vulnerabilities and build capacity to recover from disasters and promote resilience in Bangladesh (Nasreen 2012; Ahmed et al. 2015; Islam & Shamsuddoha 2018). Significant cities like Dhaka, the capital of Bangladesh, has become the most common destination for many families affected by environmental disasters, particularly river erosion (Rayhan & Grote 2007; Kabir & Arafat 2018; Sultana, Thompson & Wesselink 2020), as they seek a better life (Mollah & Ferdaush 2015; Stojanov et al. 2016; Khan, Nabia & Rahman 2018).

The following paragraphs describe the geographical positioning, physicality, climate, and socio-economic profile of Bangladesh, and the impact of climate change on its weather and people.

According to the Bangladesh Bureau of Statistics (2015), Bangladesh is a small country in the northeastern part of South-Asia, located at the top of the Bay of Bengal, between 20–26° North and 88–92° East. The country is bordered by India to the west, north and northeast, Myanmar to the southeast, and the Bay of Bengal to the south (Appendix E). Its area is 147,570 km².

Except for the hilly regions in the northeast and southeast and some areas of high land in the north, Bangladesh consists of fertile plains. There is a network of rivers, of which the Padma, the Jamuna, the Teesta, the Brahmaputra, the Surma, the Meghna, and the Karnaphuli are important. They have 230 tributaries with a total length of about 24,140 kilometres (BBS 2015). Massive amounts of river silt deposited during the rainy season continuously enrich the alluvial soil.

Bangladesh has a subtropical monsoon climate with six seasons (summer, rainy, autumn, late autumn, winter and spring). Winter begins in November and ends in February, with temperatures ranging from a minimum of 7°–13° C to a maximum of 24°–31° C (BBS 2015). Summer temperatures of 37° C are not uncommon, and have in some places reached 41° C or more. The monsoon season, which accounts for 80% of total annual rainfall (varying from 1,429 mm to 4,338 mm), begins in July and ends in October. The maximum rainfall is recorded in the coastal areas of Chittagong and the northern part of Sylhet district, while the minimum is recorded in the western and northern parts of the country.

There is a consensus based on climate-model outputs that Bangladesh will experience increases in temperature in the coming decades (Kreft, Eckstein & Melchior 2017; Bernzen, Jenkins & Braun 2019; Carrico & Donato 2019). Most of the climate models also predict that precipitation will increase. However, seasonal differences are expected (Agrawala et al. 2003) that can have severe consequences for a country where around 60% of its citizens directly and indirectly depend on agricultural employment and production. The German Advisory Council on Global Change (2007), among others, believes that glacial retreats, annual monsoon variations, sea-level rise, and cyclones could be sources of social crises and instability in

India, Pakistan and Bangladesh. The vulnerability of Bangladesh to sea-level rise, whether directly or through storms and cyclones, has also been acknowledged by many authors (Dasgupta et al. 2009; 2011; Alam 2017; Carrico & Donato 2019; Iqbal 2019).

Furthermore, it should be noted that Bangladesh has high population density (greater than 1,000 people/km²) and the eighth-highest population in the world, as well as a high poverty rate, with a yearly per capita income ranging between \$400 and \$1,700 (Rawlani & Sovacool 2011; Akter & Mallick 2013; Alam, Alam & Mushtaq 2017; Islam & Shamsuddoha 2017). The sectors of agriculture, forest and fisheries approximately employ 63% of its population (Misra 2016; Chowdhury & Moore 2017; Islam & Nursey-Bray 2017). Over the last 20 years, Bangladesh has experienced significant socio-economic improvements (Nazneen, Hossain & Sultan 2011; Islam and Shamsuddoha 2018). However, it is still categorised among the United Nation designated Least Developed Countries (LDCs), ranked 146 on the Human Development Index (United Nations Development Programme 2011), with around 40% of the population reported to be living in poverty, and almost half of the residents having no education (Akter & Mallick 2013; Tanjeela 2015; Tanny & Rahman 2017; Ferdous & Mallick 2019).

1.1.2 Vulnerabilities to Bangladesh's Climate

Bangladesh has been considered as the most vulnerable country to climate change due to global warming, and people's survival is under serious threat (Rawlani & Sovacool 2011; Islam & Nursey-Bray 2017; Ingham, Islam & Hicks 2018; Khan, Nabia & Rahman 2018). Bangladesh's population is tremendously vulnerable to the detrimental effects of climate change, as most primary livelihood opportunities depend on environmental conditions and access to natural resources. Crop agriculture is particularly sensitive to changes in climate. Figure 1.1 shows the vulnerability of different areas of Bangladesh to climate-related hazards.

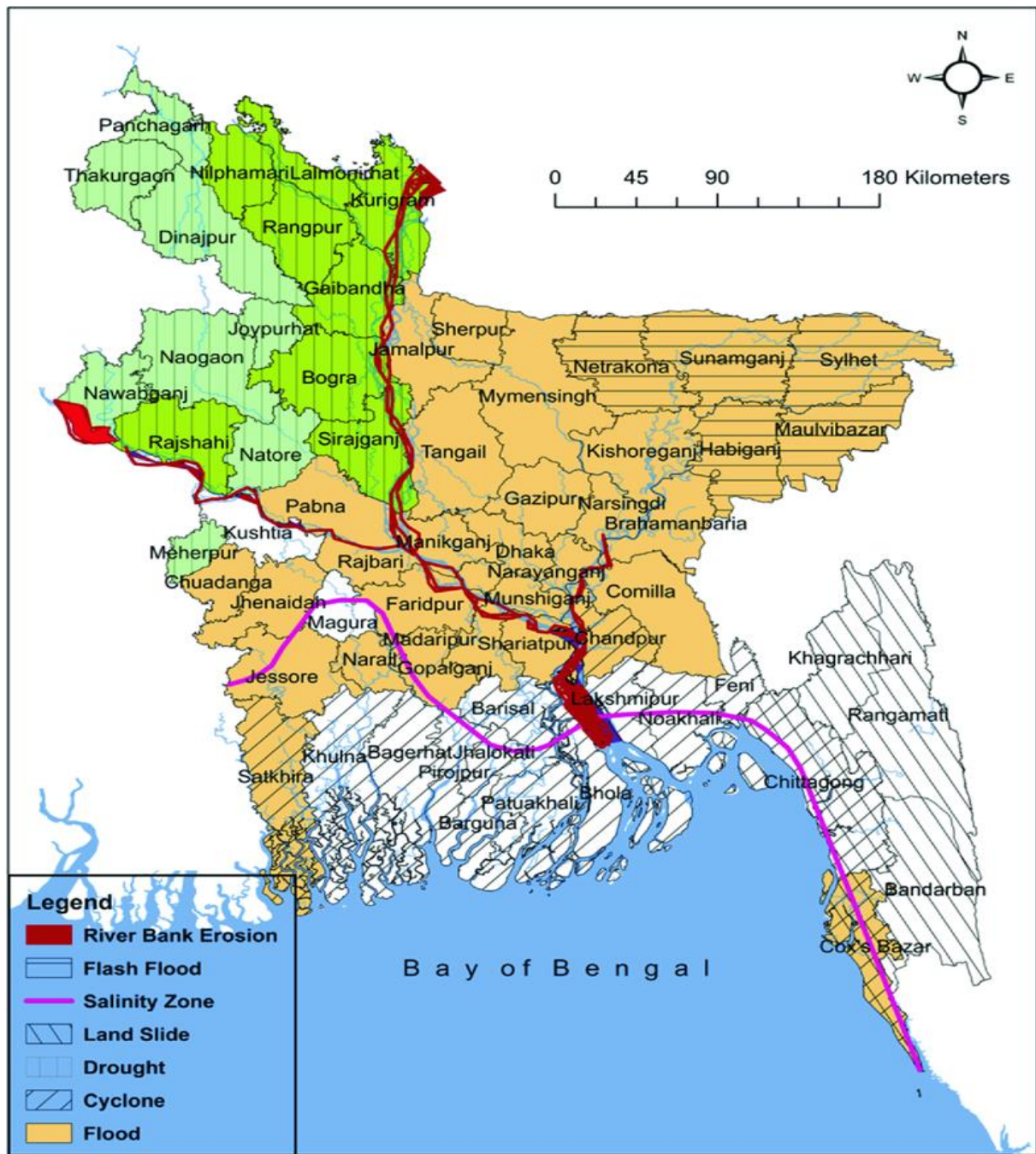


Figure 1.1: Vulnerability to different natural hazards in Bangladesh

Source: Multi-hazard map of Bangladesh, Haque et al. (2019, p. 454)

It should be mentioned that Bangladesh, with one of the most significant deltas of the world, has had disastrous floods in 1987, 1988, 1998, 2004 and 2007, and cyclones in 1970, 1985, 1991 and 1997 (Government of Bangladesh 2008b; Khan 2008; Nishat et al. 2013; Haque et al. 2019). The scale and frequency of these extreme climate events have been steadily increasing, making survival difficult and expensive (Alston & Akhter 2016; Alam 2017; Bower 2018). Both international and national experts agree that the country will continue to

be affected by more-intense cyclones, increased salinisation and eventual inundation of the extensive low-lying coast due to sea-level rise and even increased droughts in some parts of the country, all of which affect food production and the availability of potable water. Studies have stated that floods inundate nearly 25% of the country every year and that a severe flood occurs every four or five years, submerging over 60% of the country (Nishat et al. 2013; Islam 2017; Haque et al. 2019). Several scholars have suggested that over the years the death toll from extreme events including cyclones and flooding has decreased, and that this can be attributed to better macroeconomic performance, increased resilience of the poor, the implementation of protective infrastructure and generally better disaster management (Nishat et al. 2013; Carrico & Donato 2019; Haque et al. 2019).

Table 1.1: Major floods in Bangladesh and their impact

	Area inundated (square kilometers)	Proportion of total area (%)	Cost of damage (million Taka)	Population affected (million persons)	Deaths (number of persons)
1974	52,720	35	28,490	30	1,987
1984	28,314	19	4,500	20	553
1987	57,491	38	35,000	30	1,657
1988	89,970	62	> 100,000	47	2,379
1998	> 100,000	74	> 120,000	55	1,050
2004	> 58,000	40	> 200,000	36	750
2007	32,000	21	> 75,000	14	649

Source: Walter (2015, p. 52).

Table 1.1 shows the consolidated damage and related loss assessment from 1974 to 2007 in Bangladesh.

1.2 THE MIGRATION PHENOMENON IN BANGLADESH

The effects of climate change increase the impetus towards migration, forcing people to go in search of safer environments that can offer them decent livelihoods and household security (Black et al. 2008; Stojanov et al. 2016; Ingham, Islam & Hicks 2018; Iqbal 2019). Hence, migration is one possible form of adaptation within a broader set of potential adaptive responses that individuals and households make when sensitive systems are exposed to stress

or changing environmental conditions (Adamo & Izazola 2010; Abdullah 2016; Evertsen & Geest 2020). Climatic disasters are a significant cause of rural-urban migration in Bangladesh (Kartiki 2011; Mallick & Vogt 2012, 2014; Ishtiaque & Ullah 2013; Islam & Shamsuddoha 2017; Iqbal 2019).

1.2.1 Migration

The concept of migration has evolved across different academic disciplines, such as economics, anthropology, sociology, geography and law. Migration patterns are further influenced by factors such as distance and population densities (Skeldon 1997; Bates 2002; Ahmed & Neelormi 2007; Betts 2011). Neo-classical migration theories see rural-urban migration as an integral part of the development process as a whole, by which surplus labour in the rural sector supplies the workforce for the urban industrial economy (Lewis 1954). However, this has also been criticised for being a-historical and too Eurocentric to apply in developing countries like Bangladesh (Mallick & Vogt 2012, 2014). The structural conditions under which contemporary migration within and from developing countries takes place are slightly different, although perhaps not fundamentally so (Skeldon 1997; Ahmed & Neelormi 2007).

A radically different interpretation of migration as “historical-structural theory” has emerged in response to functionalist (neo-classical) theory. This theory perceives migration as a natural outgrowth of disruptions and dislocations that are intrinsic to the process of capitalist accumulation (Ahmed & Neelormi 2007). They interpret migration as one of the many manifestations of capitalist penetration and the increasingly unequal terms of trade between developed and underdeveloped countries (Massey 2015). Historical-structural theory criticises neo-classical migration theory on the grounds that individuals do not have a free choice because structural forces fundamentally constrain them. For example, people are forced to move without other choices as conventional economic structures are undermined as a result of their incorporation into the global, political or economic system. However, this theory has also been criticised for being too determinist and rigid in its depiction of individuals as victims. Moreover, rigid forms of historical structuralism have been refuted, as various formerly developing and labour-exporting countries have achieved sustained economic growth in the past decades despite – or perhaps because of – their integration into global capitalism (Sen 1999; Alam 2017; Islam & Amstel 2018).

At present, both neo-classical and historical-structural theories of migration generally fail to explain why some people in a particular country or region migrate and others do not (Massey 2015), and why people tend to migrate between particular places in a spatially clustered, concentrated, typically non-random fashion. Thus, it will be useful to look at some of the spatial models in the current scenario. This view of migration is a concern for security and a process that helps households cope with risks and shocks, enhancing their capabilities and reducing social, economic and ecosystem-related vulnerabilities (Tacoli 2009). These socio-economic systems are inherently more sensitive to climate-related environmental changes and are, therefore, more likely to engender adaptive migration (McLeman & Hunter 2010; Delaporte & Maurel 2018).

The purposes and causes of migration may vary, and in some cases, the main reasons remain unknown. The concept of “pull” and “push” factors (Mallick & Vogt 2012, 2014) may help to describe these motivations in different ways. For example, Taylor (1999) focuses on labour migration and the role of remittances in the migration process; Kontuly and Smith (1995) evaluate the importance of culture for migration; Ozden and Schiff (2006) raise the questions related to migration and “brain drain”; Hunter (1998) describes the association between environmental problems and internal migration flows; Smith (2012) analyses the impact of sea-level rise and the vulnerability of coastal peoples in the 21st century; Brown and McLeman (2009) assess the impacts of population change on climate-change vulnerability and adaptation. However, a disaster is a “push” to the victims to leave the area and to see the incident as an opportunity that creates a reason to move (Bates 2002; Poncelet et al. 2010). The various climate events work as a push factor to leave the place of origin. The economic pull factors (such as supports from the Government and NGOs) are not strong enough to attract them to the destination area. Therefore, people try their best to stay in their place of origin (Mallick & Vogt 2012, 2014). Penning-Rowsell et al. (2013) seek to understand the push and pull factors affecting hazard-related migration in Bangladesh. They find that the poorest are always the hardest hit and are more likely to have some family members move after hazards, either temporarily or permanently.

Black et al. (2011a, 2011b) present a framework for understanding the “five families of drivers” that affect migration decisions: economic, social, political, demographic and environmental. Their research shows that individual migration decisions mostly depend on the combination of all these drivers, and the effect of the environment is highly influenced by

social, economic, political and demographic contexts (Black et al. 2011a, 2011b). Hence, the entire migration process has direct socio-economic and cultural impacts on society at both the origin and destination of displaced people. Societal changes resulting from those impacts can be explained with the concepts of societal “inclusion” and “exclusion” (Luhmann 1995; Rawal 2007), because migration has two directions – origin and destination – where the origin society has a decreasing number of residents and the destination society an increasing number. This study considers the concept of migration according to the “pull” and “push” theory of Mallick and Vogt (2014) and the five families of drivers to understand the circumstances of climate migration in Bangladesh.

1.2.2 Climate Migration

The relationship between climate change and migration is not well defined or classified in traditional migration theory, and there is no formal legal definition for “climate migrants” (Ahmed & Neelormi 2007; Islam & Shamsuddoha 2017). The issue of climate migrants also overlaps the discussion of climate refugees or displaced persons. This lack of clarity, compounded by the impossibility of isolating climate change as a cause, is reflected in wide discrepancies in estimates of the number of people who can be considered climate migrants (Boano, Zetter & Morris 2008; Kolmannskog 2008; Gemenne 2011), in the absence of an internationally agreed legal definition of any of these classes of migrants (Betts 2011; Gemenne 2011) and in the often legally inaccurate use of the term “refugee” (Kniveton et al. 2008; McAdam 2011; Wahlstrom 2011). Thus, to avoid the ambiguity caused by the overlapping definitions of these terms in the literature (Renaud et al. 2007; Gemenne 2011), this thesis uses the term “climate migrant” and focuses on climate change as a cause of migration.

Despite debates concerning definitions of climate refugees, migrants or displaced communities, the International Organization for Migration (IOM) developed a working definition of climate-change-related migration: persons or groups of persons who, for compelling reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are obliged to leave their habitual homes or choose to do so, either temporarily or permanently, and who move either within their country or abroad (Kniveton et al. 2008). However, as there is now a theoretical debate between traditional migration processes and environmental migration, it has been asserted that migration due to

climate change can be considered a subset of migration. Hence, Sward (2008) uses IOM's definition. Hence, it can be understood that a person or people displaced by climate change would appear to be an essential starting point to becoming climate migrants. However, differentiating among migrant types poses a problem because no single factor, event or process inevitably produces migration (Gibb & Ford 2012). Moreover, while environmental change may be the proximate trigger of migration, the impetus to migrate or not is often deeply embedded in underlying and interacting social, economic, political, cultural and personal factors (Kolmannskog 2008; McLeman & Hunter 2010; McAdam 2011; Subhani & Ahmad 2019). Therefore, this study considers IOM's definition of climate migrants (Kniveton et al. 2008). Based on the definition, this thesis has defined as climate-migrant women in Bangladesh those who have migrated or are planning to migrate due to the adverse effects of natural disasters, particularly for river erosion.

1.2.3 Climate Migration in Bangladesh

Migration in the context of climate change is not a new phenomenon (Kartiki 2011; Carrico & Donato 2019). In search of improved livelihood, people in Bangladesh commonly migrate from one area to another area (Mallick & Vogt 2012, 2014; Ingham, Islam & Hicks 2018; Subhani & Ahmad 2019). The effects of climate change increase the impetus towards migration, forcing people to go in search of a safer environment that can offer them decent livelihoods and household security (Black et al. 2008; Momtaz & Asaduzzaman 2019). Migration, whether voluntary or forced, temporary or permanent and internal or external, has been one of the main features of life in the region since the 18th century (Siddiqui 2003; 2012; Joarder & Hasanuzzaman 2008). Ahmed and Neelormi (2007) identify some causes of climate migrants: increased coastal surface area (leading to tidal flooding) and riverbank erosion in the mainland areas; tropical cyclones and storm surges in the coastal regions; and river flooding in the mainland. More than 26 million people in Bangladesh are likely to migrate, almost 16% of the total population (Myers 2002). These impacts are expected to worsen. By 2050, 70 million people in Bangladesh could be affected annually by floods and 8 million by drought (IPCC 2001; Poncelet et al. 2010; Mollah & Ferdaush 2015). Therefore, Bangladesh's potential to sustain its development is faced with significant challenges due to climate change (Dastagir 2015; Siddique 2017; Carrico & Donato 2019; Subhani & Ahmad 2019).

Migration towards urban areas is a historical phenomenon in Bangladesh (Ahmed & Neelormi 2007; Rayhan & Grote 2007; Alam 2017; Subhani & Ahmad 2019). In Dhaka, most of the 70% of people who live in slum areas moved there after facing some adversity. Due to these families' precarious financial situation, they end up living in deprived areas, where the rent is more modest. The slums, of which the number is rapidly increasing in Dhaka, have become home to an estimated 3.5 million people, or 40% of the city's total population; Dhaka is now considered a "city of the urban poor" (Braun & Abheuer 2011; Mallick & Vogt 2012, 2014; Abdullah 2016; Adri & Simon 2017).

An enormous number of migrants come to Dhaka and other major cities each year; however, the megacity's urban infrastructure cannot absorb this vast quantity of people, who need social, economic, health and educational assistance and organisation (Ishtiaque & Mahmud 2011; Ishtiaque & Ullah 2013; Subhani & Ahmad 2019). Although some statistical data could be obtained for this research, it should also be noted that there is a deficiency of migration data from secondary sources; in consequence, the migration analysis is limited. Moreover, the census data of Bangladesh is not sufficient to analyse the migration phenomenon because the authorities possess little information about migrants' place of birth (Ishtiaque & Mahmud 2011; Haque & Islam 2012; Jahan 2012; Carrico & Donato 2019).

Furthermore, in Bangladesh, due to climate change, the rural-urban migration pattern has also changed. In the past, people with a modest income would move to Dhaka's slums, but because their goals were to work and earn some money, they held onto the hope of returning to their villages in the rural areas (Mallick & Vogt 2012, 2014; Carrico & Donato 2019). However, the increasing effects of climate change have driven more people to decide to stay and live in the capital, even if this decision means that they need to live permanently in Dhaka's slums. Therefore, as a city, Dhaka is struggling not only with acute infrastructure shortages in many areas but also with the needs that migrant families bring with them (Mallick & Vogt 2012, 2014; Carrico & Donato 2019; Subhani & Ahmad 2019).

Like the climate-migrant population as a whole, climate-migrant women in Bangladesh and their families also seek assistance and support from the local and national governments and non-government organisations. Even though active national and international NGOs struggle to provide assistance and care, it is necessary to continue studying the life conditions of migrant families, especially the environments, feelings and coping strategies of climate-

migrant women, to better direct the help and support that these organisations can provide. Thus, the specific problem of this research begins to emerge in relation to climate-migrant women's their living conditions before, during and after natural disasters. The next section introduces the circumstances of women affected by climate change and marks the statement of the problem for this research.

1.3 STATEMENT OF THE PROBLEM

In Bangladesh, women are more vulnerable than men to several types of disasters and climate-related impacts due to their social, economic and political position (Nasreen 2012; Islam et al. 2017; Ferdous & Mallick 2019). Previous statistics suggest that women head 15% of low-income families, and they often live in more precarious situations: their houses tend to be set on low lands, and along dangerous riverbanks in Bangladesh (Mollah & Ferdaush 2015; Tanjeela & Rutherford 2018; Carrico & Donato 2019; Subhani & Ahmad 2019). Moreover, the impact of climate change magnifies the existing inequalities, reinforcing the disparity between women and men in their capacity to cope with the disasters (Mollah & Ferdaush 2015; Tanny & Rahman 2017; Rahman 2018). Arora-Jonsson (2011) and Momtaz and Asaduzzaman (2019) state that the impacts of climate change could prove particularly severe for women. Similarly, the Human Development Report (2008), Haque (2016) and Ingham, Islam and Hicks (2018) suggest that women in Bangladesh are not only suffering inequalities more generally but also struggling to deal with climate risks and vulnerabilities. From the perspective of Bangladesh, scholars have suggested that women are historically deprived and highly vulnerable to climate change due to limited access to resources, restricted rights and their muted voice in shaping decisions (Juran & Trivedi 2015; Islam et al. 2017; Ferdous & Mallick 2019). Furthermore, there are systematic gender differences in the distribution of subsistence resources, including food, health care and technology, that worsen the impact on women and children as compared to the impact on men (Nasreen 2012; Islam 2014; Islam 2017; Ingham, Islam & Hicks 2018; Tanjeela & Rutherford 2018; Carrico & Donato 2019).

From the global perspective, women are highlighted as the majority of the world's poor and the most vulnerable to the effects of climate change (Dankelman et al. 2008; Arora-Jonsson 2011; Ferdous & Mallick 2019). For example, women are generally the primary caretakers (or

caregivers) of their family, and are often first to become aware of environmental changes as the scarcity of resources increases their workload and creates problems with sustaining their families (Demetriades & Esplen 2009; Islam et al. 2017; Delaporte & Maurel 2018). Several researchers have suggested that worldwide poor women are more likely than men to become direct victims (mortalities and injuries) of climate-change disasters such as hurricanes and flooding (Neumayer & Plumper 2007; Nasreen 2012; Carrico & Donato 2019; Subhani & Ahmad 2019). Detrimental effects of climate change can be felt in the short term through natural hazards, such as landslides, floods and hurricanes. In many of these contexts, women's increased vulnerability to the effects of climate change is associated with their relative poverty. The UNDP (2013) asserts that disasters tend to hit the poorest and most marginalised demographics the hardest. Women and girls are particularly exposed to climate-related disaster risk: they are likely to suffer higher rates of mortality, morbidity and economic damage to their livelihoods. Furthermore, in the United States, the House of Representatives issued a declaration on 1 April 2009 that recognised the disproportionate impacts of climate change on women and the efforts of women globally to address climate change itself (Lee, McCollum & Eschoo 2009). The resolution, among other things, encourages the use of gender-sensitive frameworks in developing policies to address climate change that account for its specific impacts on women (Arora-Jonsson 2011; Tanjeela & Rutherford 2018; Carrico & Donato 2019; Subhani & Ahmad 2019).

A study conducted by the Bangladesh Centre for Advanced Studies (2010) after the devastating cyclone of 1970 revealed that 25–30% of the women in the affected areas had died from the cyclone (Mirza & Paul 1992). Similar threats exist during flooding. For example, the death rate for women was almost five times higher than for men in the 1991 cyclone and accompanying floods. It was found that, as men met in public spaces, they were able to warn each other, but they rarely communicated the information to the rest of the family. In contrast to the men's freedom of movement, many women are not allowed to leave their homes without a male relative, and they wait for their relatives to return home and take them to a safe place (Nasreen 2012; Islam et al. 2017; Ferdous & Mallick 2019).

In examining the literature, this study identifies specific research gaps. First, several scholars have conducted research intending to explore climate-migrant women's situation, obtaining striking findings that demonstrate their loss of social and economic wealth (Arora-Jonsson 2011; Hoque & Haque 2013; Tanjeela & Rutherford 2018; Carrico & Donato 2019; Haque et

al. 2019). However, there is little evidence for the impact of river erosion, specifically for women (Arora-Jonsson 2011; Hoque & Haque 2013; Islam et al. 2017; Haque et al. 2019; Sultana, Thompson & Wesselink 2020). Moreover, the literature has not yet explored how cultural and social power relations could affect climate-migrant women before, during and after a natural disaster. In Bangladesh most studies of women's issues focus on empowerment (Kabeer 2005; Schuler, Islam & Rottach 2010; Nazneen, Hossain & Sultan 2011; Nasreen 2012; Subhani & Ahmad 2019); very few focus on quality of life, which requires asking what women are actually able to do. The current literature does not address neither the living conditions of climate-migrant women nor their opportunities to develop their lives in Bangladesh. This study explores their living conditions and clarifies their socio-cultural conditions.

Second, many researchers have suggested that climate-migrant women's freedom to achieve wellbeing is significantly reduced because they are deprived of capabilities (Sen 1999; Nussbaum 2000; Robeyns 2005; 2016; Kabir & Arafat 2018; Tanjeela & Rutherford 2018). Other studies also indicate that Bangladeshi women's social capital helps to enhance their capabilities, and has particular importance during the natural disasters (Hoque & Haque 2013; Islam & Walkerden 2014). However, there is a lack of research into Bangladeshi women's social capital and the reasons they are deprived of their capabilities (Mutton & Haque 2004; Hoque & Haque 2013; Cummings et al. 2018). In addition, several scholars, such as Arora-Jonsson (2011) and Islam and Shamsuddoha (2017), have pointed out the inequalities in women's involvement in decision-making when natural disasters strike. As a result, this study will examine the experiences and survival strategies of climate-migrant Bangladeshi women to understand their existing capabilities and how these capabilities are related to their social capital.

Third, previous studies have shown that after flood and river erosion, women in Bangladesh lose their life, health, land, livelihood options, economic assets and social networks (Nasreen 2012; Hoque & Haque 2013; Tanjeela & Rutherford 2018; Haque et al 2019; Sultana, Thompson & Wesselink 2020). Several studies demonstrate that Bangladeshi women practice their knowledge and experiences at the household level to adjust and cope with climate change and disaster management (Dankelman et al. 2008; Paul & Routray 2011; Nasreen 2012; Islam & Walkerden 2014; Islam et al. 2017). However, there is not enough evidence in the literature to justify the use of Martha Nussbaum's capabilities lists (2011) in the context of

climate migration in Bangladesh and the relationship between climate-migrant women's capabilities and social capital. Accordingly, this research fills this gap by exploring the vulnerabilities and capabilities of climate-migrant women using the capabilities approach (Nussbaum 2011) and social capital (Bourdieu 1986; Coleman 1990; Putnam 1995) framework. This research uses a data-driven analysis to test the appropriateness of Nussbaum's capabilities approach in the context of climate-migrant women in Bangladesh, and analyses the relation between the capabilities and social capital of climate-migrant women in Bangladesh.

Finally, the Government of Bangladesh has recognised climate change as an essential issue, and is attempting to incorporate potential response measures into the overall development planning process to reduce the impacts of climate change. Bangladesh is at high risk from climate change, and women are one of the most vulnerable groups; this has serious implications for the achievement of long-term human-development goals (Warner et al. 2009; Tanjeela 2015; Tanjeela & Rutherford 2018) and the United Nations Development Programme's Sustainable Development Goals (SDGs). Bangladesh is engaged in implementing the SDGs and has been playing an active role in the global discourse about the goals as a signatory of the 2030 Agenda for Sustainable Development. The Government of Bangladesh is committed to implementing realistic plans and actions to achieve the UN's 2030 SDG goals, including SDG 13, Climate Action, to ensure the country's development (Commonwealth Local Government Forum 2015; Guha & Chakrabarti 2019; Haque & Jahid 2019). The Bangladesh Government passed the National Adaptation Programme of Action (NAPA) in 2005 to further advance climate-friendly development and adaptation measures (Asaduzzaman et al. 2015; Ferdous & Mallick 2019; Evertsen & Geest 2020). However, until now, initiatives on climate change have lacked gender sensitivity. Also, NAPA recognises that the Ministry of Women and Children's Affairs in Bangladesh is relatively weak and cannot enforce women's rights when they overlap with the responsibilities of other government departments. There is a lack of research evidence for the Government of Bangladesh to consider and apply effective policies for climate-change-affected women. This study will help policy-makers and offer recommendations to improve climate-migrant women's living conditions in Bangladesh. There seems to be a paucity of research in the existing climate-change disaster literature to show how Bangladeshi climate-migrant women form their survival strategies and use available support mechanisms. Therefore, this study will contribute to the climate-change disaster literature for Bangladeshi climate migrants from the

women's perspective in the socio-cultural context of Bangladesh. The next two sections will present the relevance of Nussbaum's capabilities approach and social-capital theory to this study.

1.4 RELEVANCE OF CAPABILITIES APPROACH TO STUDY CLIMATE-MIGRANT WOMEN'S LIFE-DEVELOPMENTAL OPPORTUNITIES

The human-development perspective on development arose partly in response to increasing criticism of the market-orientated neo-liberal policies of the 1980s, and questioned the "trickle-down" of economic benefits and its effectiveness in alleviating poverty (Jahan et al. 2015), given that human beings were seen as the ends rather than the means of development (Qizilbash 1996; Alkire 2005; Fukuda-Parr 2016; Robeyns 2016). Subsequently, the current human-development approach aims to create an environment in which people develop their full potential and lead productive, creative lives according to their needs and interests (Stewart 2001; Jahan et al. 2015; Evans 2017). In this context, it is questionable whether climate-migrant women can reach the maximum development of their capabilities under the characteristic living conditions of a country, such as Bangladesh, that is continuously hit by natural disaster.

Scholars have stated that human development is inherently multi-dimensional, moving beyond the achievement of wellbeing and material needs to support aspects such as social and economic freedoms alongside political and civil liberties (Truong & Gasper 2008; Hick 2012; Alves & Mariano 2018). However, taking into account the living conditions of climate-migrant women, it is doubtful that they can reach their full potential. Nonetheless, these questions reinforce the need to establish the real status of their life-developmental opportunities.

The human developmental capabilities approach has been well represented by the ideas of many authors (Sen 1999; Nussbaum 2000; Fukuda-Parr 2003; Alkire 2005; Robeyns 2005; Stuart & Woodroffe 2016). The most prominent are Sen (1999) and Nussbaum (2000). For Sen (1999), the basic capabilities concern "the ability to be well nourished, to avoid escapable morbidity or mortality, to read and write and communicate, to take part in the life of the community, to appear in public without shame" (Sen 1999, p.126). Nussbaum broadens Sen's

capabilities by incorporating more explicitly feminist concerns to arrive at 10 central human capabilities: bodily life, bodily health, bodily integrity, imagination and thought, emotions, practical reason, affiliations, play, other species and control over environment (Nussbaum 2011, p. 33-34). Sen and Nussbaum both see expanding human capabilities as the central role of development. Given that women – and here Bangladeshi women can certainly be included – represent the most significant number of individuals living in poverty and that they are vulnerable to numerous hardships, including climate change and other inequalities that exacerbate their vulnerabilities, the capabilities approach offers a development framework that can incorporate these realities. Hence, the capabilities approach is a fundamental component of the human-development framework (Preibisch, Dodd & Su 2016).

The purpose in this research is not to examine and analyse the chronology and implications of development approaches. However, it is pertinent to acknowledge that conceptions of development have transitioned from the modernist perspectives of the 1950s and the neo-liberal/trickle-down perspectives of the 1980s and 1990s through to the current emphasis on sustainable human development (Fukuda-Parr 2016; Stuart & Woodroffe 2016).

In summary, it is for these reasons that it was decided to use the capabilities approach and, specifically, Nussbaum's (2011) capabilities lists. It has privileged Nussbaum's capabilities approach over the previous one offered by Sen (1984, 1999) because Nussbaum has added important feminist considerations that are of interest for this study. For example, in her feminist modification, Nussbaum (2000; 2002) points out that an understanding of “the special problems that women face because of sex in more or less every nation in the world” (Nussbaum 2000, p. 4) is essential to an understanding of the more general issues of poverty and development, and that an approach to international development should be assessed for its ability to recognise these problems and make recommendation for their solutions (Nussbaum 2002). In short, it is believed that these tools will be able to show the real status of the life opportunities that climate-migrant women face in the living conditions that are their daily reality.

Women in Bangladesh are deprived of equal rights in the matters of marriage, divorce, maintenance and inheritance. Women are frequently deprived of their human rights. Discrimination against women is rationalised by the fact that they are seen as an economic burden, because income earning is generally the responsibility of males in Bangladeshi

families. The remaining family members, usually women and children, are economically dependent. Women have little choice but to live in this dependent condition, due to their relatively lower educational levels and fewer marketable skills, the lack of available employment opportunities and pervasive social stigmas against women earning a living. Women often perform paid labour within their homes, such as taking in piece work or assisting in family productive activities like farm work or running a family business. However, any work that receives little pay is considered unimportant and labelled as women's work, even though such works bring tangible economic benefits to the family. Housework and childcare are unpaid and are carried out almost exclusively by women; therefore, they are considered to be without monetary value.

In extremely low-income families where frequently there is not enough for everyone, this means that women are most likely to go without a meal, to eat small meals, to go without warm clothing in the winter and to receive minimal health care and education (Schuler et al. 1996; Nasreen 2012; Rahman, Islam & Rahman 2015; Kabir & Arafat 2018). From a very young age, girls learn domestic skills and begin to take on domestic duties, such as cooking, sewing, washing, cleaning and childcare, and supplementing the household income with cottage crafts. They are also taught to be obedient and quiet, to respect the leading roles played by males and to take on the responsibility for bearing and rearing children; this responsibility not only hinders them in attending school but also precludes them from external jobs (Islam & Sultana 2006; Tanny & Rahman 2017; Tanjeela & Rutherford 2018). Women are not only discriminated in their household but also in the broader society in the name of religious beliefs. In this context, Nussbaum's capabilities approach can provide insights into their vulnerabilities by focusing on the capabilities of Bangladeshi women those who are migrating internally from their place to another place due to the climate change impacts.

1.5 RELEVANCE OF SOCIAL CAPITAL IN THE STUDY CONTEXT OF CLIMATE-MIGRANT WOMEN IN BANGLADESH

In recent years social capital has been recognised as a substantial issue in the natural disaster management domain. Several scholars, academics and practitioners in the natural-disasters field have shown the significant importance of social capital in the management of disasters (Aldrich 2010; Wright & Storr 2011; Joshi & Aoki 2014; Islam & Walkerden 2015; Christ &

Niles 2018). These scholars agree that social capital is the resource embedded in social networks that enables collective action in communities, and that, among other things, these networks provide information that individuals and communities use as they pursue their goals following disasters (Ritchie & Gill 2007; Sanyal & Routray 2016; Chriest & Niles 2018). For example, Varda et al. (2009) found that during the recovery phase of Hurricane Andrew (1992) in Louisiana, individuals who received more social support experienced better physical health and lower levels of depression than individuals who received less. Similar findings also emerged during the disasters of Indian Ocean Tsunami and Hurricane Katrina (Hawkins & Maurer 2009; Wright & Storr 2011; Joshi & Aoki 2014; Islam & Walkerden 2015; Chriest & Niles 2018). In another study conducted in the context of natural disasters in Bangladesh, Islam and Walkerden (2014) found that the affected people depended on their social networks for their recovery.

Several scholars have emphasised the substantive role of bonding and bridging networks in people's response to natural disasters (Nakagawa & Shaw 2004; Mayunga 2007; Alam & Collins 2010; Aldrich, 2011a; Islam & Walkerden 2014, 2015; Joshi & Aoki 2014; Adeola & Picou 2016; Sanyal & Routray 2016). During natural disasters the first responders are often local residents, as disaster-response organisations often need more than three or four days to reach the affected areas due to communication and access difficulties (Alam & Collins 2010; Islam & Walkerden 2015; Chriest & Niles 2018).

Studies have shown that these bonding and bridging networks are also crucial in post-disaster recovery (Storr & Balch 2012). Adeola and Picou (2016) and Wind and Komproe (2012) have identified the significant value of bonding and bridging networks for reducing post-disaster trauma, e.g., psychological stress, depression, and other psychosocial symptoms. Further, the literature on social capital and disaster recovery shows that homogenous, tight-knit communities have a significant advantage over less-connected communities in promoting community rebound and redevelopment (Aldrich 2011b; Wright & Storr 2011; Islam & Walkerden 2014; Chriest & Niles 2018). When characteristics of an active community are missing, members of that community tend to have less capacity to cope with disasters (Mayunga 2007; Joshi & Aoki 2014; Chriest & Niles 2018).

There is also an important connection between bonding and bridging social capital and linking social capital, as a community with intense bonding and bridging networks might

have better opportunities to work together to gain access to external resources from their linking networks (Nakagawa & Shaw 2004; Islam & Walkerden 2014; Chriest & Niles 2018). However, the capacity of these bonding and bridging networks is limited by the networks' physical and financial capital, the strengths and weaknesses of these horizontal relationships and the magnitude of the disaster (Hoque & Haque 2013; Islam & Walkerden 2014; 2015; Chriest & Niles 2018). These studies also suggest that although bonding and bridging networks have significant importance for the disaster recovery, for longer-term recovery, disaster victims usually need support through linking social networks; for example, from local government, NGOs and other community-based organisations.

This study focuses on the wellbeing of women who migrate due to the impacts of natural disasters caused by climate change. Based on the above discussion, these disaster-affected women may have a dependence on their social capital. Therefore, their bonding and bridging networks can be a crucial point to focus on to gain insights into these women's lives. This may also bring a comprehensive understanding of how their social capital relates to their wellbeing.

1.6 RESEARCH OBJECTIVES AND QUESTIONS

The main objective of this study is to investigate the vulnerabilities and survival strategies of climate-migrant women in Bangladesh. The specific objectives of this study are as follows:

1. Identify, describe and analyse the experiences that climate-migrant women confront in Bangladesh.
2. Describe and analyse the survival strategies and support mechanisms of climate-migrant women.
3. Determine the adequacy of Nussbaum's capabilities approach for understanding the lives of climate-migrant women in Bangladesh.
4. Identify, describe and analyse the relevance between social capital and capabilities in the context of climate-migrant women in Bangladesh.
5. Formulate informed recommendations for climate-migrant women in Bangladesh.

To achieve these objectives, the following research questions will be examined:

1. What are the living conditions faced by climate-migrant women in Bangladesh?

2. What the survival strategies do climate-migrant women in Bangladesh use to address these living conditions?
3. How appropriate is Nussbaum's capabilities approach for understanding the lives of climate-migrant women in Bangladesh?
4. How are the capabilities and social capital of climate-migrant women in Bangladesh related to each other?
5. What policy recommendations have the potential to improve climate-migrant women's living conditions in Bangladesh?

1.7 SIGNIFICANCE OF THE STUDY

The Government of Bangladesh has allocated about US \$400 million during the last eight fiscal years (Nishat et al 2013; Ahmed et al. 2015; GoB 2015; Islam 2017; Haque et al. 2019) to counteract climate change by enhancing people's adaptive capacity. The Ministry of Environment and Forestry is already taking action for on-ground adaptation. Government agencies and NGOs have been participating in this process. It is, therefore, appropriate to address gender concerns in those programs. This research contributes to the knowledge and consciousness among various concerned groups and agencies so that they can concentrate on initiating appropriate policies, programs and actions to address climate change and its impact on women in Bangladesh.

Also, it should be noted that the outcomes of this research could contribute to future policy-making issues in Bangladesh for climate change and play a vital role in mitigating the existing challenges for climate-migrant women. In a similar vein, this study offers insights into the causes of women's climate migration in Bangladesh and the vulnerabilities of these migrating women by focusing on the effects of climate migration on diverse facets of their wellbeing.

To explore the effects of climate migration, this study has used Nussbaum's capabilities approach, a tool that allows the conceptualisation and evaluation of phenomena such as poverty, inequality and individual wellbeing, and provides a framework that can highlight the many ways in which human lives have been blighted by natural disaster (Hick 2012, Hoque & Haque 2013; Ahmed & Ting 2014; Gupta 2015; Evans 2017). It has unique advantages when

approaching the particular intellectual and practical problems that women face (Nussbaum 2000, 2011).

The capabilities approach raises questions about what poor women can do and become. It inherently sees each woman as a dignified human being who deserves the ability to shape her life (Ahmed & Ting 2014). Following this statement, the study has used a qualitative method with a narrative approach to build the life history of the Bangladeshi climate-migrant women in a way that respects their life experiences. This study focuses on the living conditions and survival strategies of climate-migrant women in Bangladesh. Nussbaum's capabilities approach is valuable in its direct focus on individuals' quality of life, or wellbeing (Robeyns 2005; Hick 2012). This approach can be useful in identifying and analysing the societal impact of natural disasters on the basis of overall changes in climate-migrant women's capabilities (Murphy & Gardoni 2006, 2010; Briones 2011; Preibisch, Dodd & Su 2016). Scholars have suggested that social capital has a significant role in initial survival during natural disasters (Wind & Komproe 2012; Hoque & Haque 2013; Islam & Walkerden 2014; 2015; Adeola & Picou 2016). They have also indicated that endowments of social capital comprise valuable resources for rural women who migrate to an urban area after losing resources due to natural disasters. The affiliation between Nussbaum's capabilities approach and social capital is discussed in more detail in Section 2.7 of this thesis. By directly exploring climate-migrant women's wellbeing within the capability and social capital framework, this study will prepare specific recommendations to reduce the vulnerabilities that threaten the wellbeing and even the survival of climate-migrant women in Bangladesh.

Finally, public policy must be guided by a conception of the human good that gives the policy-maker clear guidance in selecting goals and priorities for the development process. As Nussbaum (1995, p. 87) writes, "The basic claim I wish to make is that the central goal of public planning should be the capabilities of citizens to perform various important functions."

Thus, based on Nussbaum's capabilities list, this study has focused on how climate migration constrains women's capabilities and obstructs their wellbeing. Further, this study has also investigated the relationships between climate-migrant women's capabilities and their social capital. Additionally, this research has been conducted by an "insider researcher" (Creswell 2014). An insider researcher plays a vital role in addressing problems and issues for continual improvement and, through systematic research, develops results that lead to the answers to

specific questions and more in-depth understanding of the problems (Creswell 2014; Saidin & Yaacob 2016). Because of the open-ended intention of this research, and subject to ongoing revision and rethinking Nussbaum's list of 10 capabilities (Nussbaum 2006, 2011), along with the benefits of an "insider researcher" (Unluer 2012; Creswell 2014), this study is designed to allow the participants to discuss other relevant concerns that were not initially included in Nussbaum's list, but which arise due to the specific cultural issues in Bangladesh.

Finally, after its attempt to implement the Millennium Development Goals (MDGs), The Government of Bangladesh is very keen to achieve the United Nations Development Programme's SDGs by 2030 (Islam & Shamsuddoha 2018; Haque & Jahid 2019). The Sustainable Development Goals (SDGs), also known as the Global Goals were adopted by the United Nations in 2015 as a global call to action to end poverty, protect the world and ensure that all people achieve peace and prosperity by 2030 (United Nations 2015). This thesis will contribute to achieving the SDG 13 (Actions on Climate Change) as a factor in Bangladesh's achievement of the SDGs by 2030.

1.8 OVERVIEW OF THE THESIS CHAPTERS

This thesis consists of eight chapters (Figure 1.2). The current chapter introduced the thesis, giving the background of climate change in Bangladesh, the climate-migration phenomena in Bangladesh, the statement of the problem, the relevance of Nussbaum's capabilities approach and social capital to climate-migrant women's life-development opportunities and the research objectives, questions and significance of this thesis.

Chapter 2 contains a literature review for the theoretical framework (Figure 2.1), focusing on the socio-economic and cultural context of Bangladesh, its poverty and inequality and the status, climate-change reality and migration of Bangladeshi women. It describes the capabilities approach as a tool to evaluate people's development opportunities, its origins and core concepts. It shows the difference between Sen's and Nussbaum's conceptualisations of the capabilities approach and the feminist perspective of Nussbaum's capabilities approach. It explains the application and criticisms of Nussbaum's capabilities approach in the present research context. It also describes the notion of social capital, types of social networks (bonding, bridging and linking networks), the importance of social capital in the context of

climate change and natural disasters and the affiliation between Nussbaum's capabilities approach and social capital.

Chapter 3 presents the research methodology, which includes the research approach. It also describes the selection of research areas and my position as a researcher. This chapter explains the research design (Figure 3.8), data collection and analysis. The data-collection methods and selection of participants highlight climate-migrant women's life-story interviews, the field observations study and key informant interviews. The chapter also describes the analysis of data by applying content and thematic analysis. Lastly, the chapter outlines the ethical considerations for data collection, the study's analysis procedure and its constraints and limitations.

Chapter 4 examines the lives of climate-migrant women and their social constraints in Bangladesh. This chapter portrays a brief history of their lives in Bangladesh by presenting the stories they told of life from their childhood to the present and their lived culture rural areas. This chapter describes the everyday lives of these women and highlights the social constraints that these women experience in their life, which includes gender restrictions, prevailing social and religious views. Further, this chapter describes Nussbaum's 10 capabilities in the lives of climate-migrant women in Bangladesh.

Chapter 5 explores the physical vulnerabilities triggered by repeated natural disasters. This chapter highlights Bangladeshi climate-migrant women's susceptibilities and weaknesses during natural disasters and describes the various losses that climate-migrant women experience due to the repetitive natural disasters, including loss of lives and health, loss of food and drinking-water sources, loss of shelter, sanitation and security, loss of communication, transportation and education, loss of household assets and loss of land, livelihood and other income sources. Besides these losses, this chapter also describes the challenges that climate-migrant women confront when they migrate into urban areas. Additionally, this chapter also presents the changes in the human-development opportunities of climate-migrant women after natural disasters.

Chapter 6 examines the value of social capital for quality of life. This chapter clarifies the significance of social networks in the lives of climate-migrant women in Bangladesh. This chapter discusses obtaining resources through family and neighbours' grids, which highlights

their mutual reciprocity, their trust and their beliefs, values and cultural traits. This chapter also describes the bonding networks during natural disasters, which highlight flood preparation, sharing food, medicine and care, safety and security and social capital, including as women move from rural to urban environments. Specifically, this chapter identifies the role of social capital in climate-migrant women's lives and the help they receive before, during and after disasters, as well as instances where such help is inadequate. Finally, the chapter illustrates social capital as an intangible resource to maintain the capabilities of Bangladeshi climate-migrant women.

Chapter 7 discusses and interprets the results found in Chapters 4, 5 and 6. It uses three diagrams to summarise the overall findings regarding climate-migrant women's rural subsistence culture, the ramifications of river erosion in rural areas and climate-migrant women's migration to urban slums after enduring repeated erosions. The chapter also interprets the results, and reflects on the applicability of the Nussbaum capability model and social capital theories to the study findings.

This thesis concludes with Chapter 8, which chapter addresses the research objectives and questions. It presents recommendations for the betterment of climate-migrant women in Bangladesh and states the theoretical and empirical contributions of the thesis. It also mentions the limitations of the study and provides suggestions for future research.

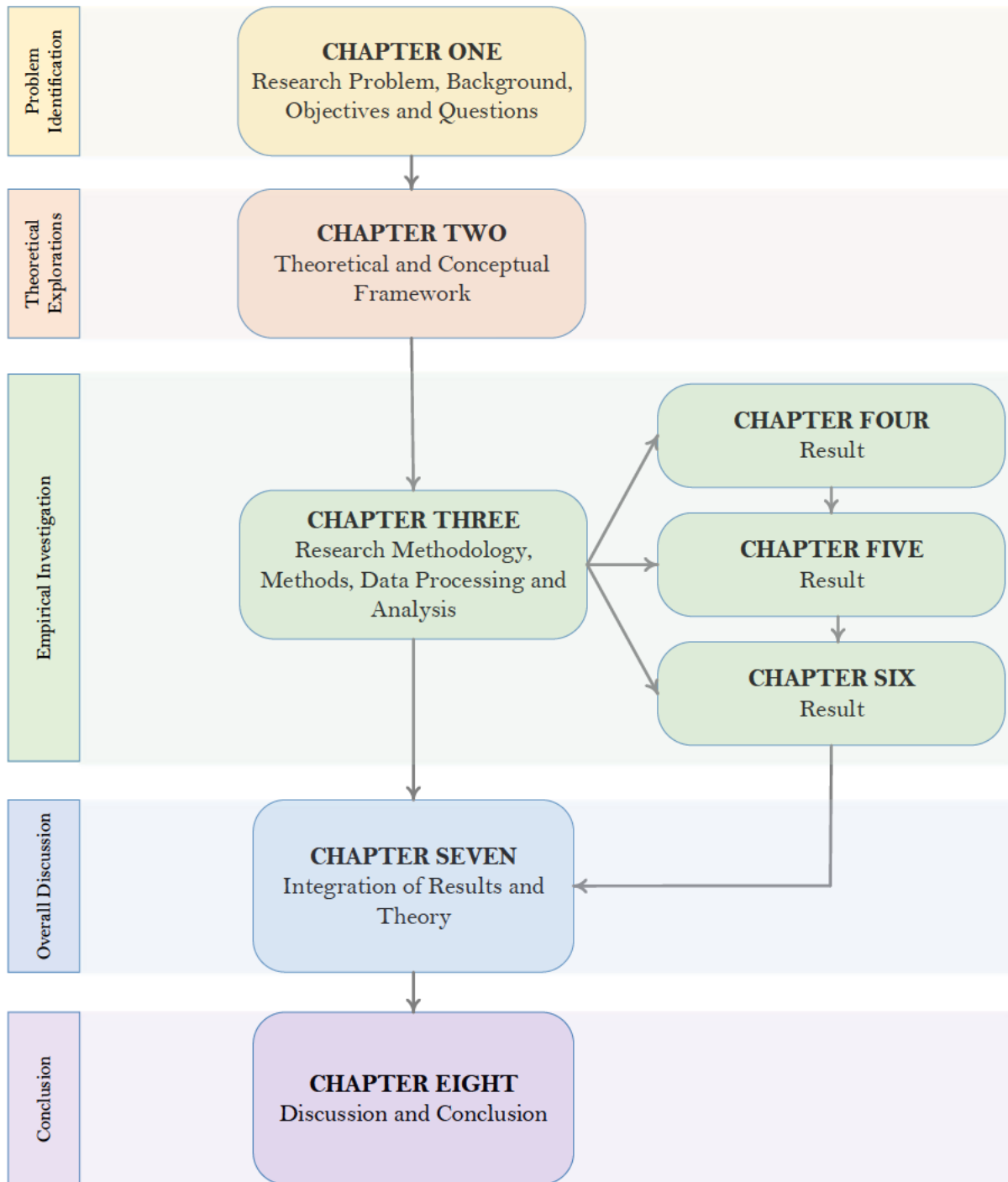


Figure 1.2: Organisation of the thesis

CHAPTER TWO

REVIEWING THE LITERATURE OF CLIMATE-MIGRANT WOMEN

2.1 INTRODUCTION

This chapter reviews the current literature on climate-change impacts on women in the context of Bangladesh and provides the theoretical background to the study objectives, including Martha Nussbaum's capabilities approach (Nussbaum 2011) and social capital (Bourdieu 1986; Coleman 1990; Putnam 1995). The key aim of this literature review is to determine the relevance of existing contributions to the impact of climate change on Bangladeshi women, who are mainly affected by recurring river erosions. This chapter contains eight sections. After the introduction (Section 2.1), Section 2.2 explains the overall socio-economic and cultural context of Bangladesh. Section 2.3 outlines the climate-change reality and migration of Bangladeshi women. Section 2.4 examines the Sustainable Development Goals (SDGs) as a way forward to improve climate-migrant women's lives. Section 2.5 describes the capabilities approach as a tool to evaluate people's development opportunities. Here, Subsection 2.5.1 shows the origin and core concepts of the capabilities approach and 2.5.2 highlights Sen's and Nussbaum's versions of the capabilities approach. Subsection 2.5.3 discuss the feminist perspective of Nussbaum's capabilities approach. Subsections 2.5.4 describes the application of Nussbaum's capabilities approach in the present research context and 2.5.5 presents criticisms of Nussbaum's capabilities approach. Section 2.6 describes the concepts of social capital; its Subsection 2.6.1 describes the social networks, including the various forms of social networks (2.6.1.1 to 2.6.1.3) and their importance in the context of climate-change impacts. Section 2.7 indicates the affiliation between Nussbaum's capabilities approach and social capital for this study, and Section 2.8 concludes this chapter.

Bangladesh experiences various environmental disasters almost every year due to the adverse effects of climate change. Located on a vast river delta, the country has been subject to various types of natural disasters. Environmental disasters in this region long predate the use of the term "climate change"; the frequency and magnitude of disaster conditions continue to adversely affect women (Rahman & Tosun 2018; Tanjeela & Rutherford 2018; Subhani &

Ahmad 2019). This is one of the poorest countries and one of the most vulnerable to climate change (Akter & Mallick 2013; Islam et al. 2017; Delaporte & Maurel 2018; Kais & Islam 2018; Carrico & Donato 2019). Frequent exposure to natural hazards combined with widespread poverty results in the loss of life, damage to infrastructure and economic assets, and adversely affects lives and livelihoods, especially those of the extremely poor (Islam & Nursey-Bray 2017; Ingham, Islam & Hicks 2018; Subhani & Ahmad 2019). Although poverty is prevalent amongst men as well as women, far more women suffer from poverty due to their low socio-economic status in Bangladesh (Islam 2014; Kibria, Haroon & Nugegoda 2017; Nahar et al. 2018). Consequently, women's sufferings due to natural disasters are higher than men's. Many researchers have claimed that in Bangladesh, as in most other countries, the worst victims of environmental degradation are women (Wasta & Haque 2011; Ingham, Islam & Hicks 2018; Sorensen et al. 2018; Subhani & Ahmad 2019). Some of these vulnerable women migrate to new places to survive with their lives and families as a common adaptation strategy (Haque & Islam 2012; Stojanov et al. 2016; Williams 2018). However, after migrating to a new place, climate-migrant women suffer from enormous socio-economic and cultural challenges, and most find everything has changed from their previous life (Alston & Akhter 2016; Whitehead et al. 2018; Subhani & Ahmad 2019). Because of new situations and challenges, migrated women can no longer use the practical skills they gained in their previous situations, and lose control over their environment because of their lost social networks and the financial and cultural differences to which they must adapt (Tanjeela & Rutherford 2018; Williams 2018). Several studies have suggested that despite significant initiatives to help these destitute climate migrants, women, particularly in the South Asian countries, are struggling and need useful and sustainable solutions (Hoque & Haque 2013; Rahman & Tosun 2018; Tanjeela & Rutherford 2018; Subhani & Ahmad 2019). They also recommend that without proper tributary management, the threat and vulnerability will remain. Hence, proper concern about, and further research into, these issues is necessary to improve vulnerable climate-migrant women's situations.

This thesis examines the vulnerabilities and survival strategies of climate-migrant women in Bangladesh, considering Nussbaum's capabilities approach and social capital to explore their lives. This chapter offers an overview of the key theories that guide the study, including understanding the socio-economic and cultural vulnerabilities of Bangladeshi women from a feminist perspective, Nussbaum's capabilities approach and social capability. This chapter reviews literature from environmental sociology and feminist studies linked to climate-

change-displaced people and explores Nussbaum’s capabilities approach. Accordingly, this thesis will contribute to an understanding of climate change and the experiences underlying structural causes of Bangladeshi women’s vulnerability, use of social capital and existing capabilities to offer recommendations to improve climate-migrant women’s living conditions. Taken together, this thesis stands on the theoretical framework shown in Figure 2.1.

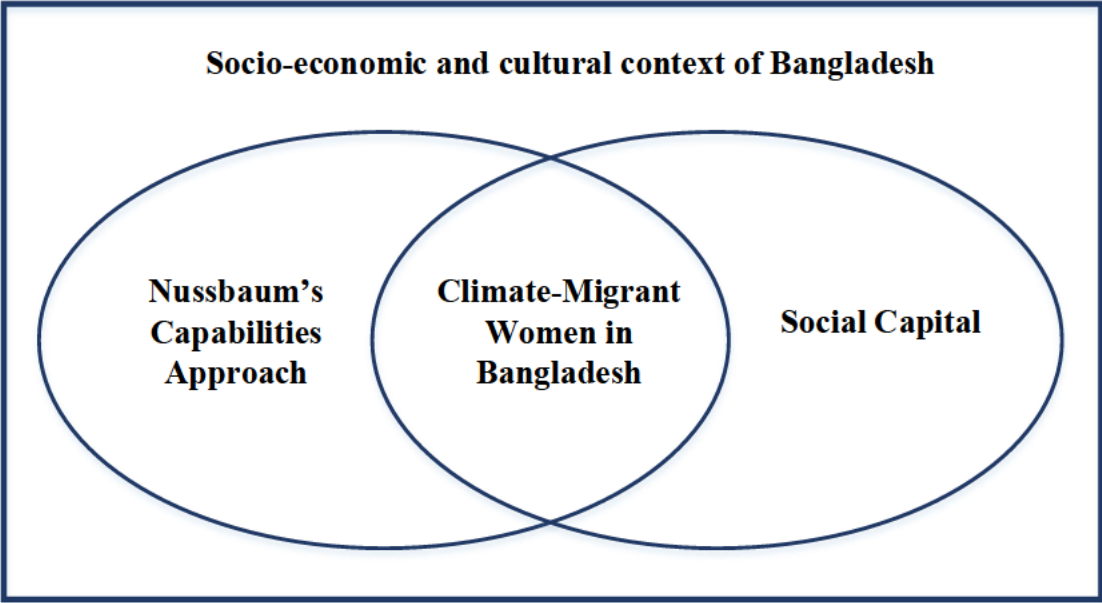


Figure 2.1: Theoretical framework of the study

This chapter begins with an overview of climate-change reality and migration of Bangladeshi women to highlight the socio-economic and cultural context of Bangladesh from a feminist perspective. The following section considers the theoretical and empirical discussions and relationships between Nussbaum’s capabilities approach and social capability that highlights how Bangladeshi women survived before, and are surviving after, the consequences of river erosion due to climate change. The next section of this chapter presents the importance of social networks and socio-cultural consequences in the context of climate change from a feminist perspective. Accordingly, this chapter presents a framework for social capital through social networks, discussing a range of theories that explore the reality of Bangladeshi women who are affected by river erosion and comparing Nussbaum’s capabilities approach to pursue broader social goals for Bangladeshi women, including recommendations for increased social stability and capabilities.

2.2 SOCIO-ECONOMIC AND CULTURAL CONTEXT OF BANGLADESH

2.2.1 Demography and Population in Bangladesh

Developing countries and poor communities are more vulnerable to the impacts of climate change (Alston & Akhter 2016; Abedin et al. 2019; Subhani & Ahmad 2019); therefore, the levels of poverty in Bangladesh need to be acknowledged in assessing this country's overall vulnerability to climate change.

Bangladesh is the world's eighth-most populous country, with about 160 million inhabitants (Delaporte & Maurel 2018; Ingham, Islam & Hicks 2018; Tanjeela & Rutherford 2018). The population growth rate is 1.47%, and the ratio of male and female is 100:100.3 (BBS 2015; Alston & Akhter 2016). This expanding population lives in an area of 147,570 km², making it the world's most densely populated nation (1,218 people/km²) (Islam & Nursey-Bray 2017; Ingham, Islam & Hicks 2018; Abedin et al. 2019). The overall population consists of 86% Muslims, 12% Hindus and 2% Buddhists and Christians (Khan et al. 2016; Islam & Shamsuddoha 2017). Seventy-five percent of the population live in rural areas (Islam et al. 2017; Delaporte & Maurel 2018).

Life expectancy is around 63 years, and there is a 47.5% adult literacy ratio (Abedin et al. 2019). In Bangladesh, 8% of children die before they reach the age of five (Kabir & Arafat 2018; Razzaque et al. 2020). In the mid-1970s, the infant mortality rate (IMR) stood at 153 deaths per 1,000 live births, while recent estimates for 2014 put the figure at 32 per 1,000 live births; however, it is only four per 1,000 live births in Western countries on average. The total fertility rate is 2.55 children/woman, and the maternal mortality rate is 170 deaths/100,000 live births (Abedin et al. 2019; Razzaque et al. 2020). Compared to Western countries, where the average mortality rate is four to five deaths/100,000 live births, Bangladesh's figure is exceptionally high (Demetriades & Esplen 2009; Razzaque et al. 2020). The country ranks 142 out of 185 nations in the latest report of UNDP (2014).

2.2.2 Poverty and Inequality in Bangladesh

Bangladesh is recognised as a developing country, with a per capita GDP of approximately US\$1,314 (Alam 2017; Islam & Nursey-Bray 2017; Delaporte & Maurel 2018). The percentage of people living below the national poverty line is 31.5%, and 43.3% of people

live on less than \$1.25 purchasing power parity a component of some economic theories (a technique used to determine the relative value of different currencies). After Afghanistan, Bangladesh has the second-highest percentage of the population existing on income below \$1 a day in the South Asian region (Alston & Akhter 2016; Ahmed 2017; Islam et al. 2017). While overall improvements in wellbeing can be seen across all regions, poverty remains a daunting problem, with around 47 million people still living in poverty and 26 million people living in extreme poverty. Poverty in rural areas is more prevalent and extreme than in urban areas, although in urban areas there is comparatively more inequality (Islam & Nursey-Bray 2017; Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018; Subhani & Ahmad 2019; Banarjee 2020).

Poverty is particularly intractable in three areas: the southern coastal zones, which are affected by soil salinity and cyclones; the central northern region, which is subject to seasonal severe flooding that limits crop production; and the north-west region, affected by droughts and river erosion that cause massive loss of land and livelihoods (Alston & Akhter 2016; Ahmed 2017; Delaporte & Maurel 2018; Subhani & Ahmad 2019; Sultana, Thompson & Wesselink 2020). The present research focuses on the north-west region.

Bangladesh is an overpopulated and resource-limited country. The society is significantly stratified, as access to services and opportunities are determined by gender, class and location (Ahmed 2017; Islam & Nursey-Bray 2017; Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018; Subhani & Ahmad 2019). In Bangladesh, many people have an inadequate diet and suffer from periods of food and water shortage (Tanjeela 2015; Alston & Akhter 2016; Abedin et al. 2019). Half of all rural children suffer from chronic malnutrition and 14% from acute malnutrition (Demetriades & Esplen 2009; Abedin et al. 2019; Razzaque et al. 2020). While some rural areas have experienced development based on new sources of income, such as non-farm self-employment income, salaried wages and remittances, micro-credit programs and funds from abroad in the 1990s due to an influx of NGOs (Islam & Nursey-Bray 2017; Islam & Shamsuddoha 2017; Delaporte & Maurel 2018; Rahman 2018; Akhter & Cheng 2020), impoverished and marginalised groups have been unable to benefit from these developments because they have lacked the resources or ability to take advantage of the opportunities available. Thus, inequalities generally continued to increase throughout the 1990s in rural areas.

Many marginalised groups, such as female-headed households, illiterate people, farm workers and people living in remote areas with adverse agricultural environments, have been more vulnerable to poverty due to limited access to assets, transport, power and other infrastructure (Alam 2017; Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018; Abedin et al. 2019). Gender inequality is also cited as a significant issue in Bangladesh (Alston & Akhter 2016; Ingham, Islam & Hicks 2018; Banarjee 2020). The Gender Inequality Index (GII) is a composite index that represents women's disparity in three dimensions: reproductive health, empowerment and the labour market. Bangladesh has improved its GII position over those of neighboring countries such as Nepal, Myanmar and India (Alston & Akhter 2016; Ahmed 2017; Islam et al. 2017; Abedin et al. 2019).

2.2.3 The Status of Women in Bangladesh

In Bangladesh, women's participation in the labour force is still limited for socio-cultural reasons (Panday 2015; Tanjeela & Rutherford 2018; Momtaz & Asaduzzaman 2019). Studies have shown that women in Bangladesh can be deprived of many of their rights, such as education, health and land ownership, because of norms and practices that privilege men (Islam 2014; Juran & Trivedi 2015; Tanjeela 2015; Khan et al. 2016; Ferdous & Mallick 2019). These studies also suggest that due to societal gender inequality, Bangladeshi women have access to fewer resources and less decision-making power, and they experience domestic violence and greater demands at both home and work. They also face wage discrimination and sexual harassment at work (Koenig et al. 2003; Hossain 2016; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019; Banarjee 2020). Furthermore, scholars have suggested that there are systematic gender differences in the distribution of subsistence resources, including education, food and health care (Nasreen 2012; Islam 2017; Tanjeela & Rutherford 2018; Alam et al. 2020).

Patriarchal values dominate Bangladesh's traditional society: the subjugation and segregation are imposed on women as societal norms from their birth (Islam & Sultana 2006; Juran & Trivedi 2015; Alston & Akhter 2016; Tanjeela & Rutherford 2018). Girls are often seen as financial burdens on their parents, and from birth receive less investment in their nutrition, care and education (Ara & Reazul 2013; Ahmed 2017; Tanjeela & Rutherford 2018).

Lack of education is one of the main factors that hinder women from equal participation in socio-economic activities with their male counterparts and helps perpetuate gender inequality, as education level significantly affects the control of women over their future (Koenig et al. 2003; Alston & Akhter 2016; Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018; Banarjee 2020). The rate of female literacy in Bangladesh is lower than that of males in the 15-45 age group. Approximately 80% of women live in rural areas (BBS 2015; Alston & Akhter 2016; Hossain 2016; Delaporte & Maurel 2018), where the female literacy rate is 44.5% compared to 51.2% for males; in contrast, the female literacy rate in urban areas is 60.8%, compared with 67.7% for males, so a rural/urban divide is particularly apparent (Islam 2014; Ahmed 2017).

In Bangladesh, the arrangement of child marriages remains a common practice, particularly in rural areas and urban slums, where many families consider that the onset of puberty indicates readiness for marriage (Ara & Reazul 2013; Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018). The rates of child marriage and adolescent motherhood in Bangladesh are among the world's highest. Almost three-quarters of women aged 20-49 are married before the age of 18, though the legal age of marriage is 18 for girls. On average, a woman is married to a man at least 10 years older than she before she is 20. This is because the guardian wants someone who is financially established and can take care of their daughter. Given Bangladeshi society's structure, women depend on men not just for material support, but also for protection (Alston & Akhter 2016; Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018), as a woman without male protection is open to various forms of male harassment, as well as female disapproval. From a young age, there is fear for their sexual security and virtue, which is an additional element in their feelings of general insecurity (Alston & Akhter 2016; Banerjee & Jackson 2017; Tanjeela & Rutherford 2018).

Bangladesh has one of the highest rates of adolescent motherhood in the world. One in four females starts childbearing before the age of 20 (Nasreen 2012; Juran & Trivedi 2015; Ferdous & Mallick 2019). Due to these early marriages, females suffer from poor mental health, malnutrition, lack of access to and use of medical services, high maternal mortality and lack of knowledge and awareness (Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018). Most pregnant women give birth without a professional attendant, with 85% of deliveries taking place at home, although health facilities are available in most areas. The lifetime risk of a woman dying during pregnancy or childbirth is one in 51, compared to

Ireland's one in 47,600 (the lowest rate in the world) (Demetriades & Esplen 2009; Razzaque et al. 2020). Approximately 12,000 women die each year in Bangladesh from complications related to pregnancy or in childbirth (GoB 2008a). Maternal health and mortality can thus be linked to the low status of women in households and their limited mobility generally (Juran & Trivedi 2015; Tanjeela & Rutherford 2018).

In Bangladesh, a woman's status derives from male family members. In general, a woman's role includes the maintenance of her family as a social institution and as an economic entity (Alston & Akhter 2016; Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018). However, the decision-making powers and economic control are almost always in the hands of men. Women's roles in decision-making are minimal within the family. In general, it is expected that men are responsible for income generation, and all decisions regarding income-related activities are also made by men (Banerjee & Jackson 2017; Ingham, Islam & Hicks 2018; Tanjeela & Rutherford 2018). Therefore, women are often deprived of the opportunity to make any decisions about family matters without male involvement. In the past, even reproductive decisions were made by men (Islam 2014; Juran & Trivedi 2015; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019).

Similarly, women's participation in organisations is also low. In most cases, males discourage their female family members from going outside and from participating in any formal training (Islam & Shamsuddoha 2017; Delaporte & Maurel 2018; Tanjeela & Rutherford 2018; Momtaz & Asaduzzaman 2019). Sen (2001) states that present gender systems are oppressive to women in two ways: first, there is unequal access to resources and divisions of labour within and outside the home; and second, household work and reproduction are not recognised as valuable. Nevertheless, over the last few years, there has been a steady change in social attitudes. As a result, women can begin to take advantage of new economic and social opportunities, significantly improving key development indicators. However, although women are playing a vital role in a wide range of income-generating activities and household economic activities, their contribution to the national economy is mostly unaccounted for (Banerjee & Jackson 2017; Islam et al. 2017; Ingham, Islam & Hicks 2018; Tanjeela & Rutherford 2018).

The constitution of Bangladesh designates Islam as the state religion but upholds the principle of secularism. It prohibits religious discrimination and provides equality for all religions

(Nasreen 2012; Islam et al. 2017; Tanjeela & Rutherford 2018). However, in the private sphere, Bangladeshi family codes are based on religious scripture that offers women unequal provisions in divorce, inheritance and other legal matters (Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018; Momtaz & Asaduzzaman 2019; Banarjee 2020). Bangladesh has a majority Muslim population and Islam plays a vital role in shaping people's lives (Juran & Trivedi 2015; Tanjeela 2015; Khan et al. 2016; Khan & Rahman 2016). Research suggests that in a patriarchal society, religious norms and practices are sometimes considered to promote the dominance of men (Islam 2014; Bailey, Cowling & Tomlinson 2015; Tariq & Syed 2017). Though the Government of Bangladesh has ensured equal rights for males and females in the constitution, scholars suggest that religious views hinder women's activities and limit their development in the social, economic and political sectors. Although there are examples of Muslim women in Bangladesh who are working in various sectors despite these religious limitations (Nasreen 2012; Tanjeela 2015). Panday (2015) have found that external security still plays an important role and is an issue for those women who wants to participate in activities outside the family.

In addition to religious limitations, social and cultural views keep women from accessing many resources. Some studies have revealed that women who work outside of their regular household jobs are stigmatised (Islam 2014; Juran & Trivedi 2015; Tanjeela 2015; Zaber, Nardi & Chen 2018), as they are breaking the rule of "purdha" (a religious norm that women should not appear in front any males other than family members). Interestingly if women work outside the home, it is perceived to be because working women's male guardians cannot take care of them (Kabeer 1990; Alam 2017; Abedin et al. 2019). Therefore, women are discouraged from working outside unless the family is experiencing severe financial hardship.

Over the years, the Government has collaborated with NGOs and other international agencies to promote the empowerment of women and to introduce a series of social initiatives to eradicate discrimination against them (Islam & Shamsuddoha 2017; Delaporte & Maurel 2018). Women's secondary education is becoming more prevalent, and their health status is improving as a result (Juran & Trivedi 2015; Khan & Rahman 2016). The implementation of cash for school and stipend services in the education sector has increased the enrollment of girls at school overall: a profound change for young and adolescent girls. In primary and secondary education, girls now outnumber boys (GoB 2008a). Net attendance rates in secondary education, however, are still meagre, with women at only 53% and boys at 46%.

Female adult literacy rates have increased from 27.4% in 1997 to 53.7% in 2011 (BBS 2013). Increased literacy is positively associated with increased opportunities for women to work.

Migrant women, who tend to be female heads of households (FHHs), now make a significant contribution to the informal urban labour market (Stillman et al. 2012; Delaporte & Maurel 2018; Tanjeela & Rutherford 2018). More women are now able to use health services due to their increased access to services and cash. As a result, female life expectancy increased from 65.4 years in 2000 to 72.3 years in 2018 (Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018; Razzaque et al. 2020). Women's participation in politics and administration, which was negligible in the past, has also increased. Despite this improvement, wide gender inequalities and discrimination persist in Bangladesh (Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018).

In rural areas, gender inequalities with respect to enjoyment of human rights, political freedom and economic status, land ownership, housing conditions, exposure to violence, safety and education and health are still significant concerns for Bangladesh, as overall, they make women more vulnerable to social, environmental and political changes (Ara & Reazul 2013; Islam 2014; Ahmed 2017; Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018). Women's overloaded house duties, along with poverty, social status and established religious norms and values, hinder women from overcoming the societal barriers to their full participation (Alston & Akhter 2016; Islam 2017; Islam & Shamsuddoha 2017). Although some rural women have legal access to property, employment and credit, this access remains limited by social norms and customs (Juran & Trivedi 2015; Islam et al. 2017; Tanjeela & Rutherford 2018; Akhter & Cheng 2020).

Despite women's crucial role in agriculture, their general undervaluing by society deprives them of equitable economic opportunities, status and access to resources. Women are not even considered to be farmers, as it is the men who market the produce and control the income (Tanjeela & Rutherford 2018; Momtaz & Asaduzzaman 2019). A joint research project by the Manusher Jonno Foundation (MJF) and the Centre for Policy Dialogue (CPD) in 2014 revealed that women in unpaid work accounted for 45.6% of the total employed in agriculture (Momtaz & Asaduzzaman 2019). The research also projected the value of women's unpaid work contribution to agriculture, other informal sectors and the household to be 76.8% of total GDP for the 2013-14 fiscal year. Thus, women's contribution to these

sectors must be quantified when determining a country's GDP, particularly in Bangladesh, where 89% of the country's women are engaged in such informal sectors (Tanny & Rahman 2017; Ingham, Islam & Hicks 2018; Momtaz & Asaduzzaman 2019).

In general, rural women's productive activities include raising seedlings, gathering seeds, performing post-harvesting tasks, cow fattening and milking, goat farming, backyard poultry rearing, pisciculture, agriculture, horticulture, food processing, cane and bamboo works, silk reeling, handloom weaving, garment making, fishnet making, coir production and handicrafts (Dankelman et al. 2008; Alston & Akhter 2016; Tanjeela & Rutherford 2018; Momtaz & Asaduzzaman 2019). Additionally, a significant number of rural women, particularly from impoverished, landless households, also engage in paid labour in construction and earthwork and field-based agricultural work, activities that traditionally fall within the male domain (Dankelman et al. 2008; Tanjeela & Rutherford 2018).

Women are generally their families' primary carers, solely responsible for ensuring food, water and comfort. In Bangladesh, most women depend on the natural environment for their livelihood and the maintenance of their household activities (Ahmed 2017; Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018; Alam et al. 2020). Therefore, the impact of climate change such as flood and storm damage or scarcity of natural resources directly affect women's livelihood and their ability to maintain their households (Ingham, Islam & Hicks 2018; Abedin et al. 2019; Momtaz & Asaduzzaman 2019). The following section will shed light on the impacts of climate change on Bangladeshi women.

2.3 CLIMATE-CHANGE REALITY AND THE MIGRATION OF BANGLADESHI WOMEN

Most people living in rural areas in Bangladesh depend for their livelihood directly on the natural environment, which is affected by frequent natural disasters (Pouliotte, Smit & Westerhoff 2009; Thomas et al. 2013; Jordan 2015; Islam & Amstel 2018). Many of these people do not own land, lack literacy and have poor housing (Ono & Schmidlin 2011). Researchers have suggested that those who do not have enough land in village areas – in particular, women, children and disabled people – are the worst affected by natural disasters

(Alam, Alam & Mushtaq 2017; Ingham, Islam & Hicks 2018; Khan, Nabia & Rahman 2018; Sarker et al. 2019).

In rural areas, women are the primary carers for their families, performing various activities such as cooking, cleaning, fetching water, childcare, taking care of elderly and sick family members and performing farm duties (Jahan 2008, 2012; Nasreen 2012; Islam et al. 2017; Tanjeela & Rutherford 2018). Even though these women are engaged in such tasks, they are considered to be economically inactive. Studies have also found that they are involved in income-generating work such as homestead gardening, cultivation and crafting (Jahan 2008, 2012; Nasreen 2012; Tanjeela & Rutherford 2018). Women work almost 16 hours per day at various unpaid household tasks (Juran & Trivedi 2015; Khan & Rahman 2016). However, the literature suggests that due to their low level of education, they are economically dependent on male relatives: first their father, then a husband and finally a son (Nasreen 2012; Islam 2014; Asian Development Bank 2017; Tanjeela & Rutherford 2018).

During the time of natural disasters such as flooding and river erosion, women experience severe hardships in performing their daily activities (Hoque & Haque 2013; Tanjeela 2015; Ingham, Islam & Hicks 2018; Sultana, Thompson & Wesselink 2020), which exacerbate the hardships caused by the prevailing gender inequality and discrimination (Nasreen 2012; Tanjeela 2015; Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018; Momtaz & Asaduzzaman 2019; Banarjee 2020).

Scholars agree that low-income families suffer enormously because of the losses they experience after any natural disaster (Hoque & Haque 2013; Tanjeela & Rutherford 2018; Subhani & Ahmad 2019). Notably, river erosion creates many types of losses for them; for example, the loss of household, crops, house belongings and sometimes human lives. The lives of these families change after the river erosion, and many families experience river erosions several times (Alam, Alam & Mushtaq 2017; Khan, Nabia & Rahman 2018; Sarker et al. 2019; Sultana, Thompson & Wesselink 2020).

After losing their resources and livelihoods, some of these victims migrate to urban areas, such as Dhaka and Chittagong (Ahmed 2017; Ingham, Islam & Hicks 2018; Rahman 2018). Climate change is having an increasing role in rural-urban migration, which is becoming a significant issue in Bangladesh (McNamara, Olson & Rahman 2016; Islam & Shamsuddoha

2017). The urban population currently comprises 26% of the country's total population (Ishtique & Mahmud 2011; McNamara, Olson & Rahman 2016; Bernzen, Jenkins & Braun 2019). Rural-urban migration due to climate change impacts is likely to be a significant cause of further rapid growth, particularly of metropolitan areas, of which Dhaka is the largest (Warner et al. 2009; Adamo & Izazola 2010; Mortuza 2018). On arrival, these women join the general urban poor in the slums, where they lack basic amenities of life (Ahmed 2016; Tanjeela & Rutherford 2018; Bernzen, Jenkins & Braun 2019). Most climate migrants choose the larger cities like Dhaka, as these offer more-diverse and potentially better income-earning opportunities (Warner et al. 2009; Adamo & Izazola 2010). However, cities have been identified as potentially riskier places than rural areas in the context of global environmental change (Mollah & Ferdaush 2015; ADB 2017; Adri & Simon 2017). Additionally, scholars have identified that living standards are severely reduced in these slums. Due to the rapid urbanisation, cities are experiencing many negative consequences and challenges such as poor access to transport, water, sanitation, housing, health and education services, as well as congestion and pollution. Inhabitants of slum settlements are particularly affected by these problems (Ahmed 2016; McNamara, Olson & Rahman 2016; Islam & Shamsuddoha 2017).

Migrated women should be a central concern in the context of rapid urbanisation (Alam 2017; Evertsen & Geest 2020; Razzaque et al. 2020). Women are particularly affected in low-cost settlements in accessing water, gas, electricity, sanitation, and transportation. They are also subject to frequent sexual harassment and violence due to the dense and flimsy housing, communal toilets and water points and insufficient lighting in urban settlements (ADB 2017; Tanjeela & Rutherford 2018). Due to their gender-defined role as primary carers of the family, women experience disproportionate burdens of unpaid care work such as cleaning, cooking and looking after children, the sick and the elderly (Satterthwaite 2013; ADB 2017; Razzaque et al. 2020). Research has also shown that because of cash poverty, women are compelled to work in either informal or formal low-paid activities. Their access to work is constrained by their unequal position in the urban labour market and their limited ability to secure assets independently of male relatives. Moreover, due to increasing prices and economic crises, women may need to work longer hours for the same income or to be able to manage within the same income (Mollah & Ferdaush 2015; McNamara, Olson & Rahman 2016; Alam 2017; Tanjeela & Rutherford 2018).

In urban areas, women are involved in different incoming-generating activities, but these are generally poorly paid and insecure, and often seasonal. In urban areas, women's participation in the RMG (ready-made garments) sector is well known. This sector employs almost 3.6 million people, of whom 80% are women, the majority coming from rural areas (McNamara, Olson & Rahman 2016; Stojanov et al. 2016; Adri & Simon 2017). However, in the unfamiliar urban environment, these women make up a vast pool of poor labourers with limited options, low mobility, low status and little security (Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018). Therefore, exploitation is also rife in urban areas.

In summary, gender-defined roles and unequal power relations embedded into cultural and religious norms create challenges for women in both rural and urban areas, which are aggravated by the adverse effects of natural disasters. Therefore, it is essential to protect climate-migrant women's wellbeing in an era when their lives are continuously threatened by the natural disasters caused by climate change. The Government of Bangladesh is concerned about the impact of climate change on women and is committed to achieve by 2030 the United Nations' SDGs, which aim to protect and ensure the wellbeing of women adversely affected by the natural disasters caused by climate change. The SDGs have the goal. The following section describes the relevant SDG goals in the context of this study.

2.4 SUSTAINABLE DEVELOPMENT GOALS IN BANGLADESH AND THE WAY FORWARD

The Sustainable Development Goals (SDGs) as a global call to action will help Bangladesh to alleviate poverty and improve its population's overall socio-economic conditions by 2030 (United Nations 2015; Islam & Shamsuddoha 2018). The SDGs include 17 goals with 169 targets; the significant focus is on climate change and the improvement of women's socio-economic conditions. Specifically, SDG 13 incorporates three major goals.

- 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters globally;
- 13.2: Integrate climate change measures into national policies, strategies and planning;
and

- 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

Accordingly, the Government of Bangladesh has started dialogues with local stakeholders (e.g., local governments, international and local NGOs, researchers, academics, civil-society groups and private-sector partners) to explore opportunities to overcome climate-change-related challenges with effective and sustainable solutions to achieve food security, improve nutrition and health and create jobs for climate-migrant victims, focusing on the more vulnerable groups such as marginalised communities, women and children. (Mollah & Ferdaush 2015; Adri & Simon 2017; Islam & Shamsuddoha 2018; Haque & Jahid 2019; Alam et al. 2020). Scholars have suggested that achieving the UN's 2030 SDG goals depend mainly on Government interventions and realistic plans (CLGF 2015; Guha & Chakrabarti 2019). Campbell et al. (2018) noted:

SDG 13 considers both adaptation and mitigation, and includes foci on: strengthening resilience; integrating climate change measures into national policies and planning; monitoring progress towards climate financial commitments; and, improving capacity on climate change, especially in Least Developed Countries (LDCs) (p. 14).

The United Nations (2015) has suggested five significant results associated with meeting the SDGs by 2030. First, SDGs will strengthen resilience and adaptive capacity for climate hazards across all nations, and more significantly in developing countries such as Bangladesh. Second, the SDGs will help to integrate climate-change measures into governmental policies and strategies, and will help policy-makers and world leaders. Third, the SDGs will improve awareness about climate change and uphold both human and institutional capacity for climate-change-related challenges. Fourth, the SDGs will implement the commitment undertaken by developed-country parties to the United Nations framework convention on climate change. Fifth, by achieving the SDGs, countries will be able to promote mechanisms that increase their capacity for productive climate-change-related planning and management in LDCs, including focusing on women, youth and local and marginalised communities. Scholars have suggested that the government support that is the major – or, in some cases, the only – available solution for climate-change victims depends on effective and situation-based solutions (McKeown 2002; Malalgoda, Amaratunga & Haigh 2018). Similarly, Burns,

Diamond-Vaught and Bauman (2015) note that “qualities of living processes (how all life operates) include resiliency, adaptivity, awareness, creativity, and relationships” (p. 133).

For a developing country like Bangladesh, achieving the SDGs (including SDG 13) will require governmental initiatives not only to ensure practical support for the climate-migrant women, but also to coordinate the roles of international or local NGOs. Guha and Chakrabarti (2019) recommend that “strengthening the capacity of local governments to work effectively with other local partners such as other local governments, NGOs, civil society groups or private sector partners is likely to help to ensure that limited resources are used well” (p. 14). Hence, the Government of Bangladesh needs a coordinated and effective action plan to integrate SDG 13 for its strategic success in Bangladesh in achieving the overall SDG goals. According to the United Nations (2015), meeting the SDGs requires the cooperation of governments, the corporate sector, civil society and citizens alike. Hence, effective governmental initiatives focusing on climate change and women will facilitate public-policy development and implementation to meet the actual needs and demands of climate migrants (Nikezić, Purić & Purić 2012; Burns, Diamond-Vaught & Bauman 2015).

This study will help identify the issues related to women’s climate migration in Bangladesh, which is considered one of the world’s most vulnerable countries to climate change (Alam, Alam & Mushtaq 2017; Islam 2017; Siddique 2017; Islam & Shamsuddoha 2018; Bernzen, Jenkins & Braun 2019). Additionally, women are considered to suffer more than men from climate variability (Arora-Jonsson 2011; Hoque & Haque 2013; Ingham, Islam & Hicks 2018; Ferdous & Mallick 2019; Haque et al. 2019). By focusing on this vulnerable community, the study findings will also help to explore opportunities to overcome climate-change-related challenges with effective and sustainable solutions that reduce their vulnerabilities and improve their wellbeing. This thesis contributes to SDG 13 (Actions on Climate Change) as a component of Bangladesh’s efforts to achieve the SDGs by 2030. Furthermore, by addressing the issues that come under SDG 13 this study can contribute positively to other SDGs such as 2, 3, 5, 6, and 11 (Campbell et al. 2018), as shown in Table 2.1.

Table 2.1: Sustainable Development Goals (SDGs)

Source: <https://www.un.org/sustainabledevelopment/> (viewed 20 January 2019)

Goal 2: Zero Hunger	It is time to rethink how we grow, share and consume our food. If done right, agriculture, forestry and fisheries can provide nutritious food for all and generate decent incomes, while supporting people-centred rural development and protecting the environment.
Goal 3: Ensure healthy lives and promote well-being for all at all ages	Ensuring healthy lives and promoting well-being at all ages is essential to sustainable development.
Goal 5: Achieve gender equality and empower all women and girls	While the world has achieved progress towards gender equality and women's empowerment under the Millennium Development Goals (including equal access to primary education between girls and boys), women and girls continue to suffer discrimination and violence in every part of the world.
Goal 6: Ensure access to water and sanitation for all	Clean, accessible water for all is an essential part of the world we want to live in and there is sufficient fresh water on the planet to achieve this. However, due to bad economics or poor infrastructure, millions of people including children die every year from diseases associated with inadequate water supply, sanitation and hygiene.
Goal 11: Make cities inclusive, safe, resilient and sustainable	Cities are hubs for ideas, commerce, culture, science, productivity, social development and much more. At their best, cities have enabled people to advance socially and economically. With the number of people living within cities projected to rise to 5 billion people by 2030, it's important that efficient urban planning and management practices are in place to deal with the challenges brought by urbanization.

Although many studies show the economic and material losses due to the natural disasters in Bangladesh (Alam 2017; Biswas et al. 2018; Abedin et al. 2019), there are not enough studies that show the impacts of these disasters on the lives of women, the group that is the most vulnerable. It is therefore important to study their lives and the impacts they experience due to severe natural disasters like river erosion, particularly the constraints on human-development

opportunities after a climate catastrophe. Thus, the following sections present Nussbaum's capabilities approach, a critical framework that guides this study and which, along with the social capital, answers the research questions about the life experiences of Bangladeshi climate-migrant women.

2.5 CAPABILITIES APPROACH: A TOOL TO EVALUATE HUMAN-DEVELOPMENT OPPORTUNITIES

The capabilities approach has already proved its worth in a number of significant contexts. It provided the conceptual underpinning for the UN's Human Development Reports and it has influenced the understanding of wellbeing in the recent Sarkozy Commission (Stiglitz, Sen & Fitoussi 2009) and has been the basis for the Equality and Human Rights Commission's approach to monitoring equality in the UK (Burchardt & Vizard 2011). Moreover, the capabilities approach has been widely applied in various development areas, such as welfare economics, social policy and political philosophy. It has been used to evaluate a wide variety of aspects of people's wellbeing, such as individual wellbeing, inequality, poverty and disaster recovery and mitigation (Alkire 2002; Deneulin & McGregor 2010; Goerne 2010; Burchardt & Vizard 2011; Hick 2012; Alkire & Santos 2013; Burchi, Muro & Kollar 2014; Gupta 2015; Evans 2017).

The capabilities approach provides a framework that reflects the many ways in which human lives can be blighted (Hick 2012; Kim 2012; Alkire & Santos 2013). It may also be used as an alternative evaluative tool for social cost-benefit analysis, or to design and evaluate policies varying from welfare-state design in affluent societies to development policies by governments and NGOs in developing countries (Robeyns 2005; Murphy & Gardoni 2006, 2010).

The next sections present the origins of the capabilities approach, its main development traditions and the reasons that justify its choice for this study.

2.5.1 Capabilities Approach: Its Origins and Core Concepts

This section begins by tracing the history of the capabilities approach and highlighting different facets of this theoretical framework that are of particular importance to, and commonly integrated into, discussion surrounding climate-migrant women's quality of life in Bangladesh. The capabilities approach is a framework based on people's actual abilities and their scope to make the most of them. In other words, the capabilities approach is about what people are capable of and can do (Sen 1985). The approach in its present form has been pioneered by Nobel Prize-winning economist and philosopher Amartya Sen (Sen 1984, 1985, 1992; Drèze & Sen 2002). Sen's approach has been significantly developed by the liberal feminist philosopher Martha Nussbaum (Nussbaum 1995, 2000, 2002, 2003, 2006, 2011).

Sen and Nussbaum both argued that individuals' wellbeing should be defined and gauged in terms of individual capabilities. The prime focus of the capabilities approach is people's capabilities – their freedom to promote or achieve what they value doing and being. Given this approach, a woman's capability to live a good life can be defined in terms of the set of valuable "beings and doings", such as being in good health or having loving relationships with others, to which they have real access. Sen (2001) argued that women should have the capabilities (or freedom) to lead the kind of lives they want to lead, to do what they want to do and be the person they want to be. Once they effectively have these capabilities, they can choose to act on them in line with their ideas of the kind of life they want to live (Sen 1985, 1992, 1999). Hence, the capabilities approach focuses upon the freedom to achieve in general and the capabilities to function in particular (Sen 1999). According to Sen and Nussbaum, capabilities refer to the effective freedom of individuals to achieve valuable functionings, or doings and beings (Anand & Sen 2000).

There is much agreement in Sen and Nussbaum's respective writings about fundamentals in the approach: both recognise differences and diversity in people's abilities, the multi-dimensional influences on welfare and the crucial importance of each agents' free and autonomous choice in relation to activities they have reason to value. They both ratify the two major constituents of the capabilities approach: "functionings" and "capabilities" (Sen 1999; Alkire 2005).

a. Functionings

In the capabilities approach, functionings refers to “the various things a person may value doing or being” and are constitutive of a person’s being (Sen 1999, p.75). They are valuable activities and states that make up women’s wellbeing, such as being healthy and well-nourished, being safe, being educated, having a good job and being able to visit loved ones. They are related to goods and income, but also describe what a woman can do or be with them. For example, when women’s basic need for food (a commodity) is met, they enjoy the functioning of being well-nourished. Achieved functionings are beings and doings that an individual considers valuable and have been successfully realised. Achieved functionings reflect individual wellbeing (Alkire 2005).

b. Capabilities

Capabilities refer to “the real opportunity that we have to accomplish what we value” (Sen 1999, p.74). Capability reflects an individual’s or community’s freedom and ability to achieve various combinations of valuable functionings. It is the opportunity “to choose from various livings” (Sen 1992, p.40). Here, the capability of women refers to the freedom to enjoy various functions. In particular, capabilities are defined as “the various combinations of functions (beings and doings) that a woman can achieve. Capability is thus a set of vectors of functions, reflecting the women’s freedom to lead one type of life or another to choose from possible livings” (Sen 1992). In other words, capabilities are the substantive freedoms that a person enjoys leading the kind of life she has reason to value (Sen 1999).

Sen’s capabilities approach states that there are five instrumental capabilities that, if women have access to them, will provide them with opportunities to act in their self-interest and reduce their vulnerability. Access to these instrumental freedoms – political freedom, economic facilities, social opportunities, transparency guarantees and protective security – are necessary for women to gain a better quality of life and acquire the capabilities they need to act as agents; that is, someone who acts and brings about change (Sen 1999).

Nussbaum (2000) described the capabilities approach as an approach that focuses not on preference-satisfaction but on what women can do and to be. Central to her approach is the idea that freedom is more than women having rights on paper; it also requires women to have

the resources to exercise these rights. Nussbaum modified Sen’s capabilities approach by drawing on the work of Aristotle and Karl Marx, but also aligned herself with Sen’s contributions by embracing the distinction between capabilities and functions (Nussbaum 2000). In her book *Creating Capabilities*, Nussbaum (2011) argues that the capabilities approach should be “defined as an approach to comparative quality-of-life assessment and to theorizing about basic social justice” (Nussbaum 2011, p.18). However, the definition of core concepts of functioning and capabilities remain the same (Table 2.2).

Table 2.2. Terms and their meaning in Nussbaum’s capability theory

Source: Nussbaum 2011 (p. 18-26)

<i>Terminology</i>	<i>Nussbaum’s Definition of Terms</i>
Resources	Means by which individuals achieve capabilities, including net income, goods and services.
Capability set (or capability)	The collection of the particular functionings that individuals can feasibly achieve. Capabilities are abilities as well as opportunities created by the social and economic environment. Our capability set is the totality of opportunities we have for choice and action in our specific context.
Functioning	Active realisations or outgrowths of capabilities. Functionings may be both states of being (e.g. those of nourishment, education, mental health) and doings (e.g. caregiving, voting, eating, taking drugs, engaging in leisure activities, working).
Wellbeing	The assessment of a person’s achieved functioning in relation to what the person values most. Nussbaum argues that achieving a broad range of functionings, in a balanced way, is crucial to wellbeing.

Nussbaum indicates a set of fundamental human capabilities that are held to be essential to an extraordinary human life. Nussbaum’s (2011) list of capabilities identifies a basic set of

central human functional capabilities that form a necessary minimum for a worthwhile life (this list is presented in detail in *Creating Capabilities*, 2011, p. 33-34):

1. Being able to live to the end of a human life of normal length.
2. Being able to have good health, adequate nutrition, adequate shelter, opportunities for sexual satisfaction and choice in reproduction, and mobility.
3. Being able to avoid unnecessary and non-beneficial pain and to have pleasurable experiences.
4. Being able to use the senses, imagine, think, and reason; and to have the educational opportunities necessary to realize these capacities.
5. Being able to have attachments to things and persons outside ourselves.
6. Being able to form a conception of the good and to engage in critical reflection about the planning of one's own life.
7. Being able to live for and with others, to recognize and show concern for other human beings.
8. Being able to live with concern for and in relation to animals and the world of nature.
9. Being able to laugh, to play, to enjoy recreational activities.
10. Being able to live one's own life and no one else's; enjoying freedom of association and freedom from unwarranted search and seizure.

Within this list, Nussbaum identified thresholds: a minimal list of central human capabilities to which every human being is entitled (Nussbaum 2003). Nussbaum (2000) stated that the above issues identified those human capabilities that can be convincingly argued to be of central importance in any human life, whatever else the person pursues or chooses. Moreover, she argued that this list provides basic political principles that should be embodied in constitutional guarantees, human-rights legislation and development policy (Nussbaum 1995). Thus, Nussbaum's capabilities approach goes beyond asking about people's preferences to ask what opportunities and liberties are available, as well as how the available resources support or do not support people to function (Nussbaum 2011). Further, Nussbaum has focused on women's capabilities: the substantive freedoms or opportunities that are created by a combination of the abilities residing inside a woman (such as capacities and skills) with their social, economic and political environment. She also offers an analysis of gender issues in development that flows from the capabilities approach to an analysis of quality of life (Nussbaum 1995).

Nussbaum's (2011) central functionings and capabilities have value in themselves and are mutually interdependent; they are instrumental, and a prerequisite for expanding other capabilities. According to Fukuda-Parr (2003), achieved functionings are seen as key indicators of capability and human progress. To assess the living conditions of climate-migrant women in Bangladesh and the impact of climate change on their functionings and capabilities, it is necessary to establish what these functionings and capabilities actually are. Using Nussbaum's (2011) list, it is assumed that these represent a minimum threshold of functional capabilities, from which all other capabilities are realised. If these basic functional capabilities are not achieved, then the necessary prerequisites are lacking for the realisation of other capabilities.

Furthermore, if the functional capabilities that are achieved are not of value, or if they are not achieved at all, this can impede the achievement of other central functional capabilities. For example, Haynes (2009) notes that forced labour as a form of "being employed" does not constitute a valuable functioning. Furthermore, forced labour may hinder the achievement of other functional capabilities (which may be intrinsically or instrumentally valuable), and that this has a subsequent knock-on effect on additional functional capabilities. She also stated that forced labour could mean a loss of income and/or loss of time spent on the land (or loss of other forms of productivity) that are considered instrumental to being well nourished, and being able to have good bodily health. Furthermore, forced labour may have additional negative implications for other central functional capabilities, such as having bodily integrity and being able to control one's own environment.

2.5.2 Differences Between Sen and Nussbaum's Conceptualisation of the Capabilities Approach

From the perspective of climate-migrant women in Bangladesh, what they value in life, what enables them to live fulfilled and meaningful lives and the existing social conditions that contribute to their situations can be understood through the capabilities approach. Sen's and Nussbaum's approaches both add force to women's voices and agency through advocating for independence and empowerment (Sen 1999). However, Nussbaum modifies Sen's concept of capabilities and uses it to empower women especially in LDCs (Kim 2012; Hoque & Haque 2013). The following discussion stipulates why Nussbaum's capabilities approach is more

suitable for this study than Sen's by comparing and contrasting their work in the context of climate-migrant women in Bangladesh.

Nussbaum's capabilities approach is a more specifically gender-sensitive theory of wellbeing and quality of life. When Nussbaum (2000) modified the more general capabilities approach developed by Sen (Sen 1984, 1999), she stated that women face special problems because of sex in more or less every nation in the world. She also stressed that it is essential to understand the more general issues of poverty and development, and that an approach to international development should be assessed for its ability to recognise these problems and make recommendations for their solutions (Nussbaum 2002).

Nussbaum is recognised as developing the most systematic, extensive and influential account of the capabilities approach and as having conceptualised her version of the approach more meticulously than Sen, by situating it in her feminist philosophical framework of neo-Aristotelianism and Rawlsian political liberalism. (Gough 2003; Robeyns 2005; Deneulin & McGregor 2010). For example, her list of capabilities includes relationships, caring and reproduction. Since then, it has been applied directly and with insight to the issues faced by women across the developing world. It has also been suggested that Nussbaum's work extends the capabilities approach, which had originally been designed for application at the community level, to a global stage (Truong & Gasper 2008; Preibisch, Dodd & Su 2016).

In addition to Nussbaum's focus on gender and her expansion of the approach from the community level to the global level, she sets out three specific differences that set her capabilities approach apart from Sen's contributions (Robeyns 2005; Alkire & Santos 2013). First, she criticises Sen for not grounding his theory in a Marxian/Aristotelian idea of human functioning, arguing that a function must not be performed in just any way, but more rationally, exercising human powers such as self-expressive creativity; otherwise, people live their lives in a manner more akin to that of an animal than a human being.

Although it could be argued that it is not necessary to ground a capabilities approach in Marx and Aristotle to evaluate human wellbeing, Nussbaum's more orthodox philosophical approach, which focuses on theoretical rigour, coherence and completeness, is considered to be the most systematic, extensive and powerful capabilities approach to date (Alkire 2005; Deneulin & McGregor 2010). As a result, Sen's approach is sometimes perceived merely as a

predecessor to Nussbaum's, and therefore of primarily historical interest rather than a parallel approach in its own right. A practical consequence is that while Sen's work is closer to economic reasoning and social choice, Nussbaum's is closer to traditions in the humanities, such as narrative approaches, which help conceptualise women's hopes, desires, aspirations, motivations and decisions (Robeyns 2005).

The second area of difference is that Nussbaum (2000) argues against Sen for not explicitly rejecting cultural relativism. Nussbaum defends the assertion of universal values and believes they are embodied in Sen's capabilities approach. She appeals to these values to condemn cultural practices that subordinate women. Socio-cultural values and norms have a significant influence on the lives and social conditions of women in Bangladesh. Nussbaum argues that the subordination of women is a consequence of the existing patriarchal social system that determines power relations within households and the bargaining power of household members through the organisation of the family, kinship and marriage, inheritance patterns, gender segregation and associated ideologies (Kabeer 2005; Naved & Persson 2010; Islam 2014). Women's access to material resources is restricted, leaving them dependent on male relatives (Okojie 1994; Akter & Mallick 2013).

Despite her assertion of the existence of universal values, Nussbaum argues that her capabilities approach can accommodate cultural diversity in that differences in value orientations between cultures and societies can be taken into consideration in formulating and reformulating the contents of a basic threshold of capabilities necessary for human development. For example, women experiencing domestic violence in both developing and western countries cannot meet the threshold capability of being able to avoid unnecessary and non-beneficial pain, but in Bangladesh violence against women within the family is not considered as a violation of women's essential dignity and human rights (Hossain 2016; Khan et al 2016). Thus, the socio-political environment and the resources available are quite different in the two contexts.

Sen has designed his concept of capabilities in part to address the problem of maladaptive preferences. He illustrates this problem by referring to Indian widows who have learned to disregard their adverse health conditions and deprivation (Sen 1999). Because many women do not accept capabilities as universal values, Nussbaum also invokes the concept of maladaptive preferences, but takes it a step further, arguing that existing preferences or

desires may be mistaken when they are maladaptations to unjust social circumstances; for example, climate-migrant women in Bangladesh might sometimes fail to recognise that they are oppressed and might thus accept their status as desirable. She has postulated capabilities as universal values even in the absence of an expressed consensus. Where there are apparent contradictions between a feminist position and the opinions of oppressed women, researchers need to start by carefully exploring any capabilities about which women express concern. For example, Kim (2012) states that among the 10 capabilities in Nussbaum's list, climate-migrants stress four capabilities in particular: bodily integrity, bodily health, other species and control over one's environment.

A third difference is that Sen does not offer any explicit list of central capabilities, focusing instead on "five instrumental liberties". In contrast, Nussbaum indicates a set of 10 fundamental human capabilities that she holds to be essential to a good human life (Nussbaum 2003). Both Sen's five instrumental liberties and Nussbaum's list of central capabilities can be used as criteria to evaluate the deprivation situations of climate-migrant women. However, Sen's criteria are more limited in that they are too abstract to apply usefully to actual social problems. Nussbaum's list provides a more realistic basis for applied valuation (Kim 2012), as it can not only reveal women's present circumstances but also provide indicators of the necessary protection and assistance to empower them to act as agents. For example, Kim (2012) applies Nussbaum's list to identifying climate migrants' need for protection and assistance. Similarly, Hoque and Haque (2013) apply Nussbaum's capabilities approach to studying the deprivation of capabilities in women's lives and their vulnerability after river erosion at Sarikandi and Kutubpur in Bogra, Bangladesh. Therefore, to analyse the social conditions of migrant women in Bangladesh, Nussbaum's list of central capabilities appears to be more applicable than Sen's five instrumental liberties.

These points of division distinguish Sen's and Nussbaum's theories of the capabilities approach. Most important is Nussbaum's greater attention to gender, especially in developing countries. Further, the differences concerning cultural relativism and the list of central capabilities make Nussbaum's capabilities approach more immediately applicable in the context of climate-migrant women in Bangladesh. Nussbaum argues that the focus on central capabilities is a reminder that special efforts must be made to address the unequal needs of those who begin from a position of social disadvantage. Thus, to understand climate-migrant women's situation from the perspective of gender, Nussbaum's approach is likely to provide

more insights into their vulnerabilities and survival strategies, and opens a public space where government institutions, multinational corporations, NGOs and private individuals can contribute to creating public policy. Therefore, it has the potential to not only examine the living conditions of these women and what a life of dignity might look like for them, but also to help this study identify and propose recommendations that can be integrated in policy and practice.

2.5.3 The Feministic Perspective of Nussbaum's Capabilities Approach

This thesis focuses on the climate-migrant women of Bangladesh and applies Nussbaum's capabilities approach from a feminist perspective. Nussbaum's capabilities approach (also known as the Human Development Approach) calls for justice for women and human dignity across the world (Nussbaum 2011). Nussbaum notes that women "need theoretical approaches that can aid their struggles, or at least provoke public debate by drawing attention to them; they do not need approaches that keep these struggles hidden or muffle discussion and criticism" (Nussbaum 2011, p. 1). Scholars have supported Nussbaum's call and indicated that there is a significant challenge for feminism in how it responds, ethically and politically, to global concerns (Jabri 2004; Schott 2008). Nussbaum's capabilities approach captures the feminist perspective, asserting that "women are often treated as passive dependents, creatures to be cared for (or not), rather than as independent human beings deserving respect for their choices" (Nussbaum 2011, p. 1).

As a modern and feminist theory, Nussbaum's (2011) capabilities approach has been developed based on a long history of thought; Sen's work (Sen 1984, 1985, 1999; Drèze & Sen 2002) has had a significant influence on its current form. Nussbaum (2011) notes that "questions about a person's opportunities and options, what she is really in a position to do and to be, are ubiquitous in human life; they are probably part not just of every culture but of every individual life" (p. 123). A significant number of empirical studies have applied Nussbaum's (2011) capabilities approach to justify their feminist perspectives and to draw conclusions about women who are struggling as well as those who are succeeding (Charlesworth 2000; Jabri 2004; Alkire 2008; Schott 2008; Alkire & Santos 2013). Jabri (2004) suggests that Nussbaum's capabilities approach encompasses a feminism that is modern in orientation, directed at "humanity" at large. Similarly, Van Marle (2003) notes that "Nussbaum attempts to formulate an approach to international development that is feminist,

philosophical and based on a universalist account of central human functions” (p. 257). This thesis applies Nussbaum’s capabilities approach as a well-accepted normative theoretical tool to clarify the social-cultural arrangements of Bangladeshi climate-migrant women regarding their freedom to achieve the functionings (Nussbaum 2011) that can help them overcome the impact of climate-change-related disasters such as river erosion. Accordingly, this thesis offers some practical recommendations from a feminist perspective to uphold women’s development and reduce their vulnerability to poverty so that they can achieve greater freedom.

2.5.4 Applying Nussbaum’s Capabilities Approach in the Present Research Context

Nussbaum characterises the significance of her list of the Central Human Capabilities in these terms: “My claim is that a life that lacks any one of these capabilities, no matter what else it has, will fall short of being a good human life” (Nussbaum 2011, p. 85). Further, she maintains that the capabilities she proposes, and their justification, ought to be taken seriously by development theorists in the design of development strategies, and that public policy must be guided by a conception of the human good that gives the policy-maker clear guidance in selecting goals and priorities for the development process. “The basic claim I wish to make...is that the central goal of public planning should be the capabilities of citizens to perform various important functions” (Nussbaum 1995, p. 87). Therefore, by analysing her list of 10 central capabilities, this study will focus on how climate migration constrains women’s capabilities and stands as an obstacle for their wellbeing. Supporting the above discussion of Nussbaum’s capabilities approach, the following diagram represents this study’s links with Nussbaum’s list of 10 capabilities.

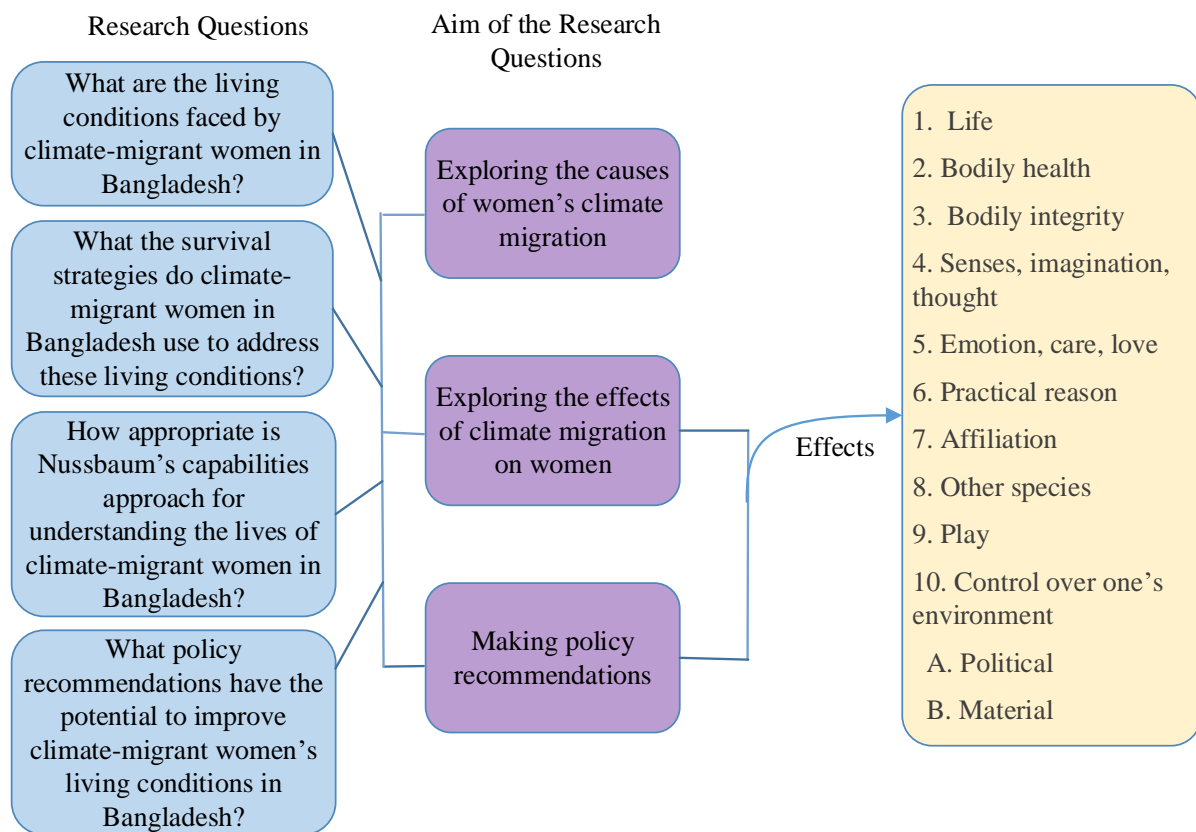


Figure 2.2: This study's links with Nussbaum's list of 10 central capabilities

Figure 2.2 shows the objectives and aims of the study and how to achieve the aims, including gaining insights into the physical, mental and social consequences (effects) of climate migration on women through the lens of Nussbaum's 10 capabilities. Examples of how her list of capabilities will be evaluated in this study include:

1. According to Nussbaum (2011), life means being able to live to the end of a normal-length human life; that is, not dying prematurely. This study will identify how climate migration constrains the life-span of the women in the study area.
2. Bodily health is the ability to have good health, including reproductive health, and the ability to have adequate nutrition, shelter and sexual satisfaction (Nussbaum 2011). This study will focus how climate migration constrains good health
3. Bodily integrity means being able to move freely from place to place and being secure against violent assault, including sexual assault (Nussbaum 2011). This study will focus on how climate-migrant women lived before migration and now: their living conditions

and whether they face any situation that affects their security against violent assault such as sexual assault and domestic violence.

4. Nussbaum defines senses, imagination, thought as being able to use the senses: to imagine, think and reason in a truly human way that is informed and cultivated by an adequate education that includes, but is by no means limited to, literacy and basic mathematical and scientific training; being able to use imagination and thought in connection with experiencing and producing expressive works and events of one's own choice, including religious expression, literature and music; being able to use one's mind in ways protected by guarantees of freedom of expression with respect to both political and artistic speech and freedom of religious exercise; and being able to have pleasurable experiences and avoid non-beneficial pain (Nussbaum 2011). This study will focus on climate migrants' ability to use their senses to imagine, think and reason in a truly human way.
5. In the deprivation caused by climate migration, do women have scope to think and imagine (Nussbaum 2011) about their life? Do they have any choice about their life, or must they do what only is made available to them by others? This study will examine whether there is any scope for their emotions in their life, and how love and care come to them in their vulnerability, and whether they have the ability to have attachment to things outside themselves; this includes being able to love others, grieve at the loss of loved ones and be angry when it is justified.
6. According to Nussbaum (2011), practical reasoning is the ability or engagement to plan one's current life and future: to form a conception of the good and to engage in critical reflection about how to achieve it; this entails protection for the liberty of conscience and religious observance. When climate-migrant women are displaced from their day-to-day life into a new environment, questions arise about how their lives change, how they cope with various situations, what their perceptions about their life are and what, when they have lost everything in a natural disaster, their plans are for their life henceforth.
7. Affiliation is the ability to live for and in relation to others, to recognise and show concern for other human beings, to engage in various forms of social interaction, to

imagine the situation of another and to have compassion for that situation (Nussbaum 2011). After migrating from a society where affiliation among neighbours was a part of their life, does climate-migrant women's situation change? This research addresses how affiliation comes to them after migration. This includes their ability to live with and show concern and empathy for others, and to have self-respect and insist on being treated with dignity.

8. Other species indicates the opportunity to live with concern for and in relation to animals, plants and the world of nature (Nussbaum 2011). In rural settings women have the opportunity for a strong connection to plants and animals. What is their relationship to nature and how does this change with migration?
9. Play indicates the ability to laugh, play and enjoy recreational activities (Nussbaum 2011). This study will focus on climate-migrant women's opportunities to enjoy recreational activities after their arrival in a new place, and whether their recreational activities are hampered because of climate migration.
10. Control over environment is defined as the perceived control individuals have over various characteristics of their environment. Nussbaum (2011) classifies control over one's environment into political and material controls. The former refers to being able to participate effectively in political choices that govern one's life, including having the right of political participation and protections for free speech and association. The latter refers to being able to hold property (both land and movable goods), not just formally but in terms of real opportunity, and having the freedom from unwarranted search and seizure (Nussbaum 2011). This analysis will examine climate-migrant women's political influence before and after climate migration, including their ability to effectively participate in political life and be accorded the rights to free speech and association. The study will also examine changes in their control over their material environment and the opportunities they have to create an adequate livelihood. Their ability to seek employment on an equal basis as others and the freedom from unwarranted search and seizure will also be considered here.

There have been increasing attempts to apply Nussbaum's capabilities approach in recent years. However, different scholars have criticised this approach from various perspectives.

Thus, before applying it in the current study, it is appropriate to be aware of relevant criticisms, which will be discussed in the following section.

2.5.5 Criticisms of Nussbaum's Capabilities Approach

Nussbaum's capabilities approach is not without criticism. Some scholars have questioned the epistemological basis of her approach, finding it slightly suspicious that although she has participated for years in the discourse of cross-cultural scholarship, her list remains the same, somewhat "intellectualised", Aristotelian one she had suggested in the first place (Okin 2003). They also suggest that it reflects the values of a typical 21st-century American liberal rather than presenting a set of timeless, universal values or a contemporary global consensus (Stewart 2001). Similarly, other critics argue that her legal-moral-philosophical orientation is elitist and over-optimistic about the capacity and nature of governments and constitutions (Menon 2002), that it is over-specified and paternalistic yet still misses out essential capabilities and that it is inappropriate for many uses, such as measuring quality of life (Alkire 2005).

There are, however, counter-arguments to these criticisms. First, Nussbaum's list is intended as open-ended and subject to ongoing revision and rethinking. Nussbaum (2006, 2011) herself states that this open-endedness is even more important if the approach is extended to the international community, because good ideas as well as useful criticism are more likely to emerge in such debates. Thus, Nussbaum intends that her approach accommodate cultural diversity, which also suggests an emphasis on dialogue and openness among diverse communities around the world; the example in this study is the community of climate-migrant women in Bangladesh. Through this open-endedness, differences in value orientations between cultures and societies can be taken into consideration in formulating and reformulating an understanding of the capabilities necessary for human development.

Second, the topics on the list are set out in a somewhat abstract and general way, precisely to leave room for the activities they encompass to be deliberated and specified by the citizens, legislatures and courts in each nation (Nussbaum 2006, 2011). In this study, the capabilities approach is used to advance the role of political deliberation to identify appropriate measures for Bangladeshi climate-migrant women in terms of capabilities, and the study asserts that this task properly belongs to governmental structures and institutions. Public deliberation will

enable women to raise essential concerns relative to their choice of capabilities. Democratic engagements through a legislative agenda on the capabilities that women should have will strengthen the political resolve of government leaders regarding human development in the Least Developed Countries (LDCs) like Bangladesh.

Third, the list represents a freestanding partial moral conception introduced for political purposes only, and without any grounding in metaphysical ideas of the sort that divide people along the lines of culture and religion. This study uses Rawls' formula for how political consensus can be arrived at in society, given the plurality of individuals' beliefs. Thus, the threshold of capabilities is not intended as an all-encompassing moral prescription. This means that the list can be the focus of government institutions and policy-makers, who should ensure that each climate-migrant woman in Bangladesh, regardless of her background, has an opportunity to achieve a decent and dignified life.

Finally, the significant liberties that protect pluralism are central items of the list: freedom of speech, freedom of association and freedom of conscience. A nation that does not protect these is at best half-hearted about pluralism. This study puts forward essential items that ensure respect for pluralism in society, thereby protecting the essential freedoms that guarantee such. Governments must respect these freedoms to make overlapping consensus work.

Therefore, to identify the capabilities of climate-migrant women in Bangladesh, Nussbaum's capabilities approach, and particularly her list of central human capabilities, can be used as the starting point to evaluate the deprivations of freedom that climate-migrant women face, and to examine the existing avenues for overcoming them. Because the approach is open-ended and subject to ongoing revision and rethinking (Nussbaum 2006, 2011), this study will allow the participants to raise other relevant concerns that are not included in Nussbaum's list but may arise due to the cross-cultural issues.

By focusing on the vulnerabilities of climate-migrant women, this approach will support the improvement of their wellbeing and encourage them to act more readily as agents of change within their societies. This study will also have the advantage of Nussbaum's capabilities approach, which has the considerable capacity to support the development of recommendations for enabling and empowering poor rural women and add force to women's

voices and agency through independence and empowerment (Sen 1999; Roy & Venema 2002). Thus, after taking into consideration the criticisms of Nussbaum's capabilities approach and the necessary contrast and distinctions between Sen and Nussbaum, Nussbaum's capabilities approach emerges as the more appropriate theoretical tool to achieve this study's research objectives.

2.6 SOCIAL CAPITAL

As the notion of social capital has been defined from numerous perspectives, the literature presents varying definitions and discussions about this term. The next paragraphs will present a discussion based on the works of Bourdieu, Coleman and Putnam examining social capital. Pierre Bourdieu is considered the pioneer of the concept of social capital. Bourdieu (1986) defines social capital as: "The aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition". Its origins are "made up of social obligations ('connections'), which are convertible, in certain conditions, into economic capital and may be institutionalized in the form of a title of nobility" (Bourdieu 1986, p. 243). Thus, Bourdieu emphasises social ties, how they function as a resource and how they can potentially reproduce status.

Since Bourdieu, many other authors have contributed to the development of this notion. The propositions made by Coleman (1990) and Putnam (1995) were retained for this study, mainly due to their significant contributions to the development of the concept. Coleman (1990) emphasises obligations, information-sharing, norms and social networks as expressions of social capital. Similarly, Putnam (1995) frames social capital as features of social organisation such as networks, norms and social values, such as trust, that facilitate coordination and cooperation for mutual benefit (Putnam 1995). Putnam's definition differentiates three elements of social capital: norms, social values/trust and networks (Kim et al. 2017).

In short, the propositions of these three authors converge in one common point: the complex dynamics of exchanges that can be observed in communities. This means that the social capital of a specific social group can be studied through the dynamics of relationships

established between its members. Thus, for this study, social capital must be understood as the different types of networks established between the members of a family or of a community settled in a determined physical space (Figure 2.3).

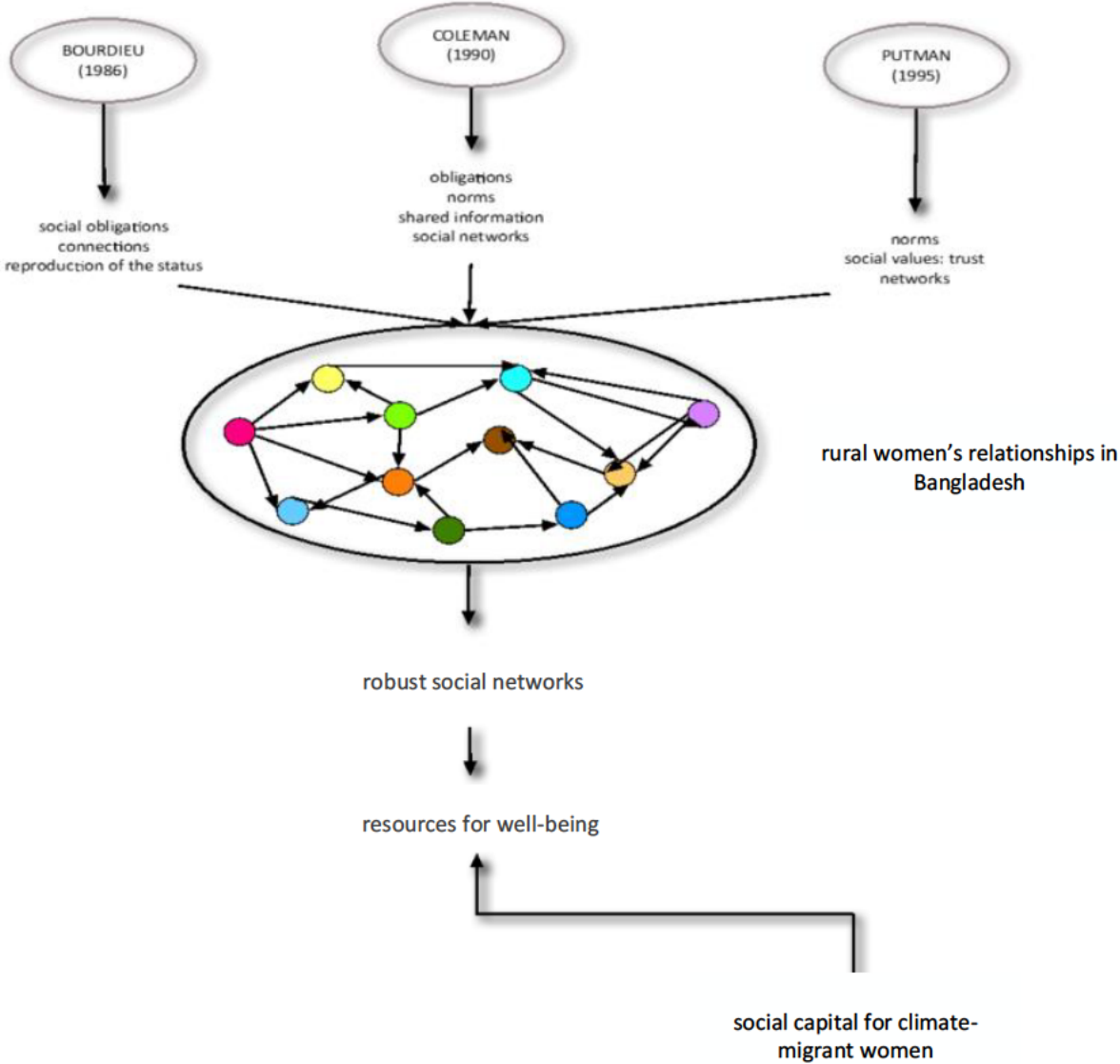


Figure 2.3: Social capital for climate-migrant women in Bangladesh

Figure 2.3 depicts the complex relationships and dynamics of exchange for climate-migrant women in Bangladesh that may exist in rural areas in terms of relationships among people who share similar norms, values, culture, lifestyles, social obligations, trust and reciprocity. These relationships may help them to build robust social networks that affect their wellbeing. Taking Coleman’s and Putnam’s positions together, O’Brien and Fathaigh (2005) explain social capital as the ways families and communities foster (or fail to foster) such features of

social life as trust, shared information and positive norms of behaviour in their networks, for everyone's mutual benefit. Most definitions of social capital have in common that they focus on social relations that have productive benefits.

Other social scientists also have also discussed the notion of social capital. Dekker and Uslaner (2001) contend that social capital is about valuing social networks, bonds between similar people and bridging of gaps between diverse people, with norms of reciprocity. Sander (2002, p. 213) finds that "the folk wisdom that more people get their jobs from whom they know, rather than what they know, turns out to be true". Kwon and Adler (2014) argue that the core intuition that guides social capital research is that the goodwill that people have toward each other is a valuable resource, and that "its effects flow from the information, influence, and solidarity it makes available to the actor" (p. 23).

However, despite all the differences that might be present in the different definitions, discussions and explanations surrounding this social theory, the one thing they have in common is that the idea of social capital concerns how social networks, bonds and understandings can yield numerous benefits. Numerous studies have shown that social capital is capable of producing a variety of positive outcomes beyond economic advantage, such as improved health and wellbeing (Halpern 2005; Hawkins & Maurer 2009; Horsfall, Cleary & Hunt 2010; Horsfall, Noonan & Leonard 2012; Horsfall et al. 2017). For example, Leonard et al. (2018) write that informal support networks support terminally ill people. The following sections will discuss the different social networks that are considered to be important components of social capital.

2.6.1 Social Networks

Social networks are relationships that develop between individuals and/or groups (Carpenter 2013; Islam & Walkerden 2015). Studies have explored social networks as the crucial embodiment of social capital (Islam & Walkerden 2014; Sanyal & Routray 2016; Christ & Niles 2018), examining the strengths and weaknesses of the networks within and between communities. Social networks are commonly differentiated into networks of three types according to the forms of relationships people have with each other: bonding, bridging and linking. These networks are based on the proximity between the individuals that comprise them (Woolcock & Narayan 2000; Islam & Walkerden 2015; Sanyal & Routray 2016). The next paragraphs will illustrate each one of these networks.

2.6.1.1 Bonding Networks

In general, bonding networks refer to the relationship between family members. Bonding relationships, which are particularly close, are “inward looking” (Patulny & Svendsen 2007). In some studies, “bonding” networks are defined to include relationships not merely with family members and relatives but also with close friends and neighbours, based on their level of attachment (Islam & Walkerden 2014, 2015; Chriest & Niles 2018). However, other studies also state that bonding networks may exclude family members (Demo, McLanahan & Sandefur 1996; Hoffmann 2002; Widmer 2011). Bonding networks can be described as horizontal networks among people who are on the same level of power or influence. Bonding social capital is strengthened by the relationships, connections and trust within a group with common values. As members of a group connect in clusters within small-world networks, bonding occurs within these clusters (Shirky 2008; Hennig et al. 2012; Van Dijk 2012; Kadushin 2018).

2.6.1.2 Bridging Networks

Bridging social capital is created by new connections between heterogeneous groups (Islam & Walkerden 2014). Bridging relationships are outward looking, “horizontal” relationships among similar entities (Nakagawa & Shaw 2004) and can occur between individuals as well as clusters (Shirky 2008; Hennig et al. 2012; Van Dijk 2012; Kadushin 2018). Bridging social capital generates more ideas than bonding social capital, as different people might add specific talents and opinions to a group that would not emerge if people were similar to each other. Bridging social capital creates new connections between heterogeneous groups (Chriest & Niles 2018).

2.6.1.3 Linking Networks

Linking networks can be defined as the relationship between individuals or small groups and a more powerful organisation, such as a civil or government agency (Carpenter 2013). Linking networks include relationships between people who differ in their influence and who do not necessarily share a collective identity (Spence, Poortinga & Pidgeon 2012), and are characterised by weaker bonds and “vertical” relationships with organisations that have influence over their circumstances (Nakagawa & Shaw 2004; Spence, Poortinga & Pidgeon 2012).

2.7 AFFILIATION BETWEEN NUSSBAUM’S CAPABILITIES APPROACH AND SOCIAL CAPITAL

This study is focused on the living conditions and survival strategies of those women who are regularly affected by natural disasters and who migrate to urban areas in response to the resulting severe loss of resources. To examine their living conditions and survival strategies, this study is using a framework consisting of Nussbaum’s list of 10 capabilities and the idea of social capital. Scholars have suggested that Nussbaum’s capabilities approach is useful to focus directly on individuals’ quality of life, or wellbeing (Robeyns 2005; Hick 2012). Nussbaum’s capabilities approach has the potential to provide a strong theoretical foundation for identifying and analysing the societal impact of natural disasters on the basis of overall changes in climate-migrant women’s capabilities (Murphy & Gardoni 2006, 2010; Briones 2011; Preibisch, Dodd & Su 2016), specifically in the context of the climate-migrant women of Bangladesh.

Other studies of climate change and disaster management have indicated that in the context of rural life in Bangladesh, social capital plays a significant role in initial survival during natural disasters (Hoque & Haque 2013; Islam & Walkerden 2014; 2015). Social networks that constitute social capital can “provide safety-nets when deprivation is exacerbated by shocks, stress and other sources of vulnerability” (Beall 2004, p.65). Scholars have also suggested that in the context of environmental displacement and resettlement, social networks are important as an asset that displaced people and their households can use to survive (Beall 2004; Storr & Balch 2012; Wind & Komproe 2012; Adeola & Picou 2016). These scholars have also indicated that endowments of social capital constitute valuable resources for rural women who migrate to an urban area after losing resources due to natural disasters. Therefore, an examination of the social capital of climate-migrant women will be helpful to understand their survival strategies. Moreover, some studies have suggested that social capital and capabilities are related, and that social capital has the potential to enrich and enhance their capabilities (Sayer 2000; Adger 2003; Smith & Seward 2009; Migheli 2011); this study will examine this relationship in the context of climate-migrant women in Bangladesh.

Some critics of Nussbaum’s capabilities list have also indicated that some of the capabilities function as both the result of and the prerequisite for others (Gandjour 2008; Migheli 2011). A theoretical framework compiling the concepts of Nussbaum’s list and social capital may

help to further analysis of the relationship between them in the context of climate-migrant women in Bangladesh.

Nussbaum (2011) describes affiliation, one of the 10 capabilities on her list, as the ability to care, recognise and show concern for other each other within the society, and to engage in various forms of social interaction. This social affiliation strengthens social ties and fosters social capital (Migheli 2011). Migheli (2011) shows that social capital is a factor that individuals can use to reach new functionings, or states, that allow them to widen their capability set. Researchers suggest that a higher level of social capital can uphold a higher level of wellbeing and increase capabilities. Adger (2003) argues that social capital develops through social interaction, collective activity and networking between individuals or groups for their shared interests and wellbeing. As noted above, Migheli (2011) writes that social capital is as a functioning that is both the result of and the prerequisite for some of the capabilities defined in Nussbaum's list (Nussbaum 2011). Therefore, this study claims that there is a connection between the functioning of the capabilities and social capital and argues that the concept of social capital entangles both functioning and capabilities (Gandjour 2008; Migheli 2011).

Migheli (2011) also points out that how social capital and capabilities influence each other is mediated by the community's cultural and religious norms and practices. Similarly, Nussbaum states that cultural and religious issues show considerable potential for enabling and empowering climate-migrant women's survival capabilities. Sen (1999) also notes that "these different aspects (women's earning power, and economic role outside the family, literacy and education, property rights and so on) may, at first sight, appear to be rather diverse and disparate. However, what they have in common is their positive contribution in adding force to women's voice and agency – through independence and empowerment" (pp. 191-192). Figure 2.4 illustrates the relationship between the social-capital approach and Nussbaum's capabilities.

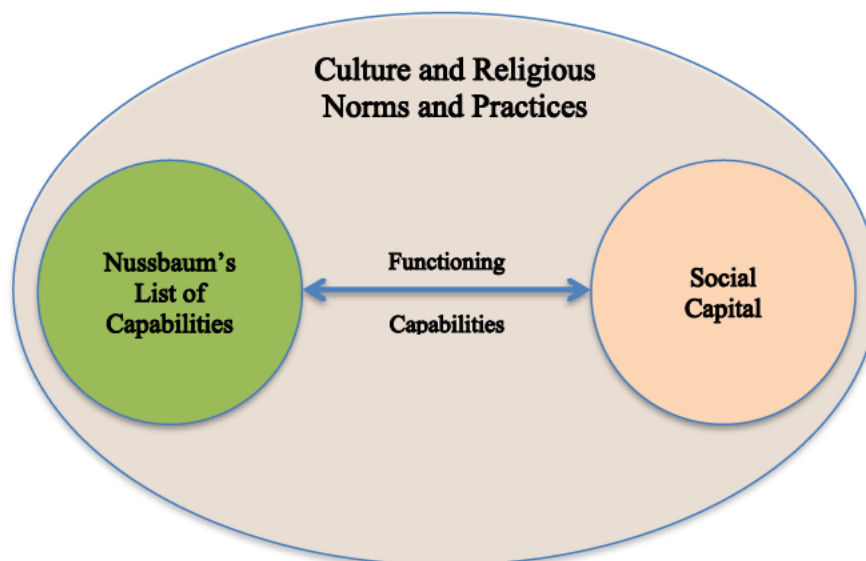


Figure 2.4: Link between Nussbaum’s capabilities approach and social capital approach

The literature suggests that social capital catalyses the development of capabilities. The development of social capital through social interactions between individuals often enhances how capabilities function. Much discussion is structured around the notion of capabilities and social capital. However, the literature often lacks a contextualised understanding of the role of social capital in the development of capabilities. In this regard, this study has set up a theoretical framework to analyse the lives of climate-migrant women in Bangladesh. This framework will be employed to explore these women’s vulnerabilities and survival strategies, to evaluate Nussbaum’s 10 capabilities in the context of climate-migrant women and to explore the connection between their capabilities and social capital. Because Nussbaum claims that her list provides a universal measure of human flourishing while also respecting religious and cultural differences, cultural and religious norms and practices will be included as a background to this framework.

2.8 CONCLUSION

This research aims to gain insight into the vulnerabilities and survival strategies of climate-migrant women in Bangladesh. Nussbaum’s capabilities approach emerges as a useful tool not only for identifying their vulnerabilities but also for making recommendations to reduce these vulnerabilities. Such recommendations need to be based on climate-migrant women’s concerns and incorporate their voices into the issues that need to be addressed and the formulation of future policy. This aim can also be achieved through the application of

Nussbaum's capabilities approach, which describes threshold levels of central capabilities and encourages women to act more readily as agents of change within their societies (Roy & Venema 2002; Truong & Gasper 2008; Murphy & Gardoni 2010). In other words, it has considerable potential to produce recommendations for enabling and empowering poor rural women. Furthermore, this chapter's review of the literature shows that social capital plays an important role in distressed communities' derivation of resources from their social capital, and, in turn, the enhancement of their capabilities. Therefore, by exploring the situation of Bangladeshi climate-migrant women's wellbeing using Nussbaum's capabilities approach and the idea of social capital, this research will be able to gain insights into their living conditions, vulnerabilities and survival strategies. Moreover, this study will be able to prepare specific recommendations to reduce their vulnerabilities.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter presents the overall research design and describes the sequential stages of the qualitative research method. It consists of eight sections. The approach of the research is described in Section 3.2. Section 3.3 describes the overall selection process of the study areas. Section 3.4 explains the position of the researcher. Section 3.5 describes the detailed research design and methods for data collection; it also reviews the data-analysis process. Section 3.6 presents the ethical considerations of the study. Section 3.7 discusses the limitations and difficulties faced during data collection; and Section 3.8 concludes the chapter.

3.2 RESEARCH APPROACH

This thesis employs a qualitative design that focuses on a deeper understanding and examination of the phenomenon at hand. The main strength of qualitative methods is that, although they examine the phenomenon on a smaller scale, they capture deeper insights than the large samples that quantitative studies use (Rowley 2002; Griffin 2004). The purpose of this research is to gain insight into the vulnerabilities and survival strategies of climate-migrant women in Bangladesh. It also makes some recommendations to the effect that there is an urgent need to identify climate-migrant women's concerns and incorporate their voices into the formulation of future policy. To answer the research questions (Section 1.6) through the application of Nussbaum's capabilities approach and the social capital theoretical framework (Section 2.1) this study takes a feminist research perspective for conducting qualitative research by adopting the life-story approach. This study has also adopted field observations of and in-depth interviews with key informants to provide comprehensive insights into the situation.

3.2.1 Qualitative Approach

Considering the feminist perspective of this study, I have followed a qualitative approach to achieve the research objectives. It is argued that methodology is gendered (Oakley 1997;

1998), with a quantitative approach traditionally associated with words such as “masculinity”, “positivism”, “scientific”, “objectivity” and “statistics”. In contrast, qualitative methods are generally associated with “femininity”, “interpretivism”, “non-scientific” and “subjectivity”. These associations have led some feminist researchers to criticise (Pugh 1990; Oakley 1998) or even reject (Graham & Rawlings 1980) the quantitative approach, arguing that it is in direct conflict with feminist research aims (Mies 1983). Feminist researchers have accused research using quantitative positivistic methods of ignoring and excluding women (Bohan 1992; Oakley 1998) and adding women to male knowledge. Feminist researchers have also criticised the context-stripping nature of traditional methods (such as surveys, questionnaires, psychological tests and experiments), as a result of which the reality of human experience, and more so women’s experience, is lost (Bohan 1992). Feminists consistently emphasise the importance of social context, insisting that feminist methods should be contextual.

Feminists have also criticised traditional quantitative research for its transformation of people into “object-like subjects” (Unger 1983; Oakley 1998), with the interests and concerns of research participants entirely subordinated to those of the researcher (Campbell & Schram 1995). In such research, participants’ voices are typically silenced or severely circumscribed by the authoritative voice of the researcher, and their experience may be obstructed, invalidated or even erased (Woolgar 1983). Therefore, it is argued that qualitative methods are more appropriate for feminist research, as they are best suited to revealing and understanding experiences of women in contemporary society, and to adequately address their needs by allowing subjective knowledge (Depner 2020), thus challenging the partial accounts of the gendered lives of both women and men. In feminist research, respect for the experience and perspective of the other is upheld, with many feminist researchers expressing commitment to “realizing as fully as possible women’s voices in data gathering and preparing an account that transmits those voices” (Olesen 1994, p. 167). Furthermore, to achieve a fuller realisation of women’s voices, feminist research supports “non-hierarchical relations” between researchers and participants.

3.2.2 Qualitative Approach and Nussbaum’s Theory

Nussbaum’s capability approach is a broad normative framework for the evaluation of woman’s wellbeing and social arrangements, the design of policies and proposals about social change in society. Feminist theoretical perspectives, which compliment the qualitative

approach, emphasise the building of knowledge and empowerment through women's lived experience. This is a philosophy of knowledge-building that understands the world through the eyes and experiences of women, particularly those experiencing oppression, and applies the vision and knowledge of oppressed women to social activism and social change. Feminist-standpoint epistemology requires the fusion of knowledge and practice. It is both a theory of knowledge-building and a method of doing research – an approach to knowledge construction and a call to political action (Brooks et al. 2014). Therefore, Nussbaum's capabilities approach, qualitative approach and feminist theoretical perspective complement each other.

In this study, consideration of a feminist perspective has influenced the selection of research method and research tools. Because this study has a feminist perspective, the qualitative method was followed to achieve its objectives. The major concern of the capabilities approach is also qualitative, asking what poor women are actually able to do and to be. Nussbaum offers an analysis of gender issues in development that flows from the capabilities approach to the analysis of quality of life (Nussbaum 1995). Drawing upon feminist literature as well as my own experiences during my field work with different international NGOs, I viewed my relationship with participants as a two-way flow of learning (Spivak 1996; McLean et al. 1997). In practice this involves the mutual sharing of ideas and knowledge, which contributes to the embodiment of a more equitable relationship between researchers and participants. I decided that if any participants rejected a feminist analysis of their oppressed situation, I would neither force this interpretation on them nor assume that their situation was acceptable; rather, I would start a discussion on any issues about which they expressed concern, either for themselves or for their daughters. I recognised that this was a delicate issue and needed considerable sensitivity. However, the two-way sharing of information and sensitive exploration of concerns assisted in contextualising Nussbaum's list of capabilities, as her prescribed list is general, subject to change and open to interpretation and specification by local people (Robeyns 2005). At the same time, the cross-cultural credibility of Nussbaum's capabilities approach was also assessed in the context of climate-migrant women in Bangladesh.

3.2.3 Life-Story Approach

I adopted a life-story approach for this study. The life story approach seeks to document the lived experiences of participants through in-depth interviews. Specifically, this study will use

a variation of the “life story” based on the work of Atkinson (1998) and Ellem and Wilson (2010). Atkinson (1998) defines life-story interview as “(a) story a person chooses to tell about the life he or she has lived, told as completely and honestly as possible, what is remembered of it, and what the teller wants others to know of it, usually as a result of a guided interview by another” (p. 8). Ellem and Wilson (2010) highlight the benefits of conducting the life-story approach with people, citing its utility in eliciting the subjective viewpoints of respondents and capturing lifelong stories of marginalisation. Life-story interviews refer to a style of interview based on a collaborative relationship between the interviewer and interviewee, whereby the interviewee catalogues an aspect of their life experience, guided by the interviewer (Ellem & Wilson 2010). The central tenet of this approach is that it provides dignity to those involved and is concerned with providing a voice to those who have otherwise been silenced (Barton 1996). Hence, the purpose of this interview will be to extract rich data that pertains to life, insight, meaning and experience, as well as provides a self-reflexive experience for the storyteller (Ellem & Wilson 2010). Therefore, the life-story interview is a useful component of my research method, allowing me to provide the necessary time and patience for the interviewee to communicate and share their previous experiences.

3.2.4 The Life-Story Approach and Nussbaum’s Theory

The primary concern of the capabilities approach is qualitative, asking what poor women are actually able to do and to be. Nussbaum has offered an analysis of gender issues in development that flows from the capabilities approach to the analysis of quality of life (Nussbaum 1995). Nussbaum’s capabilities approach is closer to traditions in the humanities, such as narrative approaches, that help to conceptualise people’s hopes, desires, aspirations, motivations and decisions (Robeyns 2005); moreover, in line with Nussbaum’s approach, the life story is useful to explore participants’ perceptions and feelings, value judgements and attitudes in the broader context of their lives (Atkinson 1998; Ellem & Wilson 2010).

3.2.5 Field Observations

This study has used field observation to provide a physical context for women’s stories. A transect walk is a tool for describing and showing the location and distribution of resources, features, landscape and mainland uses along a defined path (World Bank 2005); in this study, this path is across a community (e.g., study areas such as Bogra, Sirajganj and Dhaka)

together with the local people to explore climate-change conditions first hand by observing, asking, listening, looking and producing photographs. The transect walk is typically conducted during the initial phase of field work. For maximum impact, it is best to walk a route that incorporates a wide diversity in terms of understanding the lives of women in the locality (World Bank 2005).

In this study, I have applied the transect walk, in which I was accompanied by some community people, in both the rural and urban study areas, such as Bogra, Sirajganj and Dhaka. I was keen to note down all of the visible objects in the localities while conducting an informal discussion with the villagers. During the walks, I kept the objectives of my study in mind, and villagers also took the opportunity to discuss how their community felt about problems and sought solutions to climate migration. My observations were useful in cross-checking participants' views later, when data collection using in-depth interviews took place. Photographs were taken to capture the actual situation and support information collected during the interviews. A filed journal is attached to this thesis as Appendix F.

3.2.6 Key Informant Interviews

For this research, the key informants' interviews were qualitative, in-depth interviews that provided flexibility to gather new ideas and issues (Kumar 1989) relevant to climate-migrant women based on Nussbaum's capabilities approach. The key informants were a selected group of people from both the public and not-for-profit sectors who were likely to provide relevant information, ideas and insights on issues related to climate-migrant women. Moreover, key informant interviews provide insight into the nature of problems and give recommendations for solutions (US AID 1996). In this research, the interviews were conducted after conducting initial interviews with participating climate-migrant women and reviewing the existing related reports to determine the areas for which additional input was needed.

Local NGO workers and stakeholders helped to promote the research to the migrant women in the study areas by distributing flyers and announcing the research in groups that participants were attending (e.g., a local women's group). Regardless of the way the initial contact was made, I further contacted the potential participants during the observational field visit. NGOs that had promoted the study were not informed of who had been chosen to participate. This

was explained to the women so that they did not have to fear a negative attitude from the NGOs. I collected contact details for the relevant key informants with the help of my previous professional contacts in Bangladesh. Key informants were invited based on their involvement in the related field. Interested key informants were further contacted for the interviews. The participant selection and recruitment process is further discussed in Section 3.5.2.

3.3 SELECTION OF RESEARCH AREAS

In this research, the study areas have been designated as “sending areas” – those the families have left – and “receiving areas” – those to which the families have come. The districts of Bogra and Sirajganj, have been selected as sending areas. Situated by the river Jamuna, they cover a significant portion of river-erosion victims (McNamara, Olson & Rahman 2016; Shetu et al. 2016; Ahmed 2017); hence the study population is the female inhabitants of Bogra, Sirajganj and Dhaka. Dhaka has been selected as a receiving area, as the majority of climate migrants move to the capital city for their survival (Islam & Shamsuddoha 2017; Ingham, Islam & Hicks 2018). Figure 3.1 shows the study areas for this research.



Figure 3.1: Study areas in Bangladesh

Source: <https://www.pinterest.com.au/pin/320318592220409374> (viewed 10 November 2019)

3.3.1 Bogra: Sariakandi Upazila

Bogra district is one of Bangladesh's most vulnerable districts, with regular flooding and riverbank erosion along the Jamuna and (Hoque & Haque 2013). In the north of the district, the Sariakandi Upazila, on which this study is primarily based, is significantly exposed to both riverbank erosion and flooding. Natural disasters also cause substantial damages to settlements, crops and other property. Sariakandi Upazila has a total area of 408.50 km². According to the 2011 Bangladesh census, Sariakandi Upazila had 75,614 households and a population of 270,719, of whom the majority were Muslim. The average literacy rate is 32.3% (male 37.1%, female 27.3%). Educational institutions include five tertiary institutions, 22 secondary schools, 160 primary schools and 30 madrasas (religious-education institutes). Here people's livelihood options are mainly agriculture and fishing. The area's communication facilities include 31.19 km of pucca (concrete) road, 30 km of semi-pucca (semi-concrete) road, 236.66 km of mud road 236.66 km and 16 nautical miles of navigable waterways. Some NGOs, such as Bangladesh Rural Advancement Committee (BRAC), World Vision, Association for Social Advancement (ASA) and Thengamara Mohila Sabuj Sangha (TMSS), provide support in the area.

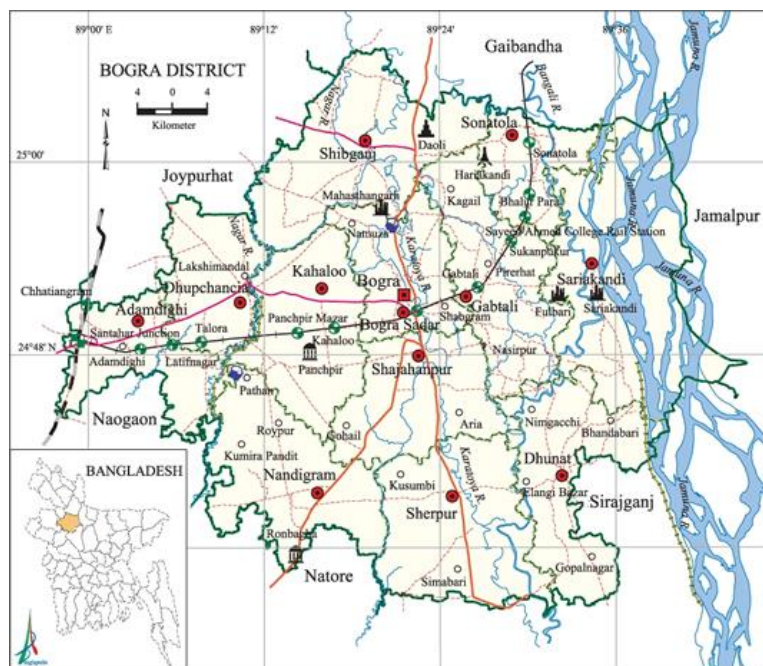


Figure 3.2: Map of Bogra district

Source: <http://en.banglapedia.org/index.php?title=File:BograDistrict> (viewed 25 January 2020)

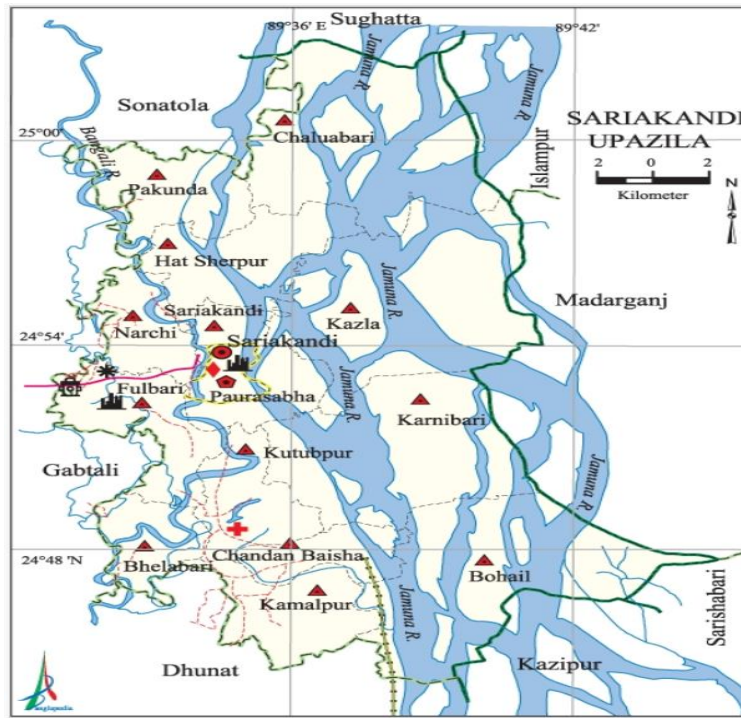


Figure 3.3: Map of Sariakandi upazila

Source: [http://en.banglapedia.org/index.php?title=Sariakandi Upazila](http://en.banglapedia.org/index.php?title=Sariakandi_Upazila) (viewed 25 January 2020)

3.3.2 Sirajganj: Kazipur Upazila

Like Bogra, Sirajganj district is exceptionally vulnerable to flooding and riverbank erosion frequently occurring along the Jamuna. It is located on the Brahmaputra floodplain. From 1973 to 2009, the rate of erosion was 622.2 ha per year, eroding about 8.97% of the total land in Sirajganj during that period (Uddin & Basak 2012; Rahman, Islam & Rahman 2015). In the north of the district, the Kazipur Upazila is intensely exposed to both riverbank erosion and flood (Uddin & Basak 2012) due to its geographical position.

Kazipur Upazila has a total area of 368.63 km². The average literacy rate is 20.5% (male 26.3%, female 14.5%). Educational institutions include 12 tertiary institutions, 51 secondary schools, 216 primary schools and 10 madrasas. The main source of income is agriculture. The communication facilities comprise 45.54 km of pucca road, 227.37 km of mud road and five nautical miles of navigable waterways. There are also 241 culverts and 107 bridges. Natural disasters have been reported to cause heavy damage to settlements and other property. NGOs, including Bangladesh Rural Advancement Committee (BRAC), Proshika, Thengamara

Mohila Sabuj Sangha (TMSS), Ujjiban and Manab Mukti Sanstha (MMS), are active in the area.



Figure 3.4: Map of Sirajganj district

Source: <http://en.banglapedia.org/index.php?title=File:SirajganjDistrict> (viewed 25 January 2020)

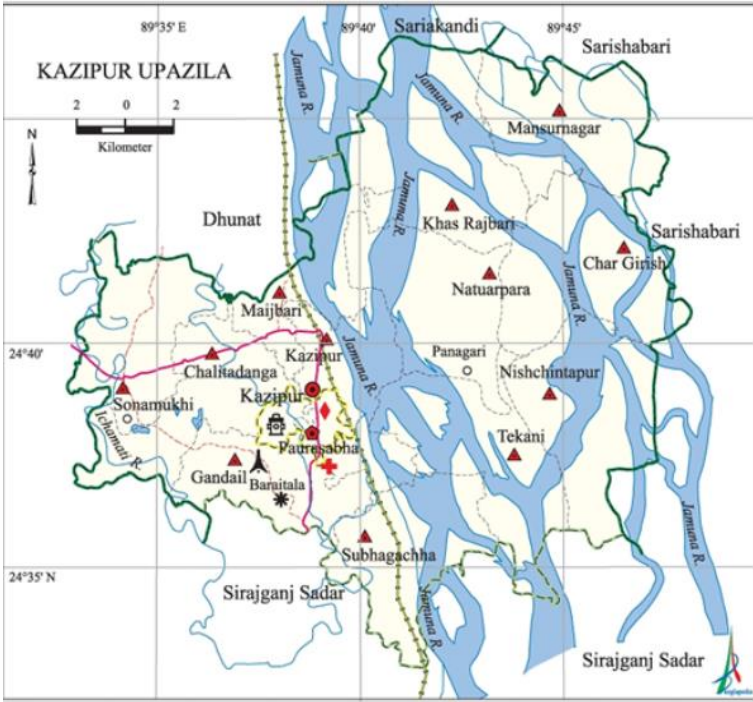


Figure 3.5: Map of Kazipur upazila

Source: [http://en.banglapedia.org/index.php?title=Kazipur Upazila](http://en.banglapedia.org/index.php?title=Kazipur_Upazila) (viewed 25 January 2020)

3.3.3 Dhaka: Korail Slum

Dhaka is one of the fastest-growing cities in South Asia. This city is expected to overtake Shanghai, New York and Karachi to secure fourth place among megacities, and is projected to have a population of more than 20 million by 2025 (Ishtiaque & Ullah 2013; Abdullah 2016). More than 18 million people, or roughly one-tenth of the country's population, live in this city. This makes Dhaka one of the world's most densely populated cities, with more than 45,000 people per km². By any measure, Dhaka possesses the demographic volatility of a megacity. This massive population increase is mostly the result of a constant flow of internal migrants from across the country. About half a million new migrants settle in Dhaka annually in a steady influx from rural areas (Iqbal 2019).

Most of those migrants who are destitute eventually settle in Dhaka's slum areas (Islam & Shamsuddoha 2017). The population density of the slums has been identified as 200 times greater than that of the nation as a whole. Among the slums in Dhaka, Korail is the largest and most densely populated, with more than 120,000 inhabitants living on about 36 ha (Tanjeela 2015). After talking with some officials working to address Dhaka's slum issues, I was confident that I could find climate-migrant women in Korail.

Korail is situated in the Gulshan Thana area of central Dhaka, very near the Mohakhali Bus Terminal. As the wealthier community of Gulshan surrounds the slum, the slum-dwellers often find work as service providers (e. g., a rickshaw puller, driver, household worker, hawker) for their more-prosperous neighbours. Additionally, those working in other sectors, such as the garment industry, find Korail a convenient and affordable place from which to commute to work. Therefore, it has become home to a significant concentration of urban poor.

Korail's population is approximately 120,000, for a net population density of about 400 per ha. The total number of households is 24,000 (5 persons per family), and most are Muslim. The primary occupations for men include rickshaw puller, auto-rickshaw driver, garment worker, day labourer, wood technician, carpenter, vegetable seller, night guard and small business owner; for women, occupations include garment worker, day labourer, household worker and housewife. House roofs are made of tin, walls are made of tin and bamboo and floors are both pucca and kutchra (a mixture of materials such as un-burnt bricks, bamboo,

mud, grass, and loosely packed stones). The average size of the rooms is about 7 m². There are 10 primary schools in Korail and four madrasas, and there is no secondary school. Some NGOs, including Dushthya Shashthya Kendra (DSK), Bangladesh Rural Advancement Committee (BRAC), Intervida, Maristops, Fulki and NDBUS, are active in the area.

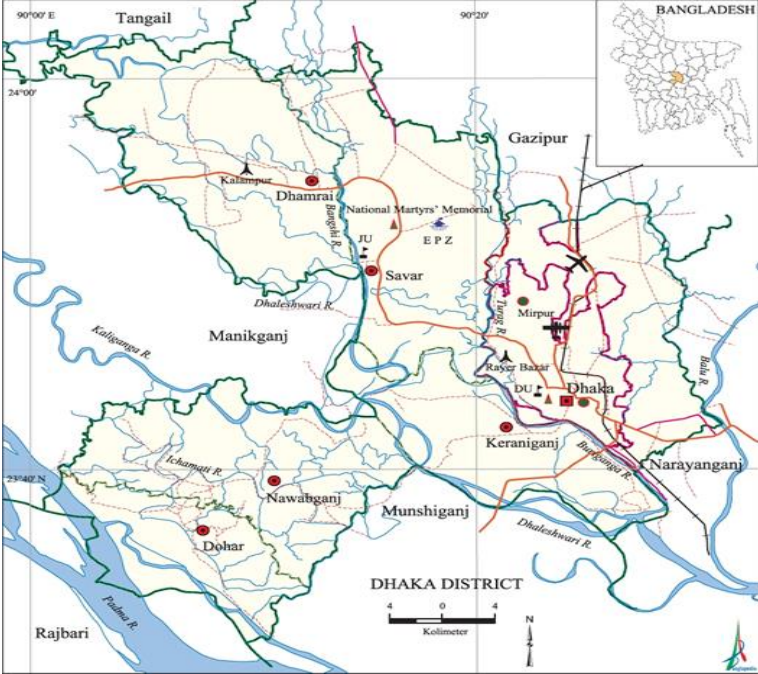


Figure 3.6: Map of Dhaka district

Source: <http://en.banglapedia.org/index.php?title=File:DhakaDistrict> (viewed 25 January 2020)



Figure 3.7: Map of Korail slum

Source: Google Maps (viewed 5 December 2019)

3.4 MY POSITION AS A RESEARCHER

Within a feminist framework, it is essential to acknowledge the position of the researcher. I was born and brought up close to these three sending areas in Bangladesh. I am familiar with the districts and have a network of relatives there, so I relate to their local culture. This connection with the research area helped my study to have the advantages of an insider researcher (Creswell 2014). Furthermore, this network of relatives was an excellent source to provide a safety net for me during my field work and alert me to local conditions and concerns. Moreover, because of my previous professional career in Bangladesh, during which I worked in Dhaka with some prominent international and local NGOs that operate in Dhaka both and the regional study areas, I continue to have a good rapport with their staff members. These contacts were also helpful for obtaining input and cooperation from local stakeholders, including NGOs, local civil society organisations, local community leaders, local resource people, academic institutions and research centres that work with climate migrant issues in the selected study areas. They were of significant assistance in both providing key informant interviews and promoting the study to local women who might like to participate. Further, they provided support for my personal safety while in Dhaka.

During my field visits in Bangladesh my husband accompanied me to help ensure my safety. My relatives and former colleagues in the research areas introduced me to the local police, administrators, leaders and stakeholders. These contacts helped me familiarise myself with the local people and culture. I also kept a local relative informed of my location (before and after) and about my activities in the research areas. I asked the relative to contact police if I failed to make contact after each activity. I also had my own transport and driver. I provided the driver with a mobile phone so that I could make contact immediately. My driver was told that if I felt unsafe, I would immediately terminate the activity so that we could get to a safe place.

A key advantage of being an insider researcher was my understanding of the cultural environment in which the research was conducted (Creswell 2014). Through my extensive professional work experience in this field, I had valuable insights and background information regarding the context of the study. My knowledge of previous as well as current situations of unprivileged women in Bangladesh enabled the development of specific research questions, the findings from which could then be directly applied and would be beneficial not only to my

academic research, but to the women of Bangladesh as well, and potentially beyond. However, to avoid the ethical challenge of implicit or perceived coercion during the recruitment of participants, the study followed a recruitment process that kept me from being directly involved in the recruitment process (Sections 3.4.2.1 and 3.4.2.3). The NGOs and stakeholders conducted the initial process of recruiting participants.

My background provided a strong basis for connection with the participants. However, I was concerned that being an insider researcher would not necessarily create a rapport that would allow me to ask participants about all the details of their lives. An insider researcher may have restricted access to relevant information due to their relationship with the participants (Brannick & Coghlan 2007), who may lack power relative to the researcher (e.g., where the participant is a member of a deprived or unprivileged community), are more power than the researcher (e.g., higher levels of officials) or are their peers. However, the converse can also apply, as the insider may be able to gain more information through having a rapport with the participants that makes them comfortable “opening up” (e.g., before and during an interview), giving greater depth to the data gathered (Dwyer & Buckle 2009). This rapport with the participants helped me to observe more (e.g., within their class setting in action research). However, at all times the ethical principles of informed consent were strictly applied, as the data gathered was to be used for research, regardless of whether the activity was a normal part of everyday practice. Participants’ consent was taken before each interview, as detailed in Sections 3.5.2.1 and 3.5.2.3.

Another concern that I was aware of with insider researcher was role duality (Brannick & Coghlan 2007). An outsider researcher has a clearly defined role, often tightly confined to the scope and life of the study. As an insider researcher, my past, present and future roles are deeply intertwined with my doctoral research, through the familiar and professional relationships with the participants. It was quite conceivable the dual roles as a researcher and fellow Bangladeshi national could have resulted in personal or professional conflicts. Although I did not consider it a conflict, during the participant interviews, I experienced some blurring of the boundaries. At times the inhabitants and some of the participants were keen to discuss issues or concerns that were not relevant to the research focus. Their trust in me and in the confidentiality of the interviews allowed them to address their concerns directly, and I was supportive in allowing them to do so. On reflection, neither of my positions was compromised during the research process. Being a fellow Bangladeshi national rather than just an academic

researcher might have contributed towards keeping the two roles separate while still allowing them to complement each other. These dual roles had a positive influence on my motivation to complete the research, as the outcomes had benefits for me, the study participants and all Bangladeshi climate-migrants.

Another advantage of being an insider researcher was revealed during the analysis and interpretation of the data. My knowledge of the context of climate-migrant women in Bangladesh enabled me to interpret what they said about the situated nature of their individual experiences, making it less likely that what they had said would be misunderstood or taken out of context. An outsider researcher is potentially at risk of not noticing interesting data because of a lack of understanding of the comments' specific context. Nevertheless, I was also aware of the criticisms that an insider researcher might be "too familiar" and assume that the tacit patterns and regularities they expect are, in fact, present. Throughout the process of analysis and interpretation of the data, I was concerned to guard against bias from my preconceived ideas and passion, and my potential desire to show the findings positively.

I was able to minimise the issue of needing, as an insider researcher, to "make the familiar strange" (Hockey 1993, p. 208) through the critique and feedback of my supervisors as part of the supervision process. What was perceived as familiar and "as expected" from my point of view as an insider researcher was generally unfamiliar to my supervisors. It was a valuable experience to introduce and explain the intricacies of the study context to my supervisors and share with them something I am so passionate about.

Concerning the access to privileged information (some of which may be personal or incidental) that may not necessarily be available to an outsider, I maintained strict confidentiality and carefully considered whether it is ethical to use such "inside knowledge" for research purposes (Floyd & Arthur 2012). In research conducted by an outsider, once the research has been completed and published, "ethical concerns fade naturally into the background" (Floyd & Arthur 2012, p. 174). However, in insider research, where the researcher and participants remain members of the same area or group, challenges can occur. The participants may have shared information about other members of the group or situations that may affect future activities or relationships. Being an insider researcher, I was concerned that the impact of undertaking the research might have longer implications beyond the life of the research study. Therefore, this study strictly ensured the participants' privacy and

confidentiality. Approval was gained from the ethics committee to conduct the study (Section 3.6), and the recommendations from the ethics committee were maintained throughout the process to ensure that the study was conducted according to codes of ethical research (Appendix A). The participants' names and other details were anonymised.

Drawing upon the feminist literature as well as my own experiences during my field work with various NGOs, I viewed my relationship with participants as a two-way flow of learning. In practice, this involves the mutual sharing of ideas and knowledge, which contributes to the embodiment of a more equitable relationship between researchers and participants (Spivak 1996; McLean et al. 1997). As an insider researcher (Creswell 2014), I have applied my cultural understanding and sensitivity to build non-hierarchical relationships with the participants. This two-way sharing of information and sensitive exploration of concerns assisted in contextualising Nussbaum's list of capabilities, which is general, subject to change and open to interpretation and specification by local people (Robeyns 2005). At the same time, the cross-cultural credibility of Nussbaum's capabilities approach was also assessed. Ultimately, the reflections in the above paragraphs suggest that while undertaking insider research, although not without its challenges, offers a valuable and potentially in-depth viewpoint that an outsider may not have achieved.

3.5 RESEARCH DESIGN, DATA COLLECTION AND ANALYSIS

3.5.1 Research Design

Using a life-story approach, I designed my study as qualitative research and collected data through in-depth interviews supplemented by observation. To collect the information required to fulfil the objectives of my research, it was necessary to collect the narratives of the study participants to understand climate-migrant women's wellbeing. I followed several steps in designing this study. I reviewed related literature from a range of books, journal articles, reports and electronic sources. I then selected research areas based on specific criteria such as the severity and frequency of the effects of natural disasters. The overall research design is shown in Figure 3.8.

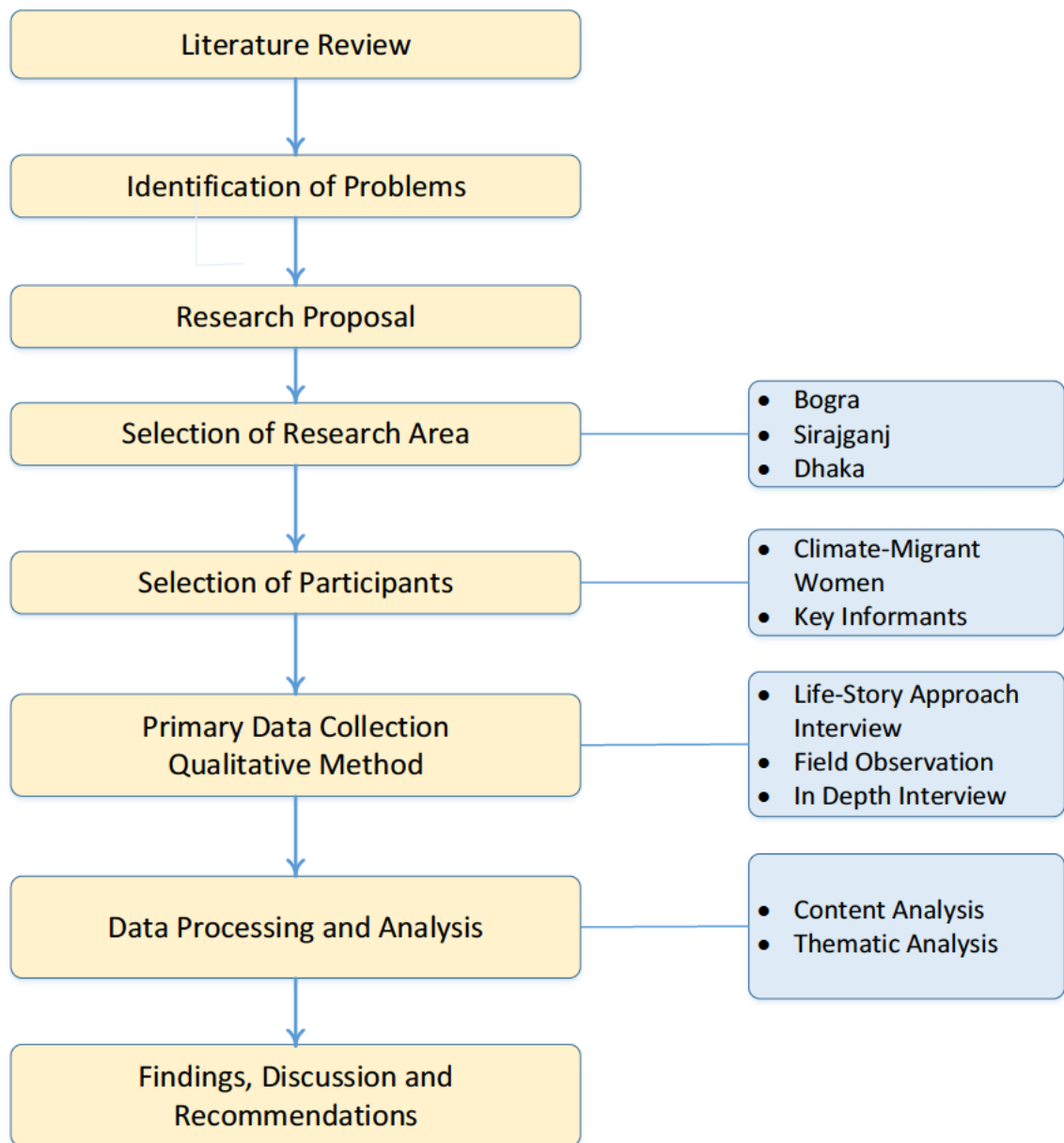


Figure 3.8: Schematic diagram of the empirical research

3.5.2 Data-Collection Methods and Selection of Participants

Data collection requires a supportive and engaging environment for the interviewer and interviewee, including the physical setting in which the interviews occur (D'Eath et al. 2020). Goodley (1998) argues that people may have different levels of intellectual ability and not always form a homogenous group. This means that there is no “one size fits all” approach to interviewing people. Hence, a flexible approach was undertaken in this study to ensure that the participants were treated with dignity, no harm was done, and their experience was revealed in a comfortable and self-reflexive setting. Moreover, because some people do not

experience the same breadth of opportunity, choices or experiences, the extent to which they can imagine other ideals may be limited (D'Eath et al. 2020). Therefore, the lived experience of each interviewee and the responses they provided were considered in the broader context of their actual socio-economic reality.

To achieve the objectives of the study, I used secondary sources for collecting relevant background data and information, including some descriptive statistics. The main sources of primary data were from field observations, life-story interviews with climate-migrant women and in-depth interviews with key informants. I designed two sets of interview checklists, flyers, invitation letters, participant information sheets and participant consent letters for the two sets of participants: climate-migrant women and key informants (Appendices B and C). A Bengali version of the documents for the climate-migrant women were also produced for their convenience, as this is the national and common language for Bangladeshi people.

The following sections provide a detailed description of the data-collection process.

3.5.2.1 Climate-Migrant Women's Life-Story Interviews

Climate-Migrant Women Participants: In total, I conducted 20 life-story interviews with climate-migrant women in the three research areas (Bogra, Sirajganj and Dhaka). Women were considered as climate-migrant women who had left or were planning to leave their areas due to the adverse effects of climate change, such as river erosion and flooding. In the particular research areas of the study, participants were chosen based on whether they had lost land due to river erosion or experienced constant floods that had caused them to move, or consider moving, away from home. I used this purposive sampling technique because my intention was to gain insight specifically into the lives of climate-migrant women in Bangladesh. Purposive sampling refers to the deliberate selection of participants based upon their knowledge and insights, and their relationship to the subject under inquiry (Esterberg 2002; Wright & Storr 2011). The purposive selection of potential participants was based upon their experiences of climate migration, rather than any claim of being representative of a broader majority, or even the much smaller category of victims of climate change. Life-story interviews with these women helped to depict their daily life experiences, thoughts and experiences about climate migration. Table 3.1 lists the climate-migrant women who participated in this study.

Table 3.1: List of climate-migrant women participants

Sl.No.	Name	Area	Age (years)	Marital status	No. of children
1	Rahima	Bogra	34	Married	4
2	Afroza	Bogra	24	Married	3
3	Sayma	Bogra	38	Married	5
4	Shefali	Bogra	40	Married	5
5	Hamida	Bogra	35	Married	4
6	Jamila	Sirajganj	30	Married	3
7	Saleha	Sirajganj	29	Married	4
8	Salma	Sirajganj	25	Married	3
9	Shima	Sirajganj	17	Divorced	1
10	Parvin	Sirajganj	28	Married	3
11	Ameena	Dhaka	50	Widow	6
12	Halima	Dhaka	34	Married	5
13	Shahida	Dhaka	24	Married	3
14	Ashma	Dhaka	26	Married	3
15	Aysha	Dhaka	26	Married	4
16	Sokhina	Dhaka	43	Married	3
17	Farida	Dhaka	30	Married	3
18	Moriom	Dhaka	27	Married	4
19	Rashida	Dhaka	50	Married	4
20	Saleka	Dhaka	34	Married	5

Recruitment of Climate-Migrant Women Participants: I contacted people at local NGOs and stakeholders whom I knew through my previous professional work in Bangladesh to help me promote my study objective in their areas. I sent an invitation letter to the local NGOs and stakeholders for their assistance during my field work by identifying and recruiting participants. I also sent them a consent letter by which they could indicate their willingness to assist. Two NGOs and one counselling centre in the research areas sent their consent on their official letterhead (Appendix D). Another counselling centre confirmed their verbal consent via phone and allowed me to use their details for counselling services if required for conducting my interviews with the participants.

I sent the invitation flyers for the participants to the confirmed organisations (Appendices B-2 and B-3). The local NGO workers and stakeholders helped me to promote the research among the migrant women in the study areas by distributing flyers and reading out invitations to the research in groups that participants might be attending, such as the local women's group. The information included details of ways that the climate-migrant women could contact the researcher, either by phone or through the NGO, during the researcher's field visit. I provided information to the NGOs and stakeholders about the specific date of my observational field visit in their research area. I also prescribed a particular time and place where I would be sitting for participants to approach me, and I placed my photo on the invitation flyer to participants recognise me. I also placed the invitation flyers near where I was sitting, to be easily identified by the participants. Apart from these arrangements of initial contacts, I also visited each field area two or three times, to understand and gather experiences about the lifestyles and standards of people in each area, and to contact potential participants. I visited interested participants' home to give them a written invitation, participation and consent forms and asked for an interview appointment at a later date at a mutually agreed location and time. The invitation letter, participation and consent forms were also translated into Bengali (both the English and translated versions are attached here as Appendix B). I read out the invitation, participation and consent forms for them where necessary. The nature of participation was clearly explained to the participants through the information sheet and verbally before conducting the interviews. So that the participants would not feel obliged to participate, although NGOs distributed invitations, it was made clear that the researcher was independent, and thus any services they were receiving would not be affected by their participation or decision not to participate. It was also stated that the NGOs promoting the study would not be told who had chosen to participate in the interview. This was explained to the women, so they would have no fear of any adverse reactions from the NGOs or stakeholders.

Interview Content: A checklist with questions about participants' experiences of and thoughts about migration was made for the life-story interviews with the climate-migrant women (Appendix B-1). This semi-structured interview also allowed scope to explore the issues that the women raised. Topics included significant aspects of their life, such as food, shelter, work, staying in contact, education for children and child care. Another topic was experiences related to climate migration, which also brought out some relevant questions based on their situation and thoughts about leaving.

Interview process: Participants were given a consent form (Appendices B-8 and B-9) to obtain their consent for the interview. The consent paper had the option to place a fingerprint if any participants were unable to sign their name. Verbal and written consent was obtained from all participants before all interviews.

Considering the possible discomfort for climate-migrant women participants confronting their vulnerabilities, the interviews were conducted with a high level of consideration for sensitivity to distress and issues of privacy. The participants were informed that their participation was confidential and voluntary, and that they could withdraw from the research at any time without giving any reasons. Participants were told that in case of emotional distress, the interview pause at any time, and if participants became more seriously distressed, the researcher would support them in presenting at the nearest counselling service centre as listed on the participant information sheet (Appendices B-6 and B-7). Based on phone conversations with the two counselling service centres that operated across the regions as well as the content of their web sites, these centres provided free counselling services. One of the centres, located in the research area Bogra, sent letters of consent to provide their services (Appendix D-3). Another centre, located in Dhaka, gave verbal consent to provide their services.

Some of the interviews were tape-recorded with the participants' permission. As most of the participants expressed a desire not to be recorded, their interviews were conducted by taking notes, which were then transcribed into a detailed narration. Recorded interviews were also transcribed, with vocal intonations and silences being incorporated into the transcript. After each interviewing, the interviewees were asked to participate in a one-on-one meeting at a later date at a mutually agreed location. This meeting discussed the findings of the interview and reached agreement on the issues that would be reported to the key informants who might further their cause. This ensured that climate-migrant women's positions were presented as they would like. To confirm the interview data, I made a Bengali version of the interview notes, which was read out to the participants in this one-on-one meeting.

Interview were planned to go for 90 minutes; this was also mentioned in the participant information sheet (Appendices B-6 and B-7). However, after spending an initial rapport-building period with the women in the research area, they mentioned that it would be difficult for them to spend this long in an interview, as they need to perform all their daily activities.

Therefore, I decided to split the interview time according to their convenience. The climate-migrant women allowed me to interview them alongside their household work. Consequently, for these life-story interviews, I needed to spend an extensive period with them at their houses and workplaces. The length of time spent with each participant varied, depending on factors such as the need to identify subjects related to the interviews, as well as the suitability of the environment to talk while they were working. Often multiple visits were needed to complete each interview. However, these multiple sittings allowed me to go in-depth with the issues of their lives. Banerjee and Jackson (2017) stated that women are more likely to communicate freely when they are doing their regular daily chores, such as walking to collect water or washing clothes in the river, cooking or doing other household chores. At each stage, careful time and consideration were taken to ensure that the participants understood what was being said, the nature of the research and what it meant to give their informed consent. To give the participants confidence that their identities would be kept private, participants were asked to create their own pseudonym (not a nickname or any other name that could make them identifiable). They were also informed that all the participants' collected information could only be de-identified by the primary researcher, and that the interviews would be conducted in good faith and based on the maintenance of a good rapport with the participants.

Although information about each of the participants was electronically filed under a pseudonym, each original transcription with identifiable information was archived and protected so that only the primary researcher could provide each participant with a transcript of her interview. This was done to allow participants to make changes, correct any misleading information, clarify any places that the transcript did not fairly represent their perspectives and intentions and remove any comments or statements that they believed could identify them.

3.5.2.2 Observational Field Visits

Observational field visits were conducted in the study areas for two purposes. First, the visits gathered additional explanatory evidence to complement the more structured forms of data collection. Second, for contextual understanding, the goal was to construct an in-depth interpretation of a particular time and place through direct experience (Hay 2010). In this study, the field visits and observations of participants living and working within the community facilitated an understanding of their everyday lived experiences (Forrest & Kearns

2001) and the effects of the climate change in the study areas. The specific duration of field visits depended on the setting, activity, and population of interest. For example, I spent an hour, a morning, or a series of mornings in particular settings to accomplish several goals:

- Observing the study locations and people of the study areas;
- Engaging to some extent in the activities taking place so as to better understand the local perspective;
- Interacting with the local people socially outside of a controlled research environment, such as at a marketplace, public meeting place, tea stall or women's religious gathering, with the resulting casual conversation with the local people providing additional substantive issues to discuss in interviews; and
- Identifying and developing relationships with key informants, stakeholders and gatekeepers.

Field observations are particularly relevant to understanding people's relationships, social norms, environments and livelihood practices. In research, participant observations generate vibrant, experiential and contextual information on the lives of participants and are complimentary to interviews (Hughes & Sharrock 2007). In continuing visits to each of the research areas I was able to observe the landscapes and physical infrastructures, as well as women's everyday life, their interactions with each other, the divisions of labour and the effects of external activities. The field observations helped me to understand the real-life problems, practical needs and living conditions of climate-migrant women in Bangladesh. In the course of this field work, I observed local geographical conditions and climate-change impacts. Key observations were used to enhance the information of the interview. Participants often guided these observations:

We cannot just sit and talk with you, as we need to perform our daily work. (Rahima from Bogra, 34 years old with four children)

While we are doing our work, you can sit with us and talk as long as you want to talk. (Jamila from Sirajganj, 30 years old with three children)

Such statements allowed me to understand their socio-cultural embodied engagement and the welcoming approach that helped me to spend more time with them and to observe them more

closely within the limited time I had. The participants in Bogra, Sirajganj and Dhaka were similarly welcoming. This, along with the advantages of my being an insider researcher, allowed me to immerse myself quickly in the participants' daily activities.

I recorded the participant observation aspects of my field work in several ways. First, as a key aspect of participant observation, I took notes in detailed field diaries (Sanjek 1992). Second, I took photos of the research areas (Appendix F).

Note taking: In my field notes, I made general observations and described the setting, what the participants were doing, forms of behaviour and how participants interacted with each other. I took notes on their everyday life experiences, including house chores, income generation, socialisation and leisure activities, which allowed me to understand their way of life, values and social structure. Note-taking for participation observation is one of the key ways that the researcher tries to understand people's views of the world and their daily experiences (Crang & Cook 2007). The field notes on their aspects such as the surrounding environment, potential vulnerabilities, shelter, health and sanitation and livelihoods helped to provide the overview of climate migrants' ongoing experiences, as well as a background for conducting life-story interviews with the climate-migrant women.

Photographs: During the field observations, photographs of the built landscape of the research areas, physical infrastructure, and of people engaged in everyday activities were taken after gaining permission. No photographs were taken of the participants. In my first three days in the research area, when I took out the camera to take photographs, I received many curious and suspicious looks from the participants as well as the villagers, and I realised that they were concerned that I was trying to capture something private. Therefore, instead of taking photos, I began to take time to build a rapport with the villagers and participants, which allowed me to gain their trust and help them feel free to talk with me. Later on, when they became familiar with me and the purpose of my visit, I took some of the photos (Appendix F). After the bag containing my camera was stolen in Dhaka, I could not take any photos, although I had backed up the photos I had taken in the rural areas. To depict the urban locations, I have used images collected from the internet and provided their source details (Appendix F).

As Cloke et al. (2004, p 177) point out, participant observation uniquely involves “studying both what people *say* they do and why, and what they are *seen to* do and say to others about this”. Through participant observation, in addition to in-depth interviews, I was able to observe gaps between what people said they did and what they actually did, and how they understood and interpreted their actions. This combination of methods helped to reveal the degree to which people were conscious that they were performing. However, participant observation was not without some problems. Because it requires getting close to the people one is researching, certain challenges may emerge. The challenges that I had to face included regarding with whom I was spending more time and to whom I was giving more importance, as I had to talk with them in several sittings. It was challenging considering the limited timeframe of my field trip. However, I was able to manage the challenges, due to the strong rapport I had built with the participants. I made sure they were clear about my work, my position as an academic researcher and my limited timeframe. As I was from the same region, they trusted that if I had had more time, I would have talked and spent more time with them. As I was able to talk with them in their local accent, the communication became more natural and understandable for both parties.

Homework: During data collection, I had one-on-one meetings with participants where I discussed the findings of the interview. During these meetings, we reached agreement on the issues that would be reported. This feedback process was conducted to ensure that the climate-migrant women’s positions were presented as they would like. Therefore, homework was an integral task for this research. I translated the local dialect into English and transcribed the interviews in homework sessions. I also revised the shorthand and idioms of my field diary. Further, to confirm the interview data, I made Bengali versions of the interview notes; these were read out to each participant in the one-on-one meeting.

3.5.2.3 Key Informant Interviews

The process interviewing key informants helped me to gather more practical information and provided scope for data triangulation and validation.

Key Informant Participants: People from both public and not-for-profit sectors were selected as key informants who were likely to provide relevant information, ideas and insights on the issues faced by climate-migrant women. I conducted 10 in-depth interviews with key

informants, including local-level Government officials, staff from national and international NGOs, and local Government representatives working in the area of climate migration in Bangladesh. I invited these individuals based on their involvement in the related field. This was purposive sampling because my intention was to select key informants who could provide relevant information, ideas and insights.

Recruitment of Key Informants: I collected the names and addresses of the relevant key informants with the help of my previous professional contacts in Bangladesh. Key informants were contacted by sending invitation flyers (Appendix C-2). Key informants who showed their interest in being interviewed were further contacted for face-to-face rapport-building sessions and by electronic media (phone, email and Skype). The selection of 10 key informants was based on their availability and access to the internet, as the interviews were conducted via electronic media. The selected key informants were then sent the written invitation letter and the participation and consent forms (Appendix C). After I answered participants' questions regarding the research and the interview process, I asked them to sign a consent form (Appendix C-5) and to make an interview appointment for a later date at a mutually agreed time. They were also informed that they would have the opportunity to verify their own interview transcript; after the interviews, I emailed the relevant transcripts to those who wished to verify them.

Interview Content: Key informants were asked to provide their expert opinion on relevant information, ideas and insights on climate-migrant issues in Bangladesh. They were asked their experience with this group of women, the women's problems and the available support. The ideas about what to discuss with the key informants had emerged from the one-on-one meetings with the climate-migrant women, which helped me present their issues in the way they wished. The topics included women's climate migration, vulnerabilities and survival strategies, gender considerations and adaptation programs and policies (Appendix C-1).

Interview Process: During my field trip, I was able to create a rapport with climate-migrant women in both the rural and urban areas, and I had enough time to finish my interviews. However, I could not manage to schedule key informants' appointments for interviews within the short time I had available. Therefore, I had to conduct 10 interviews with key informants after my return to Sydney through Skype and Messenger. The appointments with the key informants were confirmed via telephone and email communications. It was initially planned

and mentioned in the participant information sheet (Appendix C-4) that the interview with each key informant would last 90 minutes. However, conducting and summing up the online interviews with the participants took longer than face-to-face interviews because of the time differences and the poor internet connectivity in Bangladesh. Due to continuous disruptions in the internet connections, I had to conduct these interviews in several stages. I had to reschedule each stage, which was time-consuming.

It was initially decided that the interviews would be audiotaped or notes would be taken based on participants preferences. Therefore, according to the key informants' choice, notes were taken during the interviews. The interview with the key informants was conducted in both Bengali and English based on their convenience. The key informant's participant information sheet (Appendix C-4) had mentioned that they were welcome to use either language based on their convenience. The key informants were also offered the opportunity to verify their interview findings. As with the climate-migrant women's interviews, key informants' interviews were electronically filed by pseudonym. Table 3.2 gives the number of participants in the study, and Table 3.3 summarises the research methods used in gathering data for this study.

Table 3.2: List of key informant participants

Sl. No.	Name	Area	Profession
1.	Key Informant I	Dhaka	Government Official
2.	Key Informant II	Dhaka	Government Official
3.	Key Informant III	Dhaka	Government Official
4.	Key Informant IV	Dhaka	Government Official
5.	Key Informant V	Dhaka	Non-Government Official, International NGO
6.	Key Informant VI	Dhaka	Non-Government Official, International NGO
7.	Key Informant VII	Dhaka	Non-Government Official, National NGO
8.	Key Informant VIII	Dhaka	Non-Government Official, National NGO
9.	Key Informant IX	Dhaka	Non-Government Official, National NGO
10.	Key Informant X	Dhaka	Non-Government Official, National NGO

Table 3.3: Research methods used to collect data and information

Method	Participants	Number
Primary data collection		
Life-story approach interview	Climate-migrant women	20 participants <ul style="list-style-type: none"> • 5 from Bogra • 5 from Sirajganj • 10 from Dhaka
Field observation	Respective research areas	Three research areas <ul style="list-style-type: none"> • Bogra • Sirajganj • Dhaka
In-depth interview	Key informants	10 participants <ul style="list-style-type: none"> • Dhaka

I have also used some descriptive statistics from different sources such as Government and NGO reports, newspaper and journal articles and various other data sources wherever required as evidence to support my argument.

3.5.3 Analysis

The content analysis was conducted based on Nussbaum’s 10 capabilities (Section, 2.5.1). This analysis was conducted to see how well Nussbaum’s 10 capabilities match the issues raised by the climate-migrant women in Bangladesh: were there capability issues listed by Nussbaum that were not of concern to the women, and did they raise any issues not in Nussbaum’s list? Further, the data allowed an analysis of the interactions among the capabilities.

As “interpretative and subjective research” (Lacey & Luff 2007, p. 6), qualitative data analysis requires the “subjective interpretation of the content of the text data using the systematic classification process of coding and identifying themes or patterns” (Hsieh & Shannon 2005, p. 1278). Therefore, it is critical to summarise, classify and highlight essential themes or ideas for data analysis in qualitative research. According to Bachman and Schutt (2014, p. 263), “Conceptualising begins with a simple observation that is interpreted directly,

‘pulled apart’, and then put back together more meaningfully”. Some software packages are available to analyse qualitative data; however, I undertook manual analysis by following the significant steps of qualitative data analysis: coding, identification of themes, recoding, development of categories, identification of relationships between categories and refinement of themes (Lacey & Luff 2007, p. 7). As my data size was of a manageable size, manual analysis was appropriate (Basit 2003, p.152).

As many scholars have mentioned (Emerson, Fretz & Shaw 1995; Merriam 2002), field notes can be recalled by “...reimagining and replaying in one’s mind scenes and events that marked the day...” and that marked my conversation with each woman (Emerson, Fretz & Shaw 1995, p. 51). In doing so, I rebuilt the participants’ narrative life stories carefully, analysed them using thematic analysis: “...whatever the approach to analysing the data, the central defining feature of this type of research is that the data are in the form of a story” (p. 9).

Most interviews were in Bangla. I translated the narrations and direct quotes into English when I used them in my findings and analysis. Qualitative data was analysed by coding and grouping to identify key themes (Check & Schutt 2011; Islam & Walkerden 2014). I summarised the transcribed data and merged them under the thematic areas. These themes, which were developed based on the objectives, research questions and theoretical framework of my study, are as follows:

- Climate-migrant women’s lives and social constraints
- Physical vulnerabilities triggered by repeated natural disasters
- The value of social networks for quality of life.

Finally, I completed a thematic analysis based on the theoretical framework of my study. I adopted a theoretical framework based on Nussbaum’s capabilities lists and social capital from a feminist perspective for my study. The purpose of my study was not theory development as such; instead, it aimed to contribute to and extend existing knowledge. Therefore, I used elements of the theoretical framework as analytical tools for the data analysis, and I presented my discussion in a narrative analytical style.

3.6 ETHICAL CONSIDERATIONS

This study was approved by Western Sydney University's Ethics Review Committee (Ref. No. H11302) before the data was collected. A copy of the ethics approval for this research is attached as Appendix A. The ethical considerations were necessary to safeguard research participants, the research process and the credibility of the research findings (Flick 2015). Ethical issues were considered carefully throughout the research process. Participants' consent and the confidentiality of the data were strictly maintained. An information sheet was provided to the participants before obtaining their consent that sufficiently explained the purpose and nature of this study. The nature of participation was also explained to the participants through the participant information sheet and verbally before the interview. Particular care was taken to ensure that the participants would not feel obliged to participate. They were also assured that they were not bound to talk on all the topics. They could withdraw anytime from the interview. Free counselling services were made available for the participants in case any felt more significant emotional distress, and the counselling service centres' contact details were listed on the participant information sheet. However, none of the participants needed these services.

Participants were assured that the information would be used for research purposes only, and they were allowed to ask any questions before they signed the consent form. Each participant gave consent before the data was collected. The consent form was read out verbally for the climate-migrant women, and their name was written in place of their signature after they gave verbal consent. Participants were recruited voluntarily and were not compensated. Participants were assured that their names would be kept anonymous. To comply with confidentiality, the data (both hard and electronic copies) was not shared with anyone except the primary researcher.

3.7 CONSTRAINTS AND LIMITATIONS OF THE STUDY

While the study covered three research areas and interviews with two sets of participants (climate-migrant women and key informants), I could only conduct interviews with the climate-migrant women in the three research areas during the time available for my field visit in Bangladesh. Reaching the climate-migrant women in the rural and urban research areas in Bangladesh and making appointments with the key informants was crucial. Unfortunately, the

approval for my field trip for data collection was delayed due to the administrative process, and the resulting uncertainty of my arrival date in Bangladesh caused difficulties for confirming all my appointments with the participants.

As discussed above, while I was able to complete my interviews with climate-migrant women in the rural and urban areas and to contact and build a rapport with the key informants, I could not manage the appointments with the key informants within that short period. Therefore, I was obliged to conduct 10 key informant interviews after my return to Sydney from the research area through electronic media (Skype, Messenger). These media-based interviews took a long time because of weak internet connectivity in Bangladesh, the constant interruptions in which required that I conduct these interviews in several stages, which further lengthened the data-collection process.

It should be noted that during field-level data collection, especially when build a rapport with the women, I faced constraints due to the highly gendered nature of public space in Bangladesh. First, as a female researcher, I needed to consider many socio-cultural gender norms and issues such as wearing a local costume, covering my head, giving priority to men and not using public spaces for talking with women or for interviews with them.

Second, I faced difficulties in conducting interviews with climate-migrant women participants. Some curious male relatives (husband, brother, son) always accompanied them. Thus, I felt that the women were not entirely comfortable speaking about their problems such as reproductive health issues, workload and gender power relations within the family; moreover, they were not expressive in sharing their contributions. Additionally, these women were occupied with their everyday work burden, which could barely allow them to spend time for the interviews. To minimise the issues, I fragmented the interview time with these participants and met them several times at convenient time and places convenient to them. This strategy allowed me to gather data and information more from the women's points of view, as the women talked more freely when their male companions were absent and when they were free from their daily tasks. This also helped with data triangulation and validation, as the information provided by these women was the most important for my theoretical framework.

Finally, I had to always consider the social and political context and underlying gender power relations of the country. Therefore, I also had to talk with the male family members of the participants. So that they would trust me and understand my work, I clarified my role as a researcher and the possible outcomes of this research (that it would be used for my academic purposes only). The participants' male family members were able to prohibit the female participants from talking with me freely; this power could create a distance between researcher and informants. Moreover, an expectation might develop that projects or programs would be forthcoming that would benefit them. The final limitation was that I could not spend a long time in the field. Due to a lack of appropriate living arrangements in particular villages, it was difficult for a woman to stay in rural areas alone for security reasons. I also felt increased concern for safety and security after the theft of my husband's bag in Dhaka.

3.8 CONCLUSION

I have selected Bangladesh for my qualitative study because of its representativeness as a highly vulnerable climate-change-affected country, and because I am familiar with the language and culture and thus could have a direct connection with participants. As one of the South Asian Countries, Bangladesh shares many similarities with other developing countries, including gender relations. I have included both sending areas and receiving areas to gain insights into the lives of these women in both places. I also have employed several data-collection methods: life-story interviews with climate-migrant women, field observation and in-depth interviews with key informants. These multiple sources have enriched my information base and helped to triangulate and validate it. Since most of my study fields were in rural areas and urban slums, I had to consider many socio-cultural constraints and limitations. Despite that, I managed to visit all the research areas several times. However, due to time constraints, I needed to complete key informants' interviews electronically. Ultimately, my background as a Bangladeshi person, helped me to minimise the difficulties in completing the field work.

CHAPTER FOUR

CLIMATE-MIGRANT WOMEN’S LIVES AND SOCIAL CONSTRAINTS

4.1 INTRODUCTION

This chapter contributes to illuminating how Bangladeshi climate-migrant women’s everyday challenges are aggravated by floods and river erosion. It provides a brief history of these women’s lives (Section 4.2) and their lived culture in rural areas (Section 4.3). It then explores their overall social constraints, including gender restrictions (Section 4.4) and social and religious issues (Section 4.5). Finally, it discusses the development opportunities of these women in Bangladesh (Section 4.6), and the social constraints that deprive them of capabilities such as health, education and integrity, which are necessary to manage an empowered life. The chapter ends with the conclusion (Section 4.7).

This chapter highlights climate-migrant women’s social constraints from an insider researcher’s (Creswell 2014) perspective. Particularly given that natural disasters such as floods and river erosion are regular phenomena in rural life and significantly affect their lives, the women cope, in part, through relying on a sense of belonging to the same culture, norms and values that unite them and create robust ties among them. In addition to facing the constant threat of natural disaster, climate-migrant women are entirely occupied with their daily tasks, including both housework and income generation, and have minimal leisure time. However, despite their significant role in the family, they have a lower status. Their life and capabilities are dependent on their male family members. While, as field observation indicates, their strong religious beliefs guide their life, these religious values are mostly explained by the effects of male domination in the name of religion.

This chapter will highlight the constraints that these women experience, based on the viewpoint of an insider researcher, as mentioned earlier (Section 3.4).

4.2 A BRIEF HISTORY OF CLIMATE-MIGRANT WOMEN'S LIVES IN BANGLADESH

This section depicts the lives of climate-migrant women in Bangladesh. Their life stories indicate the challenges that they confront in Bangladesh due to the adverse effects of river erosion caused by climate change.

Shima, a climate-migrant woman who lives in Sirajganj, is 17 years old with one child. She stated:

I was born and brought up in a rural area, in a family consisting of seven members, including my parents and five children. I grew up in a joint family, along with my grandparents and uncles' family members. My father was a farmer, and my mother was a homemaker. We had our own land and homestead. As a family, we were not that rich, but we were able to maintain our necessities. We could eat two or three meals a day. We could eat fish or meat once or twice a month. My mother had a homestead garden that provided fresh vegetables. My mother used to rear poultry; the eggs from her poultry was a good source of protein. We also had fruit trees.

Saleka is 34 years old with five children. She left her village due to loss of her land and currently lives in Dhaka. She said:

As with other families in the village, because I was a girl, my parents did not send me to school, but they sent me to the madrasa [religious school] near our house. I learnt there only for two years to learn the Holy Qur'an. Because my parents thought I was adult enough to go outside to learn Arabic, they accepted the help of one of our neighbours to teach me more about the Holy Qur'an to enhance my moral values and conceptions. I used to help my mother with the household chores. By doing this, I learnt many skills like caring, cleaning, cooking, crafting, gardening etc. My guardians used to tell me that I should learn these skills as I would get married and then I would be the carer of my in-laws' family.

Afroza, a climate-migrant woman who lives in Bogra, is 24 years old with three children. She said:

I can remember that, in my childhood, my family faced river erosion several times, and had to move twice to different places in the village. We were able to survive because we had properties to downsize and alternative livelihood options. The river erosion's consequences were not as severe as they are now. My parents always wanted to stay close to their kin and kith to take advantage of being part of a more extensive social network in rural areas. Another reason, probably, that they wanted to avoid moving to an urban area was the lack of economic affordability and the uncertainty of an unfamiliar urban environment. My family could remain in the village, but we had to face many challenges, like shortages of food, water, health care and safety and others. Due to these challenges, and as it was the custom in the village, my parents arranged my marriage at the early age of twelve years old.

Saleha, a climate-migrant woman from Sirajganj, is 29 years old with four children. She said:

When I married my husband, he was a farmer. He is from the same village where I grew up. I used to live with my in-law's family after my marriage. At that time, my in-laws had their own land for farming, and also a house to live in. I had a big family consisting of my parents-in-law and the families of my brother-in-law and sister-in-law. Like other female family members, I also became the primary carer of my in-law's house. Besides my everyday household chores, I used to do homestead gardening with my mother-in-law. I also used to sew blankets to sell at the local market, which allowed me to earn some extra money for my family. I used to do this gardening and knitting work after finishing all my other household chores, in my leisure time. I used to love doing my gardening and knitting. This used to remind me of my mother, as she used to love doing these when she was alive. All my aunts and my mother used to do these together when they had leisure time. While they used to do these activities, they used to talk, laugh and have fun with each other. I do the same with my other female family members and neighbours of my in-law's family.

Hamida, a climate-migrant woman from Bogra, is 35 years old with four children. She said:

Like many other families in the village, my in-law's family also faced the hits of climate disasters. After my marriage, I have seen my in-laws lose their land four times from river erosion. We did not just lose our land and homestead; my husband and father-in-

law lost their livelihood too, because of losing their cultivable land several times. They were surviving by working as day labourers on others' land. That was not enough to support the family. Hence, my husband went to Dhaka to seek a livelihood. He worked as a day labourer in the construction of a building in Dhaka, with the help of one of his cousins. He used to visit us every five or six months. That time my four children and I were living in the village with my in-laws. I used to take care of all her family members in the village. My husband couldn't take us to the city because of the high living cost of the urban area. Suddenly, one day my husband had an accident at his construction work. So, he had to come back to the village as he was unable to work and take care of himself on his own.

Salma is 25 years old with three children and lives in Sirajganj. She said:

Due to the effects of natural disasters, we are losing our land and homestead. It's becoming hard to live like this. Before losing our shelter and farm, we at least had fresh fruit, vegetables, and sometimes fish and eggs to eat. We could usually eat two or three times a day, depending on our financial state, but after repeated losses because of river erosion, we hardly get a chance to eat even once a day. Due to these current living conditions, my husband and I have decided to go to Dhaka in search of a livelihood, leaving our three children with my in-laws.

Farida from Dhaka is 30 years old with three children. She described her life:

In the city, we are facing various challenges regarding housing, food, water and lack of a livelihood. Apart from these challenges, we are also suffering from a lack of proper sanitation, health care and treatment for illnesses, and from harassment, social insecurities and social relationships. I have moved to three or four slums in a year in search of work. This short tenancy prohibits me from becoming familiar with others in the slum. The lifestyles of an urban area are also different from our lifestyle in the rural area we came from. In the urban area, we find everyone is busy with their own. We miss following our cultural and religious rituals that we followed in our villages with our loved ones. We feel we are living an isolated life that is not as dignified as it was in our village.

Ashma, a climate-migrant woman from Dhaka, is 26 years old with three children. She said:

We have managed to earn some money in Dhaka to live, but we have no option but to live in the unhealthy environment of slums, because this offers the cheapest living cost in the urban settlement. We are experiencing various diseases due to unsafe water and unhygienic conditions in these deprived areas. This situation is unhealthy and disgraceful. It is also a threat to our children. Seeing other children's derailed lives in the slum area, I can realise that this slum environment is not good for my children. There are limited options for children's education. This environment poses a severe lack of safety for children. For example, my husband and I both need to work to earn money for the family, so I worry about who will take care of my children when both of us are away from home. In the village, we had support from our relatives and neighbours, but here we have no such supports. I even fear that if I become sick, there will be no-one to take care of me either.

Ameena, a climate-migrant woman from Dhaka, is in her 50s with six children. She said:

I feel deprived of the former social life of my village, where we could maintain strong, friendly ties with others. In the village, we had recognition and respect from others. River erosion washed away our land, our homestead and our dignity also. These river erosions have changed our lives so much.

These quotes illustrate the life history and challenges that climate-migrant women and their families confront in their lives. The stories are similar in the events they portray and the severity of the loss of resources and opportunities due to climate change that they describe.

4.3 THE LIVED CULTURE

The term “lived culture” is used in this study to indicate the manners and social behaviour that people maintain in their village lives. Based on my journal notes taken during my field trips and applying insider knowledge, in this section I portray the lifestyle of climate-migrant women in the rural study areas. During the field visits, all the interactions and meetings with the study participants explored four cultural features. However, the individual women did not know the researcher and information was collected without biases.

First, it quickly became obvious that the villagers could establish intense relationships even with someone unknown. This was the case when the researcher approached the villagers to introduce herself and found that some immediately agreed to be interviewed.

I stopped my car far away from the first village. Then I started walking. My confidence was my local knowledge and language to communicate with the villagers, and I chose to wear a very simple traditional dress (salwar kameez) so that I would look familiar to them. My husband and one of my cousins, who lives in Bogra, accompanied me. We entered the village marketplace. (Field Journal, 2016)

Second, they demonstrated the traits of acceptance and a sense of belonging to the same land; that is, a recognition that the researcher was from the same place. Though the villagers did not know me, still they welcomed the newcomer and showed their interest in knowing me. They were also keen to understand the purpose of the research. A possible explanation for this behaviour would be that although they did not know me, they manifested their approval because they saw people who looked familiar, spoke their language and dressed as they did. The following field observations support these interpretations.

We sat in one small teashop intentionally to talk with the villagers. I started our conversations with the tea-stall owner and other people in the stall. At first, I was a bit shy about using my local accent, as it is not that good, but when I found them talking more quickly in the local accent, I started using it, regardless of how correct I was. Soon we found a small circle around us to listen who we were and why we were here. Supportively, I used my grandparents and father's identity, as they belonged to this area. Suddenly the villagers were treating me like I belonged to them. (Field Journal, 2016)

Third, the villagers were able to demonstrate a sense of pride when they introduced me to other villagers:

Even in few of their eyes, I saw pride to introduce me with others, who said, "See, she belongs to our land and still she did not forget that. (Field Journal, 2016)

Thus, it is understandable that cultural customs and values were admitted and proudly mentioned among the villagers when they receive the research visit.

Nonetheless, as a fourth feature, the field observations also noted the degree to which the villagers, including the climate-migrant women, were emotionally attached to their land. Indeed, as part of their local culture, they manifested their wishes to remain near their village, because many of them were farmers and fishers in these study areas. Most of these villagers commented that they had inherited this livelihood from their ancestors. Therefore, they were unwilling to leave these lands unless they could not find another alternative.

The villagers said that they are emotionally attached to this land. They don't want to leave the area unless they left with no other choice but to leave their kin and kith. (Field Journal, 2016)

The reasons that they agreed to remain near rural areas were very different, but all of their reasons were related to their love of and engagement with their kin, customs and beliefs, and the values of rural life.

The villagers want to stay close to villages because of the lack of economic affordability to move to the urban areas; to take advantage of being part of a larger social network in the rural areas; to avoid uncertainty in an unfamiliar urban environment; and in the hope of regaining land in the future. (Field Journal, 2016)

However, the following was also revealed in the field observations:

When there is no livelihood, villagers move to somewhere else, where they can find work for a living. But interestingly, they said that most of them move with the hope that they will come back as soon as they can save some money. Once they have savings, they can buy a small piece of land to live and start something for their livelihood in the village. (Field Journal, 2016)

Due to the loss of livelihood from floods and river erosion, often male family members decide to go nearby urban areas for several weeks to seek an alternative livelihood. It was also mentioned in the field journal that in the absence of male family members, females become easy victims of crime and abuse.

Women are teased and sexually abused by other males in the neighbourhood. While women are forced to go out in search of fuel or work, they often keep their children unattended or tie them inside the dwelling with ropes etc. Such behaviour, according to these women, is believed to be inhuman. However, they have mentioned the support of other women, (their neighbours and friends), who accept the responsibility to look after the children in their absence. (Field Journal, 2016)

Consequently, when the villagers faced repeated disasters and loss of resources, they decided to move to urban areas for better livelihood options. Sometimes, they left their children with their in-laws to minimise the cost of living in the urban area. Often, they dreamed of earning enough money to eventually return to their villages.

The study found that that women play a substantial role in generating family income through a range of agricultural and craft activities that typically include horticulture, threshing and husking and livestock rearing.

I saw some women in the villages working in vegetable gardens and paddy fields. Most households have a cow, a goat and chickens. (Field Journal, 2016)

During the field visit, I also observed women's concerns about their future life. The field observation notes state that women were busy with drying fish and preserving other food items, making mud ovens for cooking and making raised platforms for saving poultry and belongings during flooding. I also observed women preserving different seeds and composting kitchen waste to produce organic fertiliser.

The undeniably crucial work these women contribute, however, does not spare them from various gender restrictions. The following section will describe the gender restrictions that climate-migrant women experience in Bangladesh.

4.4 GENDER RESTRICTIONS

As discussed in Section 2.2, village areas in Bangladesh practice a male-dominated socio-cultural-religious system. My field observations and interviews illustrated some significant constraints in the lives of women in Bangladesh. For example, women perceive their role to

be the primary carer of the family, which involves working all day without a rest. Women face extreme time pressure as they perform different household and agricultural. Their caring extends to in-laws if they have any spare time from their immediate family. In any free time, these women do different activities such as sewing blankets, preserving foods or making handicrafts. In some cases, they do these activities in groups, which they say makes them feel like recreational activities. For example, when they socialise with their neighbours even in leisure time, they continue stitching quilts in a local style called “Nakshee Kantha” – a very popular handicraft. These items can be sold to contribute to the household economy.

Women’s work continued from early morning to late at night. They wake up in the early morning and prepare the morning meal for the family, keeping aside some food for the family lunch. Then they leave home around 8.00 a.m. to work in the fields together with their husbands. After working all day, they come back home and start the second round of household chores, i.e. sweeping, preparing the evening meal, tidying up the house and feeding and stabling the livestock. In contrast, after coming back from field work, men take a rest or go to the local market, or wander here and there, passing time talking. (Field Journal, 2016)

I try to be healthy because if I fall sick, then who will take care of my husband, children and parents-in-law? My parents also live in the nearby area; whenever I get any time I go to their place and help them with their household chores also. (Rahima from Bogra, 34 years old with four children)

Women play a substantial role in agriculture through a range of activities that typically include horticulture, threshing and husking and livestock rearing. Women dry fish if there is a surplus; they also preserve food items when there availability. They also preserve different seeds. They compost kitchen waste to produce organic fertilizer. (Key Informant VI, Non-Government Official, International NGO)

We don’t have any formal facilities for leisure. There is only one cinema hall in the nearest town, and sometimes men organise “Jatra” (folk theatre) in the village for their entertainment. But we don’t go to these kinds of entertainments because of many restrictions. We do not see it as any deprivation. We enjoy doing our group activities, and we consider them as our entertainment. While we do these activities, we do chat

with each other; we have fun by making jokes and sometimes we also sing together. (Afroza from Bogra, 24 years old with three children)

I can sew blankets. I sell those blankets, and I can use that money for buying new dresses, shoes, schoolbooks for my children. I do not need to spend money on buying a blanket for my family's use, as I make them for my family too. I also make and alter my children's dresses, which also helps my family save some money. (Jamila from Sirajganj, 30 years old with three children)

One day, one lady who works in the NGO saw me sewing a blanket. She liked my work so much that she asked me to make two blankets for her. After that, she always used to give me an order for making blankets for her relatives and friends. She also introduced me to one buyer who had a big shop in the town. That buyer used to come once in two or three months, and I used to give him the blankets to sell. By doing this, I was able to earn a good amount of money. (Halima from Dhaka, 34 years old with five children)

Apart from their homemaking activities, in the rural areas, women participate in income-generating activities. By doing homestead farming, processing food, making handicrafts, sewing clothes, they not only make things for themselves, they sometimes sell those products to the local people or in the local markets. They help each other to share and learn this income-generating knowledge. (Key Informant III, Government Official)

Some of the climate-migrant women obtained help from NGOs and local Government to engage in income-generating activities, create cooperative funds and save money, but this was still within the confines of their private space and corruption could limit their access.

I took a loan from the microcredit program and bought a cow and a goat. I have received livestock training from a local NGO, and it was helpful for me to raise my cattle. (Shefali from Bogra, 40 years old with five children)

I had the opportunity to attend the Government's food-for-work program only once. I was able to earn a good amount of money. But after that, I never got a chance anymore. I requested several times, but I was told only a limited number of women could

participate. So, I can't get it now. (Moriom from Dhaka, 27 years old with four children)

When people from the local Government make the list of participants who will receive the work, they list their relatives and other favourite people first. (Saleha from Sirajganj, 29 years old with four children)

Despite their heavy workload, the women may not have sufficient food to sustain themselves. Being the primary carer also includes being the last person to eat or having the leftovers after ensuring that all other family members have taken their meal.

While I was sitting with the women in the village, during the lunchtime, I asked the shop woman along with other women nearby regarding taking the meal before family members or with family members. As expected, none of them have done this even for a single day. (Field Journal, 2016)

It is our habit, and we always feed our family members first, then we eat. We feel like if there is any food shortage, then I can manage myself with less food. But as a primary carer, I should feed my family members properly. (Farida from Dhaka, 30 years old with three children)

In my childhood, I have seen my mother, how she used to finish her cooking and used to serve food to all our family members. She used to sit beside us while we were eating, she continuously used to offer if someone needed anything. She even used to give us comfort by using a hand fan. I have learnt from her. I found a similar scenario I when I came to my in-laws' house and, I started doing the same after my marriage. (Sayma from Bogra, 38 years old with five children)

After serving my husband and elderly family members, I feed my little children. After ensuring that all my family members have taken their meal, then I eat the leftovers. (Salma, from Sirajganj, 25 years old with three children)

Conventionally, in a Bangladeshi family, being primary carers, female family members always try to ensure the comfort of their family members first. Priority normally follows

from male to senior to junior members of the family. This priority is maintained in their daily food-intake process and other resource-allocation processes. Therefore, if any family experiences a shortage of food or any other resources, that condition immediately affects the female family members first. (Key Informant VII, Non-Government Official, National NGO)

In rural areas because of the male domination and scarcity of resources, female family members always have less priority in the family. This is visible in some of the practices of their everyday life; for example, female family members will be eating food, using other resources, taking rest as the last member of the family. (Key Informant I, Government Official)

The women have no property rights and no autonomy. In accordance with the traditions outlined in Section 2.2, land passes from father to son and, despite Muslim law giving women some economic rights, women do not have access to their brothers' possessions. They practice obedience to senior family members, which means they have no autonomy over their day-to-day decisions.

When I got married, my parents gave my husband some money as part of my property inheritance from them. My husband bought a small piece of land for farming in his name. We lost that land in river erosion. (Ayesha from Dhaka, 26 years old with four children)

We are taught from childhood that women do not need ownership of the family property because men are enough for them. We have also experienced that maintaining properties is troublesome work. It involves dealing with legal issues, going to offices, debating with others. Hence, it is better if men handle all these problems. (Shahida from Dhaka, 24 years old with three children)

Our parents raise us, try their best to give us food, education, shelter. When we reached adulthood, they spent money on our weddings. In return, we [women] are not bound to take care of them when they are in their old age. But, our brothers are responsible for taking care of our parents. That is why we find it normal that our brothers will inherit our parents' properties. (Jamila from Sirajganj, 30 years old with three children)

We obey our elders, and they are our guardians. Before we take any decision, like selling or buying material resources, changing jobs, moving somewhere else etc., we need to talk with them to have their opinion and approval. (Rahima from Bogra, 34 years old with four children)

We have learnt from our childhood that men are responsible for earning money, and women are responsible for taking care of the family. That is why, we manage our home so that our husband can earn money. If necessary, they go to urban areas in search of work. As we cannot leave our house and family members due to our caring role, therefore, we try to do something that can help us to earn extra money for our family. Like – rearing livestock and selling them, doing homestead gardening and selling the extra in our neighbourhoods. (Sokhina from Dhaka, 43 years old with three children)

My husband went to the nearer urban areas in search of livelihood options. I stayed at home with my kids. He used to come back monthly. It was hard to stay without a male guardian. But we had no choice but to stay. (Shefali from Bogra, 40 years old with five children)

When my husband used to work in Dhaka, I was staying in the village with my children and in-laws. My husband used to send money for our living costs in the rural area. Though it was not enough, we had to manage with this little amount. He used to come home after three or four months. I couldn't go with him because he and my in-laws told me that urban areas are not safe for newly married women. Like this, we spent five years. In the meantime, I had two children. When my husband got sick in Dhaka, then my in-laws told me to go to Dhaka to take care of him. I went to Dhaka, leaving my kids with my in-laws. In Dhaka, I took care of my husband at the same time, and I started working in a restaurant as a cook. (Saleha from Sirajganj, 29 years old with four children)

As it is a patriarchal society, the men in Bangladesh believe that women do not need ownership of the family property. Because it is believed by the society that men family members are there for taking care of female family members. However, this norm deprives women of directly owning land, but owning land is the basic resource for food

production and confers power in terms of socio-economic status and security. (Key Informant X, Non-Government Official, National NGO)

Women are perceived to be the family carer who, in fact, will be submissive and obey their seniors. Male or senior family members of women usually make the choices, such as where women are going to live, what they are going to do. Women's lives are often dependent on and dominated by their parents before their marriage and by their in-laws after their marriage. Therefore, they find almost no space or very little space in their lives to make choices or to do what they want to do. (Key Informant V, Non-Government Official, International NGO)

The women's submission is driven by their deep religious convictions, as religion plays a central role in their lives and is the basis for their moral values. Accordingly, they apply their judgement about good or bad actions based on their religion and social customs. For example, they control themselves and their behaviour, thinking that if they make poor choices, Allah will punish them after their death.

We believe in Allah. We are living on the mercy of Allah. In our good times and bad times, we love to pray to him. We believe that he will save us from all the odds in our life. No matter how many household chores we do, we love to take time for our five times of prayer every day. (Hamida from Bogra, 35 years old with four children)

Without Allah's blessing, we cannot do anything. We believe Allah will give us good days back again. We should obey him and follow all his instructions. The prayers we do for Allah give us comfort and hope for our lives. (Saleka from Dhaka, 34 years old with five children)

Allah sees everything, and he will reward and punish us according to our good deeds and bad deeds. It is my belief that what I have and will have in my life depends on Allah. In our neighbourhoods, we women try to follow the rituals of our religion. We feel good when we can follow these rituals together. (Shima from Sirajganj, 17 years old with one child)

We love to celebrate our religious occasions: we cook food, buy new clothes, invite others to our home. People from other religions who live in our area also participate in our celebrations. We also participate in their religious occasions. We, and especially our children, wait for these types of occasions, as they find it very joyous. (Salma from Sirajganj, 25 years old with three children)

These women are attached to their religious norms and practices. They do their five times of prayer according to Muslim rituals. Men go to the mosque for their prayers. Women say their prayers at home. Once a week, women also do a group prayer at home. They consider these group prayers satisfying and useful. Sometimes after prayers, they talk about their problems and issues and try to find out the solutions from their religious point of view. They want to direct their lives according to the rules of their religion. They love to celebrate religious occasions, for example, Eid, Ramadan. The entire year they wait and try to save for celebrating these special occasions with their loved ones. They consider these occasions as their happiest time. (Field Journal, 2016)

The above evidence suggests that climate-migrant women make significant contributions to their family. However, their unpaid work is not recognised, and they are considered to be dependents on their male family members. In Bangladesh, women's household activities are not recognised, and their economic contributions are not accounted also; therefore, they have lower status in society relative to men in Bangladesh (Sultana & Zulkefli 2013; Haque 2016; Ingham, Islam & Hicks 2018; Ferdous & Mallick 2019). Further, in Bangladesh, men can easily migrate to other places and make decisions without discussing them with other family members. However, climate-migrant women are not allowed to go anywhere alone outside of their home and villages because of issues related to both security and social prestige. This supports the findings of previous scholars who have noted that gendered roles and responsibilities restrict women's mobility in Bangladesh (Islam 2017; Islam et al. 2017; Tanny & Rahman 2017; Banarjee 2020).

This section has depicted the lives of climate-migrant women and their inner circle: their households. However, what is happening in these women's lives when they have to face social relationships and exchange? Which are the restrictions that limit their behaviour? The following section details the social and religious constraints that climate-migrant women face.

4.5 PREVAILING SOCIAL AND RELIGIOUS VIEWS

Based on the social and religious beliefs and customs Bangladeshi climate-migrant women follow, they find it reasonable to have gender inequalities and gender domination. The prevailing social views and religious customs shape their lives and opportunities for development.

In Bangladesh, rural women accept their submissive role and the domination of their male family members.” (Key Informant IX, Non-Government Official, National NGO)

This norm deprives women of directly owning land, but owning land is the basic resource for food production and confers power in terms of socio-economic status and security. Women can only become users of land and labourers, not landowners. (Key Informant II, Government Official)

Some of the existing social norms and religious views hinder women from having an education, property ownership, work opportunities. These also encourage early marriage, the dowry system and acceptance of domestic violence against women. All these prohibit women’s mobility and economic empowerment. (Key Informant VII, Non-Government Official, National NGO)

These women have been taught and have seen from their childhood that female family members should be submissive to their male family members. Therefore, women find it normal behaviour. (Key Informant IV, Government Official)

We cannot go to the markets alone to sell something like men. If we need to sell any of our surpluses, we exchange with each other to avoid going to local markets and selling them. If necessary, we women make plans to go together and sell our surpluses in markets, since going alone is difficult for us. (Afroza from Bogra, 24 years old with three children)

My husband goes to the market if we need to buy something from there. I do not need to go outside for selling or buying something. We neighbours used to exchange things among us. For example, my neighbour and I used to exchange our surplus cow’s milk

and vegetables, as my neighbour had a homestead garden where she used to grow vegetables, and I had my livestock, which allowed me to have enough cow's milk. (Aysha from Dhaka, 26 years old with four children)

We need to go outside for fetching water, collecting fuel for cooking. We female neighbours find a common time for going outside together. We find it safe and less tiring going somewhere together. (Saleha from Sirajganj, 29 years old with four children)

The prevailing social and religious views define men as women's caretakers. This norm deprives women of the ability to own any property or land. Their domination by men is part of their beliefs. These beliefs are common amongst climate-migrant women (Haque 2016; Khan et al. 2016; Islam et al. 2017; Ingham, Islam & Hicks 2018; Banarjee 2020). These shared beliefs create some shared identity within themselves (Islam & Walkerden 2014; Ferdous & Mallick 2019). These women know the limitations placed on them; therefore, they help each other to accommodate themselves within those limitations.

This study also observed the significant importance of religion in the lives of climate-migrant women in Bangladesh. Based on their religious beliefs and rituals, they maintain several practices such as tithing or helping others for religious functions for their self-satisfaction and their family's better future. This may show that having a strong faith in Allah helps them to be positive and mentally healthy, particularly when they suffer losses in severe natural disasters. Gilbertson (2015) states that religious views build values and morals for Bangladeshi women and support them morally in their need and in bad times. However, there are some impositions on them in the name of religion. Sometimes local leaders misinterpret religious views and norms in the name of "fatwa".

The concept of "fatwa" is a common religious judgement in rural areas in Bangladesh. It is another dimension of violence trials by village elders, usually in the form of a "shalish", or tribunal, to settle some of their local disputes. This traditional custom of excluding women in Bangladesh in the rural shalish can be manipulated by the local mullah's religious leaders and the social elite to find women guilty in family disputes. Punishments are meted out with religious laws as interpreted locally in contravention to the existing penal code. (Key Informant IX, Non-Government Official, National NGO)

This above evidence depicts that instead of going to the formal law institutions, the villagers seek help from a “shalish”, or tribunal, that can falsely find women guilty due to the prevailing gender discriminations. This study observed that dowries are a general practice in rural areas. Climate-migrant women find it reasonable that the bride’s family will give property or material resources to the groom during the period of marriage.

Dowry demand is unlawful. Dowry has been given an extended definition in Bangladeshi laws: what is presented for marriage, whether before or after marriage, under demand, obligation or pressure is called dowry. People are discouraged from practising this; however, still, it exists in society, especially in rural communities. Most of the sufferers are low-income families. In many cases, dowry abuse becomes more severe in nature – throwing acid throwing on a woman’s face, or severely beating, divorcing or sometimes murdering her. (Key Informant I, Government Official)

The migrant-climate women in this study did not provide much detail regarding fatwas and domestic acts of violence. The women seemed hesitant to talk on these issues; therefore, they were not questioned further on them. However, it was also observed that the women knew about, and perhaps had experienced, domestic violence in their everyday life. One incident that was observed during the field visit in the slum areas in Dhaka is an example:

While I was talking with the families, I entered in one of their rooms and found that a lady was crying, and other ladies surrounded her. I heard that her husband had beaten her until she lay flat on the ground. I sat beside her but did not find any words to say to her. I just offered my drinking bottle to her. One of them asked me, “Are you going to inform police government officials? I do not want any police to come and harass my family.” Even in this situation, she was thinking about her family members. I understood their level of care. I assured her that I was not going to do anything like that. When I put my hand on her shoulder, she cried out and said, “Can you do something so that they [husbands] love us, not beat us?” I wiped her face and said to take care. I left the place with a sorrowful heart. One of the women there told me that it happens often; it is nothing new to them. (Field Journal, 2016)

The women in this study were not comfortable sharing anything related to the domestic violence that they may have been facing, as they considered such topics to be very personal,

as well as a normal part of family life. More generally, unless the violence becomes life-threatening, they do not want to talk about it with anyone other than their family members, relatives or friends to soothe the wounds or to find emotional support. However, in some extreme cases, they seek help from religious or local leaders (Tanny & Rahman 2017; Ferdous & Mallick 2019; Banarjee 2020)

Based on the above evidence, this study finds that climate-migrant women in Bangladesh feel obligated to remain at home. They are not encouraged or supported to have an education. On the contrary, they experience early marriage, dowry practices and domestic violence. They are also restricted from taking advantage of any work opportunities outside the home. They are discouraged from participating in activities in any public places. Previous studies also confirm that dominant patriarchal social views and religious misinterpretation create a significant obstacle for women in Bangladesh (Islam 2014; Haque 2016; Tanny & Rahman 2017; Ferdous & Mallick 2019).

The above evidence shows that the NGOs and local Governments provide some support for these women to participate in income generation and socially empower them to live a better life. The field observations also found evidence of health-related external supports such as family planning and reproductive health care, as well as education for children. However, the evidence, as mentioned earlier, also indicates the limitations and inadequacy of these supports. Moreover, the reports suggest the existence of corruption and nepotism in the support-providing process. Many studies have suggested the existence of external supports in rural areas. However, these external supports are also found to exhibit gender insensitivity, and are thus inadequate for rural Bangladeshi women (Nasreen 2012; Islam & Walkerden 2015; Ingham, Islam & Hicks 2018).

Based on the above social context, the following section examines the capabilities of these women through the lens of Nussbaum's (2011) list of 10 capabilities highlights the level of real human development for climate-migrant women in Bangladeshi.

4.6 NUSSBAUM'S CAPABILITIES IN THE LIVES OF CLIMATE-MIGRANT WOMEN IN BANGLADESH

This section will depict the capabilities of climate-migrant women in Bangladesh in their rural life. This study has used Nussbaum's capabilities list (Nussbaum 2011) to gain insights into the lives of climate-migrant women and to understand the capabilities that these women value in their life. Nussbaum's capabilities list consists of 10 capabilities. According to Nussbaum, climate-migrant women should value and achieve all 10 to achieve a meaningful life (Nussbaum 2011). Nussbaum also mentions that every woman has a valid reason to value all 10 capabilities. In this study, the life stories of climate-migrant women reveal that climate-migrant women in rural areas can achieve some of these capabilities to some extent and under specific circumstances; for example, when they have other resources, such as support from their families and neighbours. These stories also reveal their capability deprivation.

The previous sections of this chapter have shown that the social and religious customs in Bangladesh have a cultural role in influencing women's behaviour (Juran & Trivedi 2015; Tanny & Rahman 2017; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019). Due to cultural norms, climate-migrant women play a secondary role in their households, although they are the primary carers of their families. They have been taught to be submissive and modest in all circumstances (Tanny & Rahman 2017; Ferdous & Mallick 2019). They are intensely attached to their family members and their family's welfare. Moreover, women's standard of living in rural areas is guided by the male family members. Women are the first to sacrifice anything for their family members during any resource scarcity. For example, if food is scarce, they give their portion to other family members. However, these women's stories state that this is socially accepted behaviour. Other studies showed that Bangladeshi women have lower health standards compared to women in other parts of the world (Sorensen et al. 2018; Ferdous & Mallick 2019; Momtaz & Asaduzzaman 2019)

Bodily Health

Nussbaum (2011, p. 33) defines the "bodily health" capability as "being able to have good health, including reproductive health and being adequately nourished; to have adequate shelter". This study found that the participants were often deprived of the capability for bodily health. According to many of their stories, they had experienced several health issues related

to their reproductive health. Their stories state that they had early marriages, at around 12 or 15 years old.

It was our guardians' thoughts that girls are born to take care of another family. They used to tell us that girls are the treasure of their future husband's family. It was perceived that girls' parents are responsible for raising their girls up to a stage and sending them to their husband's house by arranging their early marriage. In our life, we had to go through with various health problems, as we were too little to understand the issues related to pregnancies. (Moriom from Dhaka, 27 years old with four children)

Parents become concerned for the safety of adolescent girls in the rural area. When we grow up, parents feel that it is safer for the girl if she is married. But after marriage, when I became pregnant, I had to suffer a lot with my health issues. I had my premature baby. The doctor said I had a terrible deficiency of iron and other vitamins. (Shima from Sirajganj, 17 years old with one child)

My father was a farmer. We were five brother and sisters. My parents couldn't bear the cost of raising all my siblings. They could send my brothers to school. But my other two sisters and I went to school only for two or three years. After that, my parents arranged our marriage. My younger sister and I both experienced miscarriages. My younger sister was about to die because of her health issues after her two miscarriages. Luckily, she was saved and is still alive. (Afroza from Bogra, 24 years old with three children)

These statements show that in rural areas, it is culturally accepted that females should be given in early marriage. Apart from issues of poverty, parents also become concerned for the safety of their adolescent girls. Therefore, they find it safer to arrange an early marriage for their daughters. Other studies also state similar findings in rural areas in Bangladesh (Islam 2017; Tanny & Rahman 2017; Ferdous & Mallick 2019). The participants' statements also show that due to this early marriage, women face reproductive health issues (Sorensen et al. 2018; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019; Razzaque et al. 2020). These climate-migrant women's stories also reveal that they suffer from other health issues, such as back pain, knee pain, headaches, breathing issues, tiredness and acid reflux.

I was feeling dizzy all the time while doing my household chores. I had to visit the local doctor; my husband took me there for a check-up. The doctor found I had low blood pressure. He also said I needed calcium and iron tablets. That is why, I was having back pain, knee pain. Thinking about the price of medicine, I didn't buy it. But I grew different vegetables in my homestead garden, which have iron. My mother-in-law also shared her homegrown vegetables and chickens' eggs with me. (Salma from Sirajganj, 25 years old with three children)

Every day we need to do various types of work, such as cooking, cleaning, washing, collecting water and fuels, gardening, livestock rearing, caring family members and helping husbands with farming and fishing. All this work requires physical labour. After finishing all our house chores, we feel tired at night. Sometimes we rub hot oil on our feet, and put a heat pack on our back to get some comfort. (Sayma from Bogra, 38 years old with five children)

I feel we like to do all our tasks, as we consider these tasks as our responsibilities. But, we feel tired and exhausted, and then we cannot eat properly or sleep properly after all this hard work. Due to improper food and sleep, I feel severe acidity, that sometimes make me unable to work even.” (Farida from Dhaka, 30 years old with three children)

If we feel sick, we usually use herbal home remedy. Going to hospitals is hard for us. First of all, it costs money; so, we think several times about whether we need to go; secondly, it is time-consuming – government hospitals are far away from us. We cannot go alone there. We need to go with our husband, brother or son. So, we need to manage time to go there for treatment. Then we need to take our children with us unless we have other family members or neighbours who have agreed to keep them at home. That is why; we try to avoid going there. (Rahima from Bogra, 34 years old with four children)

Private clinics are expensive for us. Sometimes, local Government and NGOs staff members come and provide free health services. These are mostly for children and maternal health. We wish they could provide other health support too. (Aysha from Dhaka, 26 years old with four children)

I am suffering from back pain. Last month I was not even able to fetch water. My neighbour had to bring water to my family. My neighbour also gave me a homemade herbal paste to put on my back. My daughter helped me to massage that paste on my back; I'm feeling better now. (Saleha from Sirajganj, 29 years old with four children)

The above evidence suggests that climate-migrant women experience health-related issues. They also mentioned that the available health-care facilities are either far away or expensive. They also mentioned they need to be accompanied by male family members, as they are not allowed to travel far by themselves, and that they may also need to arrange child care. Therefore, to avoid managing all the coordination with others, they may sometimes ignore their health-related problems, and they rely on locally available traditional treatments. Sometimes NGO personnel visit the village, but they only offer limited health services. However, their statement also shows that they value their health; that is why they look for health services and receive the support of others for their betterment.

The climate-migrant women's statements suggest that they suffer from various health issues. They experience reproductive health issues, which are related to their early marriages. They suffer from other health issues related to their daily work burden and inadequate nourishment. Their secondary position in the family may also cause them to suffer from malnutrition. Other studies also state that the effects of gender roles and unequal allocations of resources also make women in Bangladesh susceptible to several health issues (Alston & Akhter 2016; Ingham, Islam & Hicks 2018; Tanjeela & Rutherford 2018; Abedin et al. 2019; Ferdous & Mallick 2019).

Bodily Integrity

Nussbaum (2011, p. 33) defines the "bodily integrity" capability as "being able to move freely from place to place; having one's bodily boundaries treated as sovereign, i.e. being able to be secure against violent assault, including sexual assault and domestic violence; having opportunities for sexual satisfaction and choice in matters of reproduction". Climate-migrant women's stories state that in rural areas, they are deprived of their bodily integrity to a large extent.

I do not go outside, like in a marketplace or hospitals or a distant relative's house, by myself. One of my male family members always accompanies me. It is not just part of

our culture but also for our safety. Once a month, I go to the nearest local market to sell my homestead fruits and vegetables along with other ladies of my area. (Parvin from Sirajganj, 28 years old with three children)

When my husband went for work in Dhaka, I was living with my in-laws in a rural area. They were a great support for me. I was able to ensure my security and my children's because of them. (Rahim from Bogra, 34 years old with three children)

During the local and national elections, we go together with our family members to vote. Our male family members always accompany us. If our family members have gone to the city for their livelihood, we cannot go to the centre to cast our votes. This situation is similar to any other local public assemblies and meetings. Usually, our male family members attend those unless they are willing to take us with them. (Saleka from Dhaka, 34 years old with five children)

These statements indicate that climate-migrant women have fewer opportunities for free movement. Their safety is also a concern in rural areas. Other studies have reported similar findings (Islam & Shamsuddoha 2017; Tanny & Rahman 2017; Ingham, Islam & Hicks 2018; Tanjeela & Rutherford 2018). However, it is also notable that they could ensure their safety with others' help and could go to the market along with other women. This indicates that they may have limited opportunity to achieve this capability with the help of others. They mentioned that they hardly get any chances to attend public assemblies or meetings. In rural areas, women's mobility is limited within their home sphere and local area (Tanjeela & Rutherford 2018; Ferdous & Mallick 2019), which may deprive the women in this study of the capability of bodily integrity to a large extent (Hoque & Haque 2013; Asaduzzaman et al. 2015; Ferdous & Mallick 2019).

The other issues associated with Nussbaum's capability of bodily integrity include climate-migrant women's life experiences with sexual assault, sexual satisfaction, domestic violence and choice of reproduction. This study found that participants were hesitant to talk about the issues of their sexual life. My knowledge as an insider researcher suggested that this could be due to socio-cultural sensitivity and social taboos; participants sounded uninterested in discussing the stories of various assaults they face in their life. Considering their feelings and disinclination, I did not urge them to talk about violent or sexual assault or opportunities for

sexual satisfaction. However, their life stories regarding their early marriages may indicate that they may have had less choice regarding reproduction, as they had got married at an age when they may have had less understanding about these issues. Other studies based on rural women in Bangladesh have reported similar findings (Tanjeela & Rutherford 2018; Ferdous & Mallick 2019).

Furthermore, their lack of decision-making in the family may deprive these women of achieving the capability of bodily integrity. Therefore, this study has found that climate-migrant women become deprived of bodily integrity, although help from their family members, relatives and neighbours may help them to achieve this capability to a limited extent.

Senses, Imagination and Thought

Nussbaum (2011, p. 33) defines the “senses, imagination, and thought” capability as “being able to imagine, to think, and to reason – and to do these things in a truly ‘human way’, a way informed and cultivated by an adequate education including, but by no means limited to, literacy and basic mathematical and scientific training; being able to use imagination and thought in connection with experiencing, and producing expressive works and events of one’s own choice, religious, literary, musical, and so forth; being able to use one’s mind in ways protected by guarantees of freedom of expression with respect to both political and artistic speech and freedom of religious exercise; being able to have pleasurable experiences and to avoid non-beneficial pain”. The women in this study have been mostly deprived of formal education at educational institutions.

In our childhood, schooling for girls was not seen to be essential. We were not sent to school or for any formal education. We used to go to a religious person, like a “Mawla”, for our religious education. (Sokhina from Dhaka, 43 years old with three children)

We did not have the opportunity to be educated. But, I want my children to be educated. I send my son and daughters both to the nearest government primary school. I do not want my daughter to be uneducated like me. I always pray to Allah for the financial ability to send both my children to school. (Parvin from Sirajganj, 28 years old with three children)

I feel good when I see that my children are able to receive an education. It became possible because the Government has made it free for them. Even so, we need to prohibit them from going to school due to other obstacles, such as transportation, especially during natural disasters, and safety and security, especially for girl children. (Hamida from Bogra, 35 years old with four children)

If I had the ability, I would never stop my children's education. I know the value of being educated. You can learn all the good things of life, become able to make the right decisions for yourselves, learn to take care of yourself by earning money. (Shahida from Dhaka, 24 years old with three children)

Their stories highlight the educational restrictions to which they were subjected. The female education rate is lower than the male rate in Bangladesh, especially in rural areas (Nasreen 2012; Islam 2017; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019). However, these women found learning the Qur'an essential for them, as they considered this knowledge crucial in building the moral values for their life. They also considered that learning the Qur'an would bring peace and prosperity into their lives (Khan et al. 2016; Tariq & Syed 2017; Ferdous & Mallick 2019). Additionally, these women's concern for their children's education shows that they valued this capability.

In addition to formal education, the study participants also valued learning various skills. From childhood, they had been involved with the household chores, which helped them learn the skills like home economics.

From my mother, I have learnt how to do homestead gardening, rearing livestock. After marriage, with my mother-in-law's help, I did these at home. Doing these, I could earn some extra money for my family. (Halima from Dhaka, 34 years old with five children)

My mother-in-law was popular in the village for her knitting skills. Women in the village used to come to her to sew their dresses, bedsheets and curtains. She could do nice embroidery also. I have learnt many things from her. After my mother-in-law's death, I have tried to serve those women who used to come to her. (Shefali from Bogra, 40 years old with five children)

I make paper bags and sell them to the local markets. I saw a few female neighbours doing it at home and earning handsome money. While they used to make paper bags, I used to sit with them to watch and assist them. By doing this, I also learnt and started doing the same work professionally. (Jamila from Sirajganj, 30 years old with three children)

I knew how to fix the net that my husband used to use for his fishing, every time we were not able to buy a new one. That is why I learnt it from my aunty, so that we could reuse it. Apart from fixing our net, sometimes I also used to fix my neighbours' net. By doing so, we could avoid spending money every time for buying new nets for our livelihoods. (Rashida from Dhaka, 50 years old with four children)

We help our husbands to farm. During the harvest, there are various tasks to do, like husking, cutting, cleaning, drying, storing. We also make homemade fertilisers, insecticides. We store various seeds for the next year's planting. This helps us to save money on labour costs, production costs etc. We women help each other to learn all these. (Afroza from Bogra, 24 years old with three children)

The women in this study also learned knitting, crafting and activities related to harvesting or fishing to support their husbands' livelihood. Other research has found that in rural areas, women participate in various farming tasks (Nasreen 2012; Islam et al. 2017; Tanjeela & Rutherford 2018; Momtaz & Asaduzzaman 2019). However, these learning skills are also limited due to their gender restrictions. In rural areas, women are discouraged from learning many skills like riding bicycles, swimming or climbing trees (Kabeer 1990; Nasreen 2012; Ferdous & Mallick 2019) Therefore, this study finds that while climate-migrant women value the capability of senses, imagination and thought, they have limited opportunities to achieve this capability due to their cultural and financial conditions.

Emotions

Nussbaum (2011, p. 33) defines the “emotions” capability as “being able to have attachments to things and people outside ourselves; to love those who love and care for us, to grieve at their absence; in general, to love, to grieve, to experience longing, gratitude, and justified anger. Not having one's emotional development blighted by fear and anxiety”. The study participants' stories suggest that due to their cultural limitations, they may have significantly limited options to have an attachment with outside things and people. Other research has

similarly found that social stigma prevents rural women from having any attachment with outsiders (Tanny & Rahman 2017; Ingham, Islam & Hicks 2018; Tanjeela & Rutherford 2018). Their submissive behaviour in the family also indicates that they have fewer options for showing their justified anger. However, their life stories show that these women can love and care for their family members, relatives and neighbours. These stories also show their extensive emotional sharing among themselves.

Whenever we cook something special for any good news, we like to share our food. We also distribute sweets if we have any good news in our life. We believe that Allah will bless us more if we share our good things with others. (Shefali from Bogra, 40 years old with five children)

We face distress in our life. We get comfort by sharing sorrow. We know we might not be able to help each other to come out from distressing situations, but we can at least give some mental relief by hearing each other's pain and grief. (Shahida from Dhaka, 24 years old with three children)

The above assertions state that these women share each other's emotions in both good and bad times, which also indicates that these women value the capability of emotions. Though their cultural customs may not allow them to achieve this capability fully, they feel they can achieve it to an extent, as they have secure emotional attachments with their family, relatives, friends and neighbours. According to these women, these are the people they value in their life (Aldrich 2011b; Nasreen 2012; Tanjeela 2015; Asteria et al. 2018; Ferdous & Mallick 2019).

Practical Reasoning

Nussbaum (2011, p. 34) defines the "practical reasoning" capability as "being able to form a conception of the good and to engage in critical reflection about the planning of one's life". This capability was found to a limited extent in the lives of climate-migrant women in Bangladesh, whose life stories revealed that from childhood, their lives had depended on their male family members, a result also found by previous research (Tanny & Rahman 2017; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019).

Usually, the male family members make the big decisions in family-related issues. For example, where to go, what to purchase or sell etc. (Saleha from Sirajganj, 29 years old with four children)

Another component of the capability of practical reasoning is climate-migrant women's conception of what is good and bad for their lives. Their life stories illustrate that this conception essentially comes from their religious values and norms (Khan et al. 2016; Tariq & Syed 2017; Ferdous & Mallick 2019).

Our religious beliefs guide us to understand which is good and bad for our life. We strongly believe that the Almighty will punish us if we do something wrong, no matter whether anyone knows what we've done or not. Our strength also comes from these beliefs both in bad and good times. Apart from our religious beliefs, our guardians, like our parents, in-laws, grandparents and elderly neighbours, also share their wisdom and experiences on the bad and good things of life. (Ameena from Dhaka, 50 years old with six children)

This highlights that climate-migrant women have limited opportunities to achieve this capability. Due to their cultural norms, women in rural areas are rarely able to make their own decisions (Juran & Trivedi 2015; Tanjeela 2015; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019). At the same time, they can achieve this capability to a limited extent, as they can form a conception of what is good and bad for one's life. These conceptions are mostly based on their religious beliefs and thoughts (Khan et al. 2016; Tanny & Rahman 2017; Ferdous & Mallick 2019). Sometimes they also learn from people in their village with whom they have close ties. This indicates that although they can achieve this capability only to a limited extent, they do value this capability in their lives.

Affiliation

Nussbaum (2011, p. 34) defines the "affiliation" capability as "the ability to participate actively in many forms of social and political relationship, to speak in public, to be recognized as superior beings whose worth is equal to that of others". The stories of the climate-migrant women in this study reflect that social affiliation is a significant factor in their life. Their stories also reveal that due to their cultural constraints, they have limited opportunities to become familiar with others or to go out into the public sphere. Other

researchers have similarly found that cultural issues constrain rural women's participation and involvement in the public sphere (Haque 2016; Tanny & Rahman 2017; Ferdous & Mallick 2019). However, these women can also develop robust and durable ties with their family members, relatives, in-laws, neighbours and friends who live in the same area by sharing the belief, values, and other cultural customs that reinforce their identity (Haque 2016; Asteria et al. 2018; Ferdous & Mallick 2019). Furthermore, their attachments to neighbours and nearby friends are strong enough for them to consider these people as extended family members, and their relationships with them highlight their norms of trust and reciprocity.

My parents live in another city. I have no other relatives here, except my in-laws. But, I feel lucky to have my nice neighbours. They are always helpful to me. During my pregnancy through to childbirth, they took care of me; they shared my work burden. After childbirth, I was able to have complete bed rest due to them. I always feel I owe a debt to them, and whenever I find any chance to help them, I do. (Sayma from Bogra, 38 years old with five children)

I grew up in this village. All our relatives and neighbours are like our own family members. I can trust them, and I can share my feelings with them. (Farida from Dhaka, 30 years old with three children)

These statements show that climate-migrant women in rural areas can achieve the capability of affiliation to a limited extent. The cultural constraints they experience may restrict them from achieving this capability more fully; however, their intense relationships within their home sphere make them able to build strong ties with others. Their stories noticeably state that this affiliation has a significant value for their lives.

I can share our shelter, food and work burden with the others. These relations mean so much for our life, especially when we are in trouble or any of our resources are scarce. (Hamida from Bogra, 35 years old with four children)

We share our caring, knowledge and skills with each other. We get emotional support, earning support from each other. These help us to survive our life discrepancies. (Salma from Sirajganj, 25 years old with three children)

Climate-migrant women's relationships represent a valuable resource and support because these informal ties are considered to be a source of security and peace for them (Haque 2016; Tanny & Rahman 2017; Ferdous & Mallick 2019). The above statements indicate that these relationships not only help them to form attachments with others and enjoy the capability of affiliation, but also help them to work as a means of achieving other capabilities such as bodily health and emotions (Islam & Walkerden 2014; Jordan 2015; Asteria et al. 2018).

Other Species

Nussbaum (2011, p.34) defines the "other species" capability as "being able to live with concern for and about animals, plants, and the world of nature". This study found that climate-migrant women in rural areas can achieve this capability fully. In Bangladesh, rural women are very much in touch with nature, animals and plants (Bhuiyan, Islam & Azam 2017), as well as the environment as a whole. Climate-migrant women's livelihood options are mostly based on their natural resources, as are most aspects of their daily lives, such as collecting fuel and water, homestead gardening, livestock and poultry rearing, making pottery etc. (Haque 2016; Tanny & Rahman 2017; Momtaz & Asaduzzaman 2019).

I had two cows and four goats. Those [animals] were like my child. No matter how busy I used to be with my daily life, I used to feed them and washed them regularly. In the wintertime, I used to make warm clothes for them. I also used to keep them inside my room so that they did not get cold. (Saleka from Dhaka, 34 years old with five children)

Like many other women in the village, the whole year, I rear cattle and sell before the urban Eid [one of the major religious celebrations]. This profit helps us to maintain our family's needs and wellbeing. (Jamila from Sirajganj, 30 years old with three children)

These statements show that the women owned livestock in rural areas, and some of the women worked in husbandry as their profession. According to the field observation, their faces brightened when they mentioned their enjoyment of wildlife and nature. Some of the participants showed me their garden and cattle. In the observation, climate-migrant women were found to be involved with many activities in their daily life that were attached to nature. For example, household chores included washing clothes, fetching water, rearing livestock and poultry and collecting firewood, and agricultural work included managing home gardens and horticulture crops, harvesting and processing crops (mainly paddy rice, wheat and

vegetables) and helping other family members in various work on farms or at fisheries; all these tasks require a close engagement with nature. It was understood that their gardens and livestock were an essential source of pleasure and income at the same time and gave them a sense of pride and achievement. This shows that climate-migrant women in rural areas can achieve this capability.

Play

Nussbaum (2011, p.34) defines the “play” capability as “being able to laugh, to play, to enjoy recreational activities”. Climate-migrant women described their leisure time, laughter and recreational activities while describing their daily life. The stories about their lives’ enjoyment and recreational activities are similar to the experiences of other rural women in Bangladesh. Generally, women do not have access to any formal leisure services because of socio-religious restrictions and communication barriers (Nasreen 2012; Khan 2016; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019). However, their stories also show that they have formed alternative ways to spend their leisure time as well as alternative recreational activities. They reported sewing, crafting, homestead gardening and preparing different food items such as cake, puffed rice and pickles. Sometimes they did these activities for themselves and their families; sometimes they did it to produce goods to sell in the market.

We don't have any formal facilities for leisure. There is only one cinema hall in the nearest town, and sometimes men organize “Jatra” [folk theatre] in the village for their entertainment. But we don't go to this kind of entertainment because of many restrictions and for our own safety. We do not see it as any deprivation. We enjoy doing our group activities, and we consider them as our entertainment. In my leisure time, I love to sew blankets along with my neighbours. We gather at the house of someone in our group at around 4 p.m. every other day, after finishing our household chores. While we do this, we do chat with each other and have fun by making jokes, and sometimes we also sing together. Furthermore, I sell those blankets, and I can use that money for buying new dresses or shoes for my children. I feel glad to see my children's smile because of having a new dress. (Afroza from Bogra, 24 years old with three children)

After harvesting time, we celebrate by cooking different food. During this period, we find a little free time to visit our nearby relatives' houses. I usually visit my parents' and sibling's houses. We make different types of cake together. We sometimes visit the

village fair with all our other relatives. The kids love to play on various rides in the fair. We find it very fun and relaxing. (Salma from Sirajganj, 25 years old with three children)

Apart from their group activities, climate-migrant women also stated that they enjoy religious, social and cultural festivals like Eid, Puja, Bengali New Year and the harvest celebration. Throughout the year they prepared for these activities, including cooking food, hosting extended family members and friends and visiting relatives. They considered these types of festival as their leisure time and recreational activities.

These statements indicate that climate-migrant women had a sense of fun and valued their leisure and recreational activities. Despite their cultural and religious limitations, they found numerous ways to enjoy their leisure time, such as sewing blankets, preserving foods and doing handicrafts, which they would do in groups. They considered these activities as their recreational activities. Therefore, climate-migrant women can achieve Nussbaum's play capability to a limited degree with the help of their relatives and neighbours.

Control over one's environment

Nussbaum (2011, p. 34) defines the "control over one's environment" capability in terms of two dimensions:

- a) Political – being able to participate effectively in political choices that govern one's life; having the rights of political participation, free speech and freedom of association.
- b) Material – being able to hold property (both land and movable goods); having the right to seek employment on an equal basis with others.

In the context of climate-migrant women in Bangladesh, Nussbaum's tenth capability refers to their ability to participate in politics, to seek employment and to enjoy a rewarding work-life, and to control both land and movable assets (Alexander 2004). The study participants' stories provide almost no evidence that climate-migrant women can achieve this capability. However, several stated that sometimes they go to cast their vote in local Government elections.

I went with my husband to cast my vote. I was told by my husband whom to vote for; so, I had no difficulties making a selection. My husband is familiar with the candidates; he knows who will be better for us. (Sayma from Bogra, 38 years old with five children)

We only go for local or Government election days to cast our votes. Last year it was different for men because my husband was in the nearest town for day-labourer work. That is why; I did not go to cast my vote. (Parvin from Sirajganj, 28 years old with three children)

Sometimes we attend a small female gathering or meeting arranged in the village by the NGOs for their different activities, like nutrition projects, livestock-rearing projects or micro-credit programs. We do not go to any public meetings. Usually, our male family members attend those if required. (Moriom from Dhaka, 27 years old with four children)

These statements indicate that the participants relied on their male family members to go to any public places, such as assemblies or meetings. They also depended on their male family members for making decisions about for whom they should cast their vote. This indicates that, because their participation and choices depended on their male family members, these male family members prohibited their achieving the political capability. Additionally, these women accepted the cultural norms of their society that women could only rarely own land and property.

My parents spent money on my wedding. My in-laws were given money and furniture during my marriage. This expense is considered as my portion of my parent's property. What else I may have from them? I have my brothers, who will eventually own my parent's property. (Ashma from Dhaka, 26 years old with three children)

My husband is the owner of our properties. He is responsible for managing all our properties for the family. I have seen my father do the same for our family. We find that managing a property requires many hassles like going to the court and other offices, arguing with others etc. It is manageable for males. It is our tradition that females will take care of the family and males will take the land and other properties. (Shefali from Bogra, 40 years old with five children)

According to climate-migrant women's cultural and religious norms, land and property ownership flows from their father to their brother or husband and their son. In the patriarchal society of Bangladesh, women do not generally have ownership over the land and tools necessary for agriculture, despite the reality that their labour has been a vital part of Bangladesh's success in agricultural productivity (International Labour Organization 2014; Haque 2016; Momtaz & Asaduzzaman 2019). They accept this male-dominated ownership process (Nasreen 2012; Tanny & Rahman 2017; Ingham, Islam & Hicks 2018; Momtaz & Asaduzzaman 2019). Therefore, it is inevitable that these women not only are deprived of their capability of control over one's environment, but also, that they both accept and receive social acceptance because of this deprivation.

Life

Nussbaum (2011, p. 33) defines the "life" capability as the capability to live to the end of a human life of standard length; not dying prematurely, or before one's life is so reduced as to be not worth living. Although the study participants expressed some concern about risks to their lives while they were describing the hardships of deprivation of other capabilities in their lives, their life stories do not explicitly name or describe any risks to their lives associated with rural living.

Therefore, this study has found that climate-migrant women find their lives to be satisfactory according to their cultural and religious norms and values. This is also remarkable given that these women have been deprived of the ability to fully achieve so many of their capabilities due to their cultural and religious norms and resource scarcity. For example, they are deprived of their capabilities of control over the environment. Other studies have also noted that rural women are deprived of their ownership of land, and that they have fewer opportunities for political involvement (Nasreen 2012; Islam 2014; Tanny & Rahman 2017; Momtaz & Asaduzzaman 2019). However, they are also able to achieve some of the capabilities on Nussbaum's (2011) list to a limited extent and under specific circumstances. For example, they are able to enjoy their capability of affiliation within their homogeneous group. Scholars have suggested that rural women form strong ties amongst themselves and that they depend on these ties for different purposes (Haque 2016; Tanny & Rahman 2017; Ferdous & Mallick 2019).

4.7 CONCLUSION

This study depicts the lives of climate-migrant women in Bangladesh, finding that their lives are embedded in their social, cultural and religious values and norms. On the one hand, these norms and values help unite them; on the other hand, they create various constraints on the women's response options (Islam & Walkerden 2014; Haque 2016). The restrictions on women's behaviour represent a natural custom in Bangladeshi villages (Nasreen 2012; Ferdous & Mallick 2019). These women have limited external supports that give them the opportunity to empower their life in ways like decision-making or leaving the restrictions of their home to seek further financial opportunities. Other studies suggest the dependence of rural Bangladeshi women's lives on their social connections (Islam & Walkerden 2014). This study, too, finds that climate-migrant women in Bangladesh experience several constraints, as their lives are significantly influenced by their cultural, social and religious values, beliefs and practices. Altogether, the social, cultural and religious impositions are a crucial component in understanding these Bangladeshi climate-migrant women's potential to develop real opportunities to fully achieve human capabilities. These elements of socio-cultural circumstances depict women with unequal human capabilities (Hoque & Haque 2013; Haque 2016). This study has found that these women become deprived of many of their valued capabilities due to cultural and religious norms and resource scarcity, although they are able to achieve limited capabilities under specific circumstances. However, they both accept and receive social acceptance from their deprivation within the context of their cultural and religious norms and values.

CHAPTER FIVE

PHYSICAL VULNERABILITIES TRIGGERED BY REPEATED NATURAL DISASTERS

5.1 INTRODUCTION

This chapter demonstrates the second theme of this thesis: physical vulnerabilities triggered by repeated natural disasters. This theme describes the susceptibilities and vulnerabilities of climate-migrant women in Bangladesh during natural disasters; specifically, repeated floods and river erosion. This theme is multifaceted and involves the additional complexities introduced by environmental vulnerability overlaying the social backdrop. This chapter will describe, analyse and discuss the losses and deprivations confronted by climate-migrant women in Bangladesh during and after natural catastrophes. The three following sections of this chapter explain the losses of climate-migrant women in rural areas due to natural disasters (Section 5.2), the challenges of climate-migrant women in urban areas when they migrate in urban areas (Section 5.3) and the changes in climate-migrant women's human-development opportunities after natural disasters in Bangladesh (Section 5.4). This chapter ends with the conclusion (Section 5.5).

5.2 CLIMATE-MIGRANT WOMEN'S LOSSES IN RURAL AREAS

The field observations in this study identified that climate-migrant women in Bangladesh confront natural disasters such as floods and river erosion almost every year. The field observations also note that these women stated that they had been confronting these disasters for a long time, but that their frequency and severity were increasing significantly. Consequently, their losses due to these natural calamities were also increasing significantly.

5.2.1 Loss of Lives and Health

As mentioned in Section 1.3, in any time of climate variability, the loss of climate-migrant women's lives and health, which occurs at a high rate than for men, make women more vulnerable. For example, Section 4.4 showed that due to societal gender roles, climate-migrant women perform more work and have less control over their resources. In the interviews, participants also mentioned other impacts on their lives and health.

We are living in the mercy of Allah. During disasters, our life becomes extremely challenging! I can not sleep properly, thinking about the sufferings we are going through. I am more concerned about my children. I want them to live and have a good life. Last year my sister lost her five-year-old son. During the flood they were living on the roof of their house, and at night time, while they all were sleeping, her son accidentally fell and drowned in floodwater. (Rahima from Bogra, 34 years old with four children)

Sometimes we need to take shelter on the rooftop along with our children, households assets and livestock. By doing so, we may avoid floodwater; still, we often fall victim to snake bites, and sometimes kids drown. (Jamila from Sirajganj, 30 years old with three children)

During floods, we used to live on top of the roof or raised platforms to save our lives and household assets. We all had to stay in a small space. Many times we fell down in the water. I used to tie my children and elderly family members with my saree [traditional female costume], especially at night time to keep them from falling in the water. (Moriom from Dhaka, 27 years old with four children)

Sometimes women tie their children with their sarees, which they find helpful to tie during flood time. However, these kinds of clothes might restrict their mobility and cause more risks during natural disasters. (Key Informant VII, Non-Government Official, National NGO)

Poorly constructed and insecure housing systems also may increase the mortality rate of women, as the houses can collapse during the flood. Moreover, being the primary carer of the family, women try to remove their family members and their household assets to a safer place first during times of river erosion. This situation may also put their lives at risk. (Field Journal, 2016)

Climate-migrant women mentioned that they tie their children and elderly family members with their sarees to avoid falling into the water. However, sarees might restrict their mobility and cause more risks (Mehta 2007; Dasgupta et al. 2011; Nasreen 2012). This study also found that the infrastructure of their houses is not strong enough to ensure durability and

safety, which means that these women were risking their lives to protect their family members.

Climate-migrant women mentioned help from external sources. They also mentioned the limitations of leaving the area alone without the help of their male family members.

In villages, we receive external supports. For example, during floods, there are early-warning systems that warn us regarding the level of water during the flood. Sometimes we also receive relief items, like clothes, food, medicine, oral saline, blankets. (Shefali from Bogra, 40 years old with five children)

Early warnings are helpful. But, we females stay inside the house, and cannot receive the information disseminated by the early-warning systems, as it is mostly announced in the marketplace area. We come to know through our male family members or neighbours. (Salma from Sirajganj, 25 years old with three children)

Most of the time our male family members bring the information from warning system from outside, and then we become aware of it. Based on the situation, we take action with the help of our male family members. (Farida from Dhaka, 30 years old with three children)

Even if we come to know the emergency situation from our neighbours or friends, we wait for our male family members to return home. Because it is not safe for us to leave the house without their help. During disasters, safety becomes more problematic for females in rural areas. (Sayma from Bogra, 38 years old with five children)

We cannot move without the help of our male family members. During the flood, we need to use a boat as a transport. I know how to row the boat, but I do not know how to swim properly. In case of an accident, I will not be able to save myself or my children; so, I need to wait for my husband's return. (Aysha from Dhaka, 26 years old with four children)

Women face hardship to save themselves from the hit of natural disasters due to their lack of ability to move alone; most of them do not know how to swim also. This hardship

becomes even greater for pregnant, lactating and disabled women, widows and older women. (Key Informant V, Non Government Official, International)

The study participants mentioned that they receive external support. However, they also mentioned the ineffectiveness of this support during natural disasters (Akter & Mallick 2013; Islam & Walkerden 2015; Tanny & Rahman 2017; Ingham, Islam & Hicks 2018). In addition to the early-warning system being gender-insensitive, participants also said that even if there are warnings, they usually wait for their male family members and relatives to return home and accompany them to a safe place. According to the social norms, they could not move without the approval and help of the male household head. Moreover, the participants also stated that most of them do not know how to swim, as they were never taught in their childhood. These findings corroborate with other studies which also suggest that pregnant women, lactating mothers and disabled women suffer even more as they find it difficult to move to a safer place before and after disasters hit (Dankelman et al. 2008; Nasreen 2012; Tanjeela 2015; Islam et al. 2017).

Aside from the physical danger they experience during disasters, this study also found that climate-migrant women also suffer from various diseases.

Due to the food shortage, we hardly find enough food for ourselves after feeding our family members. At night we cannot sleep properly for the stress caused by these disasters. We feel weak and dizzy sometimes. (Hamida from Bogra, 35 years old with four children)

Their stories expressed that they work hard all day. At night they cannot sleep properly for the stress and uncertainty of their lives. That is why they suffer from various diseases in the long run for overcoming the extra hurdles of work in their daily lives. (Field Journal, 2016)

We find limited fresh water to drink; we try to save the fresh water for our children and elderly family members. We consume as little water as possible ourselves. Sometimes we even drink the contaminated water if we need more. That is why we suffer from diarrhoea and dysentery. (Saleha from Sirajganj, 29 years old with four children)

As women need to do most of the water-related work such as collecting drinking water, cooking, washing, bathing the children, cleaning kitchen utensils – therefore, they mostly get affected by and are at risk from water-borne diseases. (Key Informant I, Government Official)

Usually, women and adolescent girls in these areas become affected by gynaecological and dermatological problems by using flood water in all their household tasis. Due to their socio-cultural norms, they feel shy talking about these health issues to other members of the family. Consequently, their health situation gets worse, and they cannot bear the expense of the necessary treatment. (Key Informant X, Non-Government Official, National NGO)

The interviews with the participants showed that many of them frequently suffer from diseases such as diarrhoea, dysentery, cold and flu, urinary infections and skin diseases. They suggested that these health problems were associated with excessive work burdens, malnutrition, using unhealthy flood water, and lack of awareness about safety and response procedures because of the cultural practices that place them in a subordinate position to men. Other studies have found similar results (Nasreen 2012; Islam 2017; Tanny & Rahman 2017; Tanjeela & Rutherford 2018).

Furthermore, climate migrant women reported difficulties in obtaining appropriate health care. They mentioned the inconvenience of government hospitals and their lack of resources.

Government hospitals are far from our place so we cannot go that far very often. Sometimes some field staff come to the village; mostly they come for family planning and maternal-health-related issues. Moreover, there are hardly any medical facilities for us during disasters. (Hamida from Bogra, 35 years old with four children)

There was no doctor in the Upazila [sub-district] Health Complex in Bogra. The health complex has 50 beds, which is not enough for local demand. On top of that, doctors do not come regularly. In fact, they do not want to stay here long. As soon as they get the posting here, they start trying to get a transfer to a city area. (Field Journal, 2016)

Medical care facilities that were on the eroded land are all lost. As building infrastructure for medical units is expensive and takes time, medical services are lacking in the new settlement area. So, climate-migrant women need to travel longer distances than before and bear the extra cost of medical treatment. Furthermore, due to loss of livelihood, climate-migrant women find it challenging to spend money for anything other than essential items like food and shelter, even if the medical and education facilities exist in their newly occupied places. Results are apparent in their poor health, sickness, malnutrition, low weight birth, miscarriages and perinatal mortality. (Field Journal, 2016)

River erosion severely affects our livelihood. Due to riverbank erosion, many farmers, like my father and husband, become poor overnight. We lose homesteads, houses, cultivable land, trees and other property. In this situation, it becomes impossible for us to maintain the cost of our daily food and shelter. That is why we cannot afford to spend money for any other purpose, even when there are any medical and education facilities nearby. We cannot afford the cost of it. If necessary, we seek treatment from a traditional healer. (Saleha from Sirajganj, 29 years old with four children)

Private treatments are costly. We cannot afford to go and get support from the private clinics. We try to use our available local treatments, such as homoeopathy, herbal treatments. Sometimes these treatments are successful; sometimes not. Then we need to suffer more. Even though the success of these treatments is doubtful, we need to use them, as we have no alternatives. (Sayma from Bogra, 38 years old with five children)

According to the participants' interviews, hospitals are not convenient for climate-migrant women because of the distance and doctors' unavailability. Apart from the Government hospitals, private treatment is also available in rural areas. However, after losing everything to river erosion, climate-migrant women find themselves in a situation where they cannot afford private treatment. Sometimes they find no alternatives other than taking local herbal treatment. This treatment may work, but may also have negative health impacts.

Climate-migrant women experience more hardships in disasters due to gender inequality and cultural practices. Their lives are threatened during natural disasters because of the dangerous work they undertake to protect their families. The findings of this study are supported by

other studies that suggest that more women than men die during natural disasters because they are not adequately warned, cannot swim well or cannot leave the house alone (Ara & Reazul 2013; UNDP 2013; Alston & Akhter 2016; Islam & Shamsuddoha 2017; Ingham, Islam & Hicks 2018; Banarjee 2020). Previous studies conducted in Bangladesh have found that during Cyclone Aila in 2009, the death rate of women was five times that of men (UNDP 2013). Women's gender roles and the fact that they have less control over resources than men make them more vulnerable to disease, injury and death during disasters (Jahan 2008; Nasreen 2012; Hoque & Haque 2013; Alston & Akhter 2016; Islam & Shamsuddoha 2017; Tanny & Rahman 2017; Tanjeela & Rutherford 2018; Abedin et al. 2019).

5.2.2 Loss of Food and Drinking-Water Sources

Participants mentioned hardships regarding food and drinking-water security, particularly during times of floods and river erosion. They suggested that traditional food sources become more unpredictable and scarce in the context of climate change.

Climate-migrant women and their family members mentioned that the food situation becomes severely dire for them in the study areas. One of the main reasons is decreased crop production due to loss of land in natural disasters. Natural disasters destroy their crops, vegetable gardens and livestock and poultry, which they regard as a significant source of their daily food intake. (Field Journal, 2016)

We also prepare and store some of our necessary food items, like [we] dry fish, make puffed rice, make a portable oven, make boats as we prepare to confront the upcoming disasters. (Shima from Sirajganj, 17 years old with one child)

We were able to produce a crop that could be adequate for the yearly consumption of our family. Yet, we had to sell our crops at a minimal price because we had to face difficulties in storing the crop during the flood period. (Salma from Sirajganj, 25 years old with three children)

We help each other to build "Macha" [raised platforms] to protect our valuable materials, like food items, furniture, crops, electronic goods. We also use them to protect our poultry and cattle. (Afroza from Bogra, 24 years old with three children)

We are predicting the river will erode our land this year. That is why, with the help of each other's contacts with buyers, we are selling our cattle. We are helping each other to cut the trees so that we can sell them. We are transferring other tangible resources (grain, crops) to our relatives' house. (Parvin from Sirajganj, 28 years old with three children)

During a disaster, the food situation becomes severely dire for climate-migrant women as disasters destroy their crops, vegetable gardens and livestock and poultry, which are the primary sources for their daily food intake in the study areas. Flood water decreases crop production significantly and what crops can be grown are extremely difficult to store for later consumption (Ara & Reazul 2013; Alston & Akhter 2016; Tanny & Rahman 2017; Campbell et al. 2018). Therefore, they sell them at a low price before the disasters reach their area. Ongoing food security becomes a crucial issue during and after disasters.

Due to disasters, we not only lose our land and resources, but we also lose our shelter as well. We had to take shelter on the nearest highway road, where we had no cooking facilities. We left with little money to buy food from the market. [During disasters], we need to somehow feed our children with whatever food is left with us. So, we need to skip our own food intake most of the time. (Saleka from Dhaka, 34 years old with five children)

During this time, we usually live on dry foods for more than two months. We can hardly manage to eat only once per day, and that always consists of the same dry food, such as flattened rice, biscuits or puffed rice. (Shahida from Dhaka, 24 years old with three children)

According to the social norm in Bangladesh, usually women are the last person to eat and receive the least amount in the family. In periods of food shortage, poor women may pass several days without any food or smaller amounts of food. Consequently, women become more vulnerable to the unavailability of food and its associated malnutrition. (Key Informant III, Government Official)

During those days, we find no other options but to wait and keep praying for the speedboat to come with relief items to save our lives. (Shefali from Bogra, 40 years old with five children)

During the flood, we receive relief items from the Government and NGOs. Mostly they are food items, like rice, lentils, puffed rice, sugar, salt, oil etc. (Ashma from Dhaka, 26 years old with three children)

Relief comes after disasters hit us badly. We need to wait for a long time to receive the relief, and unfortunately the amount of relief we receive sustains us for only four or five days. (Rahima from Bogra, 34 years old with four children)

The amount of relief items, such as food and fresh water, sustains them for only three or four days. To sustain their families for more days, these women sacrifice their portions and try to serve their family members more. (Key Informant VI, Non-Government Official, International NGO)

During disasters, these women live on highway roads or river embankments, where there are no cooking facilities, and they live on dry foods only. Their lack of resources prevents them from buying food. At they wait in desperation for relief items from external sources, such as the Government and NGOs. Study participants mentioned that they did sometimes receive these items, but that they were often delayed and insufficient for the whole family; consequently, they would usually sacrifice their rations to feed other members of the family first. As a result of this prolonged food deficiency, despite their efforts to collect wild greens, herbs and taro to supplement the relief items, most of the climate-migrant women in the study areas suffered from malnutrition. Overall the food security situation is dire for the majority of poor women and of more or less concern for all groups (Jahan 2008; Ara & Reazul 2013; Alston & Akhter 2016; Chriest & Niles 2018).

We used to collect wild greens, herbs and taro to eat as food, sometimes with rice and sometimes without rice. Sometimes we do fast, as there remains no food after feeding others. It becomes troublesome to collect fresh water during this time. As with food, we need to sacrifice drinking water for our other family members. (Sokhina from Dhaka, 43 years old with three children)

Usually, it takes longer to collect water, and it is worst during the disasters, as we need to collect it from more distant sources, and this sometimes takes three to four hours a day. (Hamida from Bogra, 35 years old with four children)

During disasters, we do not feel safe leaving children alone at home. Instead of leaving them unattended, we bring them with us while travelling for drinking water. Because of this extra work, we do not get enough time or energy to complete other household chores like cooking, bathing, washing clothes, taking care of elders, etc. (Halima from Dhaka, 43 years old with three children)

Water supply had been a problem in the study area for a long time. People were dependent mostly on surface water bodies (e.g. ponds). Local Government and NGOs have provided some deep tube wells, but they are not enough to supply the villagers. Moreover, floods these tube wells are inundated with contaminated water, thus making them unfit for drinking and other uses; sometimes these limited tube wells are entirely washed away by river erosion. (Key Informant – IV, Government Official)

Since women are responsible for most of the water-related tasks at home, they experience much more vulnerability than men due to a lack of local fresh-water sources. During disasters, the level of vulnerability of these women depends on the availability of fresh water. It also depends on the distance of water sources from the household. (Key Informant IX, Non-Government Official, National NGO)

Their interviews disclose that they need to spend significant amounts of time every day hauling water from distant sources. These water-related gender-based roles become significantly difficult to negotiate during natural disasters like floods and erosion (UN Women Watch 2009; Wasta & Haque 2011; Ara & Reazul 2013; Alston & Akhter 2016; Abedin et al. 2019). Study participants reported that they needed to travel long distances to collect water, often having cross rivers. This consumed an enormous amount of their time, and they faced difficulties in completing other household chores.

They also stated that during disasters, some NGOs helped them by providing fresh water. However, the amount was inadequate for their family. Therefore, as the primary carers of their families, these women waited until last to use the fresh water (Tanjeela 2015; Alston &

Akhter 2016; Ingham, Islam & Hicks 2018; Abedin et al. 2019). Previous studies have also indicated that this issue has severe ramifications for four dimensions of food security: food availability, food accessibility, food utilisation and food-systems stability (UN Women Watch 2009; Ara & Reazul 2013; Alston & Akhter 2016; Abedin et al. 2019).

5.2.3 Loss of Shelter, Sanitation and Security

Due to regular natural disasters, climate-migrant women lose their shelter, sanitation and security. These losses make them vulnerable and affect their lives severely. Participants shared their experiences relating to loss of shelter.

Whenever flood or erosion occurs, we move from one place to another. We face terrible sufferings during these times. If we cannot find any place to live, we need to live either on friends or relatives' property or on the embankments, or beside the highway, which causes suffering, hazards, and insecurity for us. (Saleha from Sirajganj, 29 years old with four children)

When we lost our house in erosion, we moved to the house of one of my cousins. In a few days, she also lost her house. Then we all moved to the nearby primary school as an emergency shelter. Though it is hard to stay in a shelter, because so many people were living in each small room. Because we had no other choice but to stay there. (Farida from Dhaka, 30 years old with three children)

Climate-migrant women's houses are mostly built from earthen walls and tin. The villagers also said that during flood periods, the water level inundates their houses. Therefore, in disasters, it is not safe to stay in these houses, as they can collapse or be washed away. They said that due to increasing flood levels and river erosion, they needed to leave their houses and go to friends or relatives houses or emergency shelters, or camp on river embankments or along nearby highways during and after disasters. (Field Journal, 2016)

When natural disasters destroy climate-migrant women's houses, they sometimes take shelter in the house of a friend or relative. However, when these houses are also affected due to the disasters, they go to the nearest emergency shelters or embankments. When natural disasters

affect all the families of a village, they become unable to help each other as they all confront similar hardships and losses (Ansari, Munir & Gregg 2012; LaLone 2012; Islam & Walkerden 2014; Ahmed 2017; Asteria et al. 2018). During disasters, the local Government authorities in rural areas usually converts the local schools or health centres to emergency shelters (Khan 2008; Ono & Schmidlin 2011; Alam 2017). These shelters become full and even beyond capacity very quickly during disasters. Participants mentioned several issues related to the shelters.

The overall capacity of the shelters is very low in disaster-prone areas. Further, the shelters' capacity is increasingly inadequate as the population increases each passing year. It should also be noted that the overall environment of these shelters is not women-friendly yet. Therefore, sometimes thinking of the anticipated adverse situations, women refuse to come to shelters if their husband is not with them. (Key Informant VIII, Non-Government Official, National NGO)

Two years back, during the disasters, we went to the emergency shelter. My husband found it very disgraceful for us, I mean for the female family members. That time I was pregnant, and there were no separate rooms or toilets for females. On top of that, I had to suffer a lot worrying about my adolescent girl's safety. Last year we went to the nearby highway to live with our other neighbours. (Afroza from Bogra, 24 years old with three children)

I have my in-laws with us. They are too old to walk by themselves. The emergency shelter is far away from our house. Taking my children, elderly family members and belongings by our small boat becomes next to impossible. It is so hard to move there with our elder family members that instead of going there, we took shelter on adjacent embankments under open skies. (Sayma from Bogra, 38 years old with five children)

During disasters, these women live in temporary shelters on the embankments or along nearby highways under open skies, which they also find insecure, especially for their children. These temporary shelters are far below the minimum standard; they are mostly tents made of cloth or plastic without any space for privacy and are extremely vulnerable to the monsoon. Some of the climate migrants stated that even if their homestead land and shelter survived, they could not return to their houses without

repairing the damage to them from the disaster. This situation also prolonged their stay at the temporary shelters and increased their vulnerability overall. (Field Journal, 2016)

The emergency shelters are far away from the climate-migrant women's houses, and they find it hard to travel there due to lack of proper transport systems during the flood. Older adults and pregnant women find it even more challenging to go to the shelters by raft on floodwater. Women's role in protecting the household assets often prolongs their shifting to safety. They often find it risky to go to the shelters if not accompanied by males. These findings are also suggested by other studies (Khan 2008; UNDP 2013; Alam 2017; Tanny & Rahman 2017; Ingham, Islam & Hicks 2018; Tanjeela & Rutherford 2018). Previous research has found that during disasters (e.g., Cyclone Aila), due to shelters being far from their homes and too small, many people took shelter in nearby embankments under open skies, which was very insecure for women, especially for young women. A UN Assessment Team found that nearly 14,000 families were living on embankments even one year after Cyclone Aila (UNDP 2013). The participants in this study mentioned about the help that they received from each other and from the Government and NGOs.

As soon as we see that river erosion is approaching our area, we make every effort to protect our assets. At these times, the only help we receive is from our neighbours, friends and relatives. We help each other to disassemble housing materials and pile them in a safe area. We shift our valuable assets and family members. (Moriom from Dhaka, 27 years old with four children)

It takes a long time to rebuild or repair houses after the disaster. Since most of our livelihoods are destroyed during this period, it becomes beyond our capacity to rebuild our houses without the external assistance provided by the Government and NGOs. (Jamila, from Sirajganj, 30 years old with three children)

We have received money and other assistance from the Government and NGOs, such as materials and equipment to rebuild our houses. This was provided to those who still had land. But those who lost their land became helpless. Only a few of us got the opportunity to lease shelters from the Government. This becomes helpful for the villagers. These are only a few in comparison to the need. (Shefali from Bogra, 40 years old with five children)

When I went to my first participant's house, I was thinking instead of saying "house", it should be called "room". The room size was hardly 10 feet by 10 feet. She has a family of seven members, along with one cow and two goats. They all live in that small room. They received this room from the Government as a lease when they lost their house in the river due to erosion and flooding. All these small rooms are Government-funded and supposed to be distribute by the local Government free to victims. However, they had to pay money to the head of the local Government to get this small room. They knew that the chairman took the money illegally, but they had no other choice. Due to the lack of supply relative to the demand, as well as corruption, the one who pays money gets the allotment. This illegal practice is well established, and these poor women are helpless. (Field Journal, 2016)

Instead of all these odds, those participants who received this help think that now at least they have a place to stay. However, they are worried about what would happen if the river washes this place away again, as no proper measures have been taken to avoid further erosion. They worry because if it happens again, they have no choice except to leave the village. They stated their concern that they have already given or lost all their savings — no money or assets left to purchase any land or another house. (Field Journal, 2016)

The above evidence indicates that these women help each other to shift their house materials and repair their houses. However, sometimes each other's help is not enough for them to rebuild their houses, as they lack their resources. It is also evident that climate-migrant women receive help from the Government and NGOs. They consider this external help to be significantly crucial in coping with the impact of disasters. However, this external help is limited in terms of its adequacy, and its distribution is disrupted by favouritism and corruption (Islam & Walkerden 2015; Islam et al. 2017; Ingham, Islam & Hicks 2018; Rahman 2018).

Sanitation facilities also become a significant aspect of climate-migrant women's vulnerability during natural disasters. The participants mentioned that every year their sanitation facilities are destroyed due to floods and river erosion. During floods, climate-migrant women needed to live in a tent on the roadside where there were no toilets, and they had to share the same space with men. They found this to be a very embarrassing situation for them, as they needed to go to familiar open places or temporary places to preserve their privacy.

Every year our sanitation facilities are destroyed due to floods and river erosion. During floods, we need to live in a tent on the roadside area where there are no toilets, and we need to share the same space with men. This is a very embarrassing situation for us as we need to go to open places for toilets. Because of this, we suffer from urinary diseases. (Aysha from Dhaka, 26 years old with four children)

Flood and river erosion washed away all our toilets. We face difficulties in taking a shower and going to the toilet in the open area. Most of the time, we try to avoid using the toilet and taking a shower during the day and wait till night for excretion and showers. Thus, we often get colds, coughs and urinary infections.”(Hamida from Bogra, 35 years old with four children)

It becomes challenging for us to take a shower or answer a call of nature, especially when we have our monthly period. We need to wait until night to change and clean. Last year I was pregnant during the flood period. I found it extremely embarrassing as I had to go for excretion very often. (Shima from Sirajganj, 17 years old with one child)

Most of our shelter homes are not gender-friendly yet. We need several shelter centres according to the number of inhabitants, with the facilities based on gender and age groups. Though disasters are regular phenomena in Bangladesh, these facilities are severely lacking in the disaster-prone areas. We need more funding to build adequate shelters that will also be gender-friendly. (Key Informant II, Government Official)

The study participants expressed that during disasters, they can not respond in a timely way to the call of nature because of the lack of privacy. Most of the time, they refrain from using the toilet during the day and wait until night for excretion. Consequently, they suffer from urinary tract infections and other diseases. Bangladesh experiences natural disasters at regular intervals, and a large number of sanitation facilities are destroyed each time. This situation forces these women to face adversities like hygiene problems, diseases and lack of privacy (Alam 2017; Tanny & Rahman 2017; Ferdous & Mallick 2019). The situation becomes more difficult for pregnant women, adolescent girls and older adults (Jahan 2008; Nasreen 2012; Khan et al. 2016; Ingham, Islam & Hicks 2018). Participants revealed that this situation also exists in the emergency shelters as those places are not woman-friendly. They need to share the limited living space and toilets with men.

Primarily due to social and religious customs, during menstruation or pregnancy, women need privacy to answer their body demands. However, for these women, the situation becomes worse after natural calamities, mainly due to this absence of space and discretion. Other studies also indicate similar findings and state that the situation becomes worse in the case of pregnant women, children and elderly and disabled people (Jahan 2008; Nasreen 2012; Tanjeela 2015; Khan et al. 2016; Ferdous & Mallick 2019).

It was also found that NGOs help to rebuild the sanitation systems of the climate migrant women in rural areas. There remain, however, many households in the villages who still do not own a toilet, and the women of these households thought themselves very vulnerable without this facility (Nasreen 2012; Tanjeela 2015; Khan et al. 2016).

Some of us received sanitation building materials from the NGOs. It became very helpful for us. But, last year when I lost my land, I lost my toilets as well.(Afroza from Bogra, 24 years old with three children)

Some of the participants mentioned that sometimes NGOs and the local Government help them to rebuild their sanitation systems. But, when they lose their homestead due to erosions, they find this help less effective for them. (Field Journal, 2016)

Apart from the loss of shelter and sanitation, participants also showed their rising concern for the safety of all the females whose husbands now lived in other places for livelihood options. They also expressed their anxiety for their children, especially for their adolescent girls, during disasters.

My husband went to the nearby urban area to work as a labourer. I found it extremely hard to keep my children and myself safe during the disasters. It is hard for any women to live alone without having any male guardian. (Rahima from Bogra, 34 years old with four children)

In the rural areas, women go out in search of fuel or water; they try to go together as a group. When I was in my village we used to take a turn; a few of us used to go together outside, and a few of us used to stay with the children to take care of them.(Rashida from Dhaka, 50 years old with four children)

When we find no support from others, we often leave our children unattended or tie them inside the dwelling with ropes.(Shefali from Bogra, 40 years old with five children)

Sometimes they need to tie their kids with rope, even though such behaviour, according to these women, is believed to be inhumane. However, they have little alternative other than asking other women to accept the responsibility of looking after the children in their absence. Lack of privacy and security remain an issue even for those climate-migrant women who move to flood shelters. (Field Journal, 2016)

We always become anxious about the safety of our adolescent girls. It is hard to ensure their safety when we need to live in open spaces such as on the roof of the house or in a tent on the nearby roadside or embankment. We do not feel safe and secured in the shelters either. (Shahida from Dhaka, 24 years old with three children)

During disasters, even if they [women and children] move into shelters, they suffer various problems there. Women and girls cannot sleep safely, and they cannot get proper sanitary facilities. The safety and security of women and adolescent girls during and after disasters is a big concern in Bangladesh. (Key Informant IX, Non-Government Official, National NGO)

Due to lack of work opportunities in the area, when climate-migrant women's husbands or male family members go to other nearby areas looking for alternative livelihoods, these women need to protect themselves and their families. Participants spoke of their apprehension about their own security and that of their children especially during natural disasters when they needed to live in the open and felt extremely unprotected and unsafe. Climate-migrant women showed their unwillingness to discuss anything regarding the perpetrators. Therefore, these issues were not further addressed due to the delicacy of concerns for the safety and privacy of the female children. These women also mentioned that most of the time, they helped protect each other. However, during disasters, male family members ensure the safety of the women in their family. It is often found that women who are alone or isolated can be subject to other males' abuse and violence (Nasreen 2012; Tanjeela 2015; Khan et al. 2016; Islam et al. 2017; Ingham, Islam & Hicks 2018; Ferdous & Mallick 2019).

5.2.4 Loss of Communication, Transportation and Education

Every year floods and river erosion destroy most of the roads in the rural study areas. According to the participants, the means of communication become extremely vulnerable during times of flooding and erosion. A study conducted on rural women found that the majority of the village women claimed that they are severely vulnerable to changes in communication and transportation due to climate-change effects (Khan et al. 2016; Tanny & Rahman 2017; Bouwer 2018; Haque et al. 2019; Sultana, Thompson & Wesselink 2020). Participants in the current study made a number of relevant comments.

We experience extreme difficulty in going anywhere during the disasters. The only transport we can use during the flood is the banana raft. We can afford to make only one or two rafts. If someone takes the raft, we cannot move anywhere no matter what emergencies arise. (Shefali from Bogra, 40 years old with five children)

Moving anywhere by small boat is troublesome and risky for us. But we have no choice, as all the roads go underwater and villagers only have boats as their transport. Collecting fresh water from long distances by boat becomes challenging for us. (Salma from Sirajganj, 25 years old with three children)

Before the flood approaches, we collect banana rafts to make a small boat out of them. These become our important means of communications during the disasters. (Saleka from Dhaka, 34 years old with five children)

Every year those village roads need repairs with the help of the Government and NGOs, and still the works are ongoing. However, as the roads are not paved, the villagers suffer a lot. (Key Informant – IV, Government Official)

In this area, the communication system is not good enough. During floods, all village roads were destroyed. At that time, people had to depend on boats as a mode of transportation. Sometimes river erosion washed away the major infrastructures, such as roads, schools and hospitals. (Key Informant VI, Non-Government Official, International NGO)

Participants also mentioned their difficulties in terms of loss of education due to climate calamities. This was expressed from their stories that although they had fewer opportunities for their own education, they were hopeful that their children would be able to have a better education. Climate-migrant women in the study areas talked about their concerns and challenges in providing education for their children.

I did not receive opportunities to study because our parents thought education was not important for girls. Now I can say that education is important for both boys and girls. I want my children, both boys and girls, to be well-educated, so that they can have a better life. (Sokhina from Dhaka, 43 years old with three children)

I want my children to be educated so that they can lead a better life than us. Before, like our parents, we also used to think that education is not essential for girls. But we can understand the difference now. If girls are given a proper education and environment, they can lead a better life too. (Rahima from Bogra, 34 years old with four children)

The social and cultural barriers to girls' education have been reduced by the awareness-building programs of the Government and NGOs. The Government has undertaken significant initiatives to implement free female education. Now, most of the children can go to school at least from primary to high school level for free. (Key Informant I, Government Official)

The current Government has emphasised education, especially for female children. The Government has set the target to reduce the dropout rate at the primary level. In the rural area, many primary schools and high schools have been established where children can study without any cost. Therefore, the overall attendance rate in primary school is satisfactory. However, the dropout rate is still significant. (Key Informant V, Non-Government Official, International NGO)

In contrast, some of the participants mentioned that their children cannot complete their education.

We wanted our children to go to school, but our children do not like to go to school. Going to school is a very casual thing for them: because of the flood, rain and erosion, the school remains closed for a long time during monsoon season. (Afroza from Bogra, 24 years old with three children)

The school remains closed during disasters as they are used as emergency shelters. Children remain home for three or four months. Even if the school opens, due to the destruction of roads and transport systems, many students can not attend school for a long time. At home, they need to help us with our extra work due to disasters. And then, when the exams come they cannot do well due to lack of practice at school and home. So, they do not feel like attending school anymore. (Saleka from Dhaka, 34 years old with five children)

During disasters, they cannot go to school because of transport and safety reasons. Sometimes, even after the disasters, they cannot go to school, as they need to help the family with daily household work like feeding the cattle, taking care of the younger siblings, bringing drinking water from remote wells, etc., and that is why they cannot regularly go to their school. (Salma from Sirajganj, 25 years old with three children)

The participants had not had many opportunities to be educated through formal educational institutions. Lack of education for climate-migrant women is related to their cultural and religious practices (Jahan 2008; Nasreen 2012; Juran & Trivedi 2015; Tanjeela 2015; Ferdous & Mallick 2019). However, these women showed their concern that they wanted their children to be educated, and they were worried that due to natural disasters, they might not be able to provide education to their children. They mentioned that these educational services are chronically interrupted due to floods and river erosion. They cited a number of reasons for their children dropping out: the lack of transportation, lack of safety and increasing demand for labour in households.

It is evident that communication systems collapse during natural disasters in the research area. During floods, movement from one place to another is severely challenging for climate-migrant women. The lack of working transportation during floods, except for small boat and rafts, also makes it difficult for women to collect water and for children to go to school. Khan et al. (2016) suggested that many of the roads in rural areas are made of mud, and most of

those roads break down during natural disasters, leaving the local people essentially immobilised.

5.2.5 Loss of Household Assets

The destruction of houses and assets by floods and river erosion has a cumulative impact in the study areas. Study participants talked about the losses of their assets, including livestock and poultry. These assets had significant value for them, and losing them made the women more vulnerable overall.

I had some pieces of furniture in my house, including a radio. Whatever household assets we had, those were very precious to us. Due to natural disasters, we lost them and could never replace them. I was given a few gold ornaments during my marriage by my parents, but after losing our land in the last river erosion, I had to sell those to cope with the disaster effects. (Ashma from Dhaka, 26 years old with three children)

These women are very attached to all their household assets, all of which have both sentimental and monetary value, and see themselves as the primary protectors of these assets. These assets are important for them because when resources are scarce they can sell them. Therefore, during disasters they need to confront the challenges of preserving these assets, which include building materials, furniture, radios, televisions, sewing machines, a small number of ornaments, bicycles, fishing boats or agricultural machinery. They also included include their poultry and livestock such as cow, goats, chickens or ducks. (Field Journal, 2016)

Thinking about the devastating impacts of disasters, sometimes we sell our cattle, trees and crops, as we may not be able to save them during disasters. We try to help each other to find buyers from our contacts. We also help to cut the trees, move the livestock and poultry to a safer place or sell them, transfer other tangible resources to our relatives' houses and disassemble our house to pile the materials in a safe place. We try to predict the effects of flooding and so we can start our responses. (Afroza from Bogra, 24 years old with three children)

During disasters, sometimes local Government representatives and NGOs give money to the distressed family to shift their things to a safer place. However, they give such support to only a few families, saying that they have limited capacity. Therefore, most of us never receive their support. (Saleha from Sirajganj, 29 years old with four children)

During flood and river erosion, we provide support to the villagers to move themselves and their belongings. However, based on the population, we have limited capacity to support the disaster-prone people to shift. (Key Informant II, Government Official)

In rural areas, people, in general, have few assets and women are the primary caretaker of these assets (Juran & Trivedi 2015; Islam et al. 2017; Tanny & Rahman 2017; Momtaz & Asaduzzaman 2019). Climate-migrant women's assets are severely vulnerable with respect to climate-change effects, and replacing them after a disaster poses almost insurmountable challenges. Saving these assets during natural disasters is solely depends on them, although they help each other to protect them. There is also some support from the local Government and NGOs, albeit limited, to move these assets to safer areas during disasters. However, there the support is inadequate for the number of inhabitants (Rahman 2018; Subhani & Ahmad 2019; Sultana, Thompson & Wesselink 2020).

5.2.6 Loss of Land, Livelihood and Other Income Sources

As mentioned in Section 3.3 , natural disasters like floods and river erosion are repetitive phenomena in the rural research areas and destroy both land and livelihood options. Participants in this research mentioned their severe loss of land, livelihoods and other income sources in these areas.

From my childhood, I had experienced river erosion several times; before, it was not as devastating as it is now. Since my marriage we have lost our land almost four times. We were not rich before erosion, but at least we had a house to live in and some means of income to feed our children and family members. After losing everything to river erosion, again and again, now we have not a single shade over our head. We have lost our cultivable land several times. The last bit of our cultivable land was lost this year. We have no choice but to move to Dhaka, so that my husband and I can earn money for our family and they can at least rent a house and live in the village. We cannot take

them with us as it is more expensive in Dhaka. (Salma, from Sirajganj, 25 years old with three children)

We experience floods and river erosions on almost every year. It looks like the severe intensity of the erosions is increasing consistently. I have faced river erosions more than six times up to now. Each time I had to lose my resources like land, homestead, cattle, crops and household belongings. (Sokhina from Dhaka, 43 years old with three children)

River erosion severely affects our livelihood. Due to riverbank erosion, many farmers, like my father and husband, become poor overnight. We lose homesteads, houses, cultivable land, trees and other property. (Halima from Dhaka, 34 years with five children)

Natural disasters destroy not only their homesteads but also their agricultural land, which is their main livelihood in rural areas. They have limited income-generation opportunities like crafting, homestead gardening, livestock rearing, poultry etc. These income-generation opportunities are also nature-based, and thus are also affected by regular floods and river erosion. Each time people lose their land, they try to downsize their land and other resources. They sell off the land, livestock, housing material and personal belongings. (Field Journal, 2016)

According to the participants, the main livelihood options for climate-migrant women's families are farming and fishing. In the rural study areas, as in most of the other rural areas in Bangladesh, the livelihood options are based on the environment (Alam 2017; Alam et al. 2017; Khan, Nabia & Rahman 2018; Momtaz & Asaduzzaman 2019; Sarker et al. 2019). This study finds that climate-migrant women face floods and river erosion almost every year. Previous studies also confirm that these research areas are the most vulnerable areas to flood and river erosions (Hoque & Haque 2013; Shetu et al. 2016; Islam et al. 2017; Zaber, Nardi & Chen 2018; Sarker et al. 2019).

I had 15 chickens and 10 ducks from which I earned some money by selling their eggs. I also had a vegetable garden. River erosion washed away all my poultry and destroyed my garden. I have experienced river erosion three times. Each year experience the same

losses before I have recovered from the previous year's losses. I cannot repurchase this poultry. I tried to grow some fruits and vegetables in my homestead, but because of floodwater, I failed to do so. (Rahima from Bogra, 34 years old with four children)

I used to practise homestead gardening, from which I could earn some money by selling surplus fruits and vegetables in the local markets. Floods and erosion have washed away my homestead and our farmland too. Now my family has no opportunities left whatsoever for income-generation. (Saleka from Dhaka, 34 years old with five children)

The deaths of livestock and poultry during disasters increased the vulnerability of women's livelihoods, as these are one of the main income-generating sources for women. During and after disasters, the lack of fodder for livestock and poultry resulted in reduced milk and meat production, which overall worsened the income situation for women in rural areas. (Key Informant X, Non-Government Official, National NGO)

This study found that there exist minimal opportunities for income-generation for the villagers. The study participants engaged in homestead-based livelihood options and the few available income-generation opportunities, such as sewing, crafting, selling homestead gardening products and rearing livestock and poultry. These are often the worst hit by disasters and the least able to recover (Nasreen 2012; Alam 2017; Bhuiyan, Islam & Azam 2017; Tanny & Rahman 2017; Momtaz & Asaduzzaman 2019; Sarker et al. 2019). In rural areas, women represent the majority of low-income earners and those in the most disadvantaged situation regarding income vulnerability (Hoque & Haque 2013; Juran & Trivedi 2015; Tanjeela 2015; Islam et al. 2017; Ferdous & Mallick 2019).

We have been experiencing river erosion since our childhood, and every time we survived by downsizing our land and homestead. How long can we survive like this? We do not have plentiful resources! Life has become a nightmare. Maybe I can drag myself out from a nightmare, but how can I drag myself out from the devastating destruction of these disasters in our life? (Shefali from Bogra, 40 years old with five children)

We have lost our land three times and somehow managed to live here by downsizing our land and houses. Again we lost our last property and borrowed money from the NGO, but this year we assume the river will erode this land also and there will be no

choice left for us but to move to Dhaka. (Parvin from Sirajganj, 28 years old with three children)

According to the stories of climate-migrant women even after losing their land and resources the first few times, they try to resettle in rural areas. Climate-migrant women's life stories show that because of their lack of money, they cannot migrate with their family to a place where erosion does not take place. Therefore, they relocate their homestead to a nearby area immediately after the disaster strikes, and those who can work as labourers migrate to distant places to cope with losses incurred from riverbank erosion. (Field Journal, 2016)

The study evidence indicates that the frequency and intensity of river erosion in Bangladesh are increasing consistently due to the adverse effects of climate change; this is also supported by other scholars (Hoque & Haque 2013; Juran & Trivedi 2015; Shetu et al. 2016; Chowdhury & Moore 2017; Tanjeela & Rutherford 2018; Sarker et al. 2019). Similarly, the frequency of intense natural disasters seems to be increasing across the world due to climate change (Poncelet et al. 2010; Thomas, Albert & Hepburn 2014). The increase in devastating disasters is causing a significant amount of loss of resources, including lands and homesteads. It is also evident that before deciding to move to urban areas, they try all other options to stay in their native areas (Jordan 2015; Islam & Shamsuddoha 2017; Ingham, Islam & Hicks 2018). The lack of livelihood options and housing compels climate-migrant women to migrate to urban areas even though they are aware that such migration involves many challenges. The next section will shed light on those challenges.

5.3 CLIMATE-MIGRANT WOMEN'S CHALLENGES IN URBAN AREAS

After losing their land and livelihoods several times due to the severe impacts of regularly occurring natural disasters caused by climate change, climate-migrant women often move to Dhaka in search of livelihood options. As mentioned in Section 1.2.3, each year a considerable number of migrants come to Dhaka, but the megacity's urban infrastructure does not have the capacity to absorb this massive influx of inhabitants (Ishtiaque & Mahmud 2011; Ishtiaque & Ullah 2013; Abdullah 2016; Adri & Simon 2017; Carrico & Donato 2019; Razzaque et al. 2020). Therefore, Dhaka is struggling with acute infrastructure shortages in many areas. More than one-third of Dhaka's population lives in slums and squats (Islam et al.

2006; Haque & Islam 2012; Jahan 2012; Ahmed 2016; McNamara, Olson & Rahman 2016; Iqbal 2019). This study's participants mentioned various challenges that they need to experience after moving into Dhaka and living in slums.

5.3.1 Culture and Lifestyle

The participants mentioned that the urban culture and lifestyle are different from the rural lifestyle they had been used to.

Life is comparatively much more expensive than rural life, and so we cannot afford the expense to live in urban residential areas. That is why we survive somehow by living in slums, where the living cost is comparatively lower, even after knowing all the difficulties. (Ayesha from Dhaka, 26 years old with four children)

Life in an urban area is difficult. People come from different areas of Bangladesh; their norms, values, and behaviour vary. Additionally, here people are busier and self-centric. We hardly find anyone with whom we can talk, trust or share our thoughts and feelings. (Rashida from Dhaka, 50 years old with four children)

People are too busy to talk, as they need to move here and there for their livelihood. Most of the people start their day in the early morning and come back to their place at night. Women wake up early in the morning, at around 4 a.m., to do their daily cleaning – washing clothes, cleaning the house, taking showers, cooking food etc while the kids play around here and there unattended. At night when people come back from work, they become busy again in preparation for the next day. Women hardly ever sit somewhere and talk with each other during the day, which is quite a common scenario in rural areas. (Field Journal, 2016)

'Life is costly in the city. We have no choice but to work all day like a machine – what will we feed our children if we enjoy leisure time? Due to the urban lifestyle, we fail to maintain our religious norms and practices, which makes me feel down.' (Saleka from Dhaka, 34 years old with five children)

At the workplace, we need to face bitter experiences that do not go with our culture and religious values at all. For example, my workplace, like many of the other garment factories, does not have a separate restroom for female employees. As female and male workers work together at the same place, there is unwanted physical contact. It is also evident that the supervisors or male workers in the garment factory sexually harass female workers. (Ashma from Dhaka, 26 years old with three children)

In urban life, we need to work outside of the house. Sometimes we need to work with male family members also. Working like this is like breaking our religious norms. In the urban area, we become less able to maintain the concept of “purdah”, which is like: I will keep myself covered and will not appear before males other than my family members. (Shefali from Bogra, 40 years old with five children)

I wish I could maintain my purdah. But I can't stay at home doing nothing and seeing the hungry faces of my family members. At the village, I could maintain our religious rituals even after doing my everyday house chores. Weekly we women could meet and talk about religious values together, which used to give us so much peace. In an urban area, it is absent. Maintaining my religious practice is very important to me; at the same time, feeding my hungry children with my money is also important for me. Taking care of my family is my worship too. (Moriom from Dhaka, 27 years old with four children)

We had to learn to live with this unfamiliarity and uncertainty, since we have no other way. We cannot go back to our village because we have no land or livelihood there. (Farida from Dhaka, 30 years old with three children)

The above statements show that climate-migrant women find that the culture of urban life is different from their rural life. They find that life is much more expensive than in rural areas, which makes it difficult or impossible to keep their parents and children with them; therefore they leave them in their rural villae and live a lonely life. They also find the differences in the behaviour, habits and values of urban inhabitants troubling, and the fact that people are busy in their work and do not find time for others increases their loneliness. Moreover, the study participants said that they had less time and opportunity for their religious practices, which some found distressing, and that they were confronted with an uncomfortable work

environment. However, their statements also show that they managed to strike a pragmatic balance between the norms of purdah and the reality of their situation. They needed to adapt to very different and difficult conditions and social rules to fit within a society that was different from their rural arrangements.

5.3.2 Poor Living Environment

Participants mentioned that they came to Dhaka in search of livelihood options and with a hope to live a better life; however, they found different realities. They considered slums to be a disgraceful and unhealthy living environment.

In search of a livelihood, climate-migrant women come to Dhaka with the hope of better living conditions, but they face various problems like finding housing, food, water and jobs. Apart from these problems, the women also mentioned other issues related to water sanitation, treatment for illnesses, harassments from law-enforcement and other agencies and lack of social security. (Field Journal, 2016)

Slum areas predominately have poor housing, such as jhupris, shacks, kutcha and semi-pucca houses. Slums have high housing density, cheap and low-quality housing materials, poor sewerage and drainage, inadequate and unhealthy drinking water supplies, insufficient street lighting (when there is any at all), no paved streets and a population of poor, uneducated people. (Field Journal, 2016)

According to most of the participants, the worst adversity is to find a suitable source of safe drinking water in the neighbourhood. Women generally collect drinking water. They need to maintain excellent social contacts to be able to find a source, as most of the slums are barred from getting a water supply connection from the Dhaka Water Supply & Sewerage Authority (DWASA). Under flooded/waterlogged conditions, available sources often become contaminated with pathogens. Women often fall victim to water-borne diseases. (Field Journal, 2016)

In a slum area in Dhaka city, public health, water and sanitation services are almost non-existent. Slum areas are characterised by poor environmental circumstances and services. (Key Informant VII, Social Worker, Non-Government Official, National NGO)

We usually wake up middle of the night to complete all our necessary tasks. Toilets do not have any permanent doors; so we made a temporary door by using curtains in order to create privacy. It is even more uncomfortable for us during menstrual periods. (Shahida from Dhaka, 24 years old with three children)

The toilet and kitchen are adjacent to each other; bad smells come from the toilet. It becomes worse during the rainy season: if toilets overflow because of rainwater, the sewage enters the kitchens as well. (Hamida from Bogra, 35 years old with four children)

I feel very embarrassed to bathe in an open space where anyone can enter whenever they need. Most of the time, I take a shower around 4 a.m. Sometimes I cannot even sleep properly at night because of the tension to wake up early to take my shower before others wake up in the slums. During wintertime, this practice becomes even harder to maintain as I often suffer coughs, colds and fevers. (Saleka from Dhaka, 34 years old with five children)

Participants mentioned that they are living in a slum with the constant threat of eviction. Sometimes, due to the Government's urban projects, they are forced to evacuate without the Government offering any alternative accommodation. However, sometimes the local authorities or crime bosses (mastans) threaten eviction to scare them, so that they will pay bribes. However, sometimes, the threat of eviction becomes the reality. (Field Journal, 2016)

Evictions are a continual threat in slums. On several occasions, we have faced evictions by various departments and law-enforcement agencies. At that time we need to sleep outside at the sites of ruined homes or in nearby playing fields. (Sokhina from Dhaka, 43 years old with three children)

In slums sometimes we face evictions during rainy seasons. We find no place to go. We make shelters by using pieces of plastic and papers. (Parvin from Sirajganj, 28 years old with three children)

Participants who lived in slum areas mentioned various issues related to the toilet and kitchen, which affected their privacy and health. In slum settlements, climate-migrant women need to share a limited number of toilets and kitchens with other tenants. These women reported that they find it extremely uncomfortable to share toilets with unfamiliar male tenants. They also reported that they needed to confront harassment and threats of eviction from law-enforcement and other agencies. Sometimes they also experienced false announcements from the local authority or crime boss designed to frighten them into paying bribes.

5.3.3 Livelihood Options

The study participants stated that there were few available opportunities for earning a livelihood in Dhaka.

After coming to Dhaka, I could not find any work. Besides household chores, I used to undertake homestead gardening and livestock rearing in my rural area, which used to help me earn money. But, in an urban area, I have no options for those. After coming here, I started going to the nearer urban apartments in search of work as a maidservant. One day one caretaker of an apartment building helped me to find work in one house. From then on, I started working as a maidservant in others' houses. (Farida from Dhaka, 30 years old with three children)

I will not find any work now except begging at this stage of my life. I will never be able to receive any respect from others as I had in the rural area. What else I can do? I have to eat and live, which costs money. (Ameena from Dhaka, 50 years old with 6 children)

Talking with the participant revealed that here women make their living by finding self-employment as temporary housemaids, day labourers and restaurant cooks. Some of them also work in garment factories. Sometimes if they find no other options, they become street beggars. During the rainy season, when the shanty dwellings are inundated, it becomes difficult for them to join in daily activities in employers' households while trying to safeguard their own belongings. Creating an alternate temporary safe shelter for the kids also becomes a necessity. The participants also mentioned that they hardly get any sick leave. Being late or absent often means they lose their jobs, which affects their food security and living costs. (Field Journal, 2016)

When any new women join for the first time in any factory and if the owners find that employees are new and not aware of their rights, then they try to exploit the new employees. Sometimes the women work 14 to 15 hours days, but they are not given any leave, and they receive less payment or late payment, even a month late. (Shahida from Dhaka, 24 years old with three children)

We came here to Dhaka after losing all our resources in our rural area due to river erosion. It is next to impossible for us to save any money after bearing all the living costs in the urban area and sending money to our other family members who live in our rural area. We find ourselves helpless when we encounter any destructions in urban life, such as loss of jobs, loss of shelter or any destruction from natural disasters in the urban area. (Halima from Dhaka, 43 years old with three children)

The participants stated that after coming to an urban area, they do not have any choice: they need to do something to live, and that is why they work in low-paid jobs. As natural-resource-based activities such as farming, gardening, livestock rearing are not a viable option in the urban area, most climate-migrant women and their family members start working as house assistants, hawkers, scavengers or day labourers. Without any skills or knowledge, climate-migrant women struggle for their existence, and if they are at the later stage of life, existence in an unknown environment becomes even worse. However, some of the climate-migrant women also mentioned that they work in the garment industry, although, being newcomers, they face exploitation from their employers. They always live in fear of losing their jobs, as they have fewer contacts and almost no assets to start a new occupation in the city. However, they also mentioned that they are eventually able to save a little money despite the cost of urban living.

5.3.4 Health and Education

Study participants talked about the challenges related to the health and education of their children in urban areas.

We hardly can afford money for our treatments. In the Government hospital, we also need to give money for our treatment that we cannot afford. We usually use herbal-based treatments and home remedies, which seem ineffective in cases of acute health

*issues. Sometimes we go to the nearest medicine dispensary to seek their suggestions and buy medicine accordingly. (Moriom from Dhaka, 27 years old with four children)
Once I had received support for my healthcare, as I was having gynaecological issues. After that, when I moved to another slum, I could not see them any more. (Parvin from Sirajganj, 28 years old with three children)*

NGO staff come to the slums to provide support for health and children's education. Health support mostly includes maternity and family-planning issues. There are some schools for children run by the NGOs. When I had my children with me, I used to send them there. But after keeping them for three months, I had to send them to my in-laws in a rural area, as we were not able to keep up with the living costs." (Shahida from Dhaka, 24 years old with three children)

All day, we need to work outside for our livelihood. We do not feel safe leaving our children unattended at home, as the slum environment is not safe for children. There are threats of child abuse, trafficking etc. When we leave for work, we ask them to stay inside the room. That is why, they can not attend the classes that are offered by the NGOs. (Saleka from Dhaka, 34 years old with five children)

In search of work and cheaper living costs, we move here and there. We can not stay in one place for a long period. So, we cannot keep in touch with the NGO support. (Rashida from Dhaka, 50 years old with four children)

The participants stated that they mostly use herbal treatments for their health-related issues, as there are no affordable opportunities for standard health care. Sometimes they go to the medical dispensaries for treatment. They also mentioned that there is limited support from the NGOs. These NGOs also provide support for their children's education. However, they can not avail themselves these supports as they live a floating life in Dhaka. They also showed their concern for their inability to keep their children with them in Dhaka due to the high living cost; and even if they can afford these costs, they face challenges of the lack of daycare and the unsafe environment in slum settlements.

5.3.5 Social Affiliation and Dignity

The participants reported that in urban areas, they find limited options for their social affiliations. Due to their floating life and the cultural differences between rural and urban societies, they feel separate from people in the urban areas, and find it difficult to trust them.

After we had become destitute by losing everything in erosion, we started to lose our good times also. Here in the urban area, we are living an isolated life, where we have no respect, no affection from others. (Farida from Dhaka, 30 years old with three children)

We miss our life in the village. We had our house, family, relatives and friends. Being with them is always a mental relief. We were able to share our happiness and sorrows. Here we do not have any relatives or friends. Furthermore, we can not become close to our neighbours also, as we have a floating life and all are busy with their own lives. (Ashma from Dhaka, 26 years old with three children)

“In the rural area, we had a dignified life. We had respect from our acquaintances. But here in Dhaka, we have a poor life, nobody knows us, nobody shows any respect to us. We feel an outsider in this new environment.” (Sokhina from Dhaka, 43 years old with three children)

Before, we had respect in society, now people feel pity for us. They show their sympathy, but I don't see any respect in their compassion. I know if I had my land, home and work, I would have respect from others too. But the reality is, except for begging, I will not find any work now at this stage of my life. So, I will never be able to find that respect from others. Begging may give you some money but not honour or respect. (Ameena from Dhaka, 50 years old with six children)

After coming to Dhaka, we have saved our lives, but every day we are losing our dignity here. We feel that we are total outsiders, do not deserve any respect or value from others. We deserve only to do odd jobs and earn some money to live a destitute life. (Saleka from Dhaka, 34 years old with five children)

Participants mentioned that in urban life, they felt lonely because they could not be as friendly and confident with their neighbours as they had been with those in the village. They also mentioned that they felt helpless in the new urban environment. In the rural area, they had strong associations. After coming to Dhaka, they felt that they were losing their previous dignity due to their impoverished living conditions.

Overall, climate migrant women find it hard to meet the additional costs of living in urban areas. Other research has mentioned that urban-based challenges are associated with the cost of non-food items such as house rent, payment of utility services such as water, sanitation and electricity and transport costs which are relatively higher than in rural areas (Satterthwaite 2013; McNamara, Olson & Rahman 2016; Alam et al. 2020). As a result, climate-migrant women in Bangladesh confront unhealthy and unpleasant living conditions in slum areas (Ishtiaque & Mahmud 2011; Haque & Islam 2012; Ahmed 2016). They also experience challenges from coping with the unfamiliar culture and the lack of familiar religious practices as well as with unhygienic food-preparation and toilet areas and lack of privacy (Adri & Simon 2017; Razzaque et al. 2020). All these stresses cause health issues for these women (Jahan 2012; Ahmed 2016; McNamara, Olson & Rahman 2016). Climate migrant women also mentioned that the jobs they do in urban area are insecure, and incomes are variable (Ishtiaque & Mahmud 2011; Banks 2013; Abdullah 2016; Adri & Simon 2017). Another study of climate-induced migration in Dhaka suggested that a significant proportion of migrants cannot find employment at all (Ahmed & Ting 2014; Ahmed 2016; Adri & Simon 2017). Climate-migrant women have limited opportunities to access any external support for their health and their children's education in urban areas (Ishtiaque & Mahmud 2011; Jahan 2012; Ahmed 2016; Adri & Simon 2017; Razzaque et al. 2020) nor can they find opportunities for social affiliation, a situation that does visible damage to their bonding relationships. According to their rural culture, climate migrant women are dependent on their bonding networks for their quality of life (Ansari, Munir & Gregg 2012; Hoque & Haque 2013; Islam & Walkerden 2014; Tanjeela 2015; Ahmed 2017). In the isolation of urban living, these women suffer from loneliness and alienation in their new settlement. They find themselves part of a marginalised, destitute group in Dhaka (Jahan 2012; Ishtiaque & Ullah 2013; McNamara, Olson & Rahman 2016; Adri & Simon 2017; Carrico & Donato 2019).

5.4 CHANGES IN HUMAN-DEVELOPMENT OPPORTUNITIES AFTER NATURAL DISASTERS

The human-development opportunities of Bangladeshi women diminish drastically after a natural catastrophe hits the area. Accordingly, in light of Nussbaum's capabilities approach (2011), the following sections will show to which extent natural disasters affect and reduce the possibilities of human development for climate-migrant women in Bangladesh.

Natural disasters such as river erosion have tremendously affected the usually happy and stable life of Bangladeshi women; specifically, their opportunities to develop and enjoy a human life of average length: "...being able to live to the end of a human life... not dying prematurely or before one's life so reduced as to be worth living" (Nussbaum, 2011, p. 41). It should be noted that Bangladeshi women's capability of life, particularly considering the social and cultural roles assigned to them, depends heavily on the environmental conditions and the magnitude of climate change. When these women are recovering from a natural disaster, three scenarios are possible. First, they can buy more land or property. Second, they can reduce their original land to get away from the edge of the river. Third, they can move to urban areas. When they and their families buy new land or accept a reduction in their original land, they might be able to rebuild their household. However, if they decide to move to urban zones, they suffer the loss not only of the original property but of the possibility of rebuilding.

Based on the collected information and field observations, it could be inferred that the capability of life is brutally diminished for these women. Due to the natural disaster and the numerous material losses, they are losing their life stability, and their decisions have serious consequences for the future. In the three scenarios mentioned, their life capability to develop personal opportunities for an average-length human life are severely diminished. Moreover, because of the socio-cultural customs in Bangladeshi society, the life opportunities for women after a natural disaster are lower to begin with than those of male family members. These results agree with those of Arora-Jonsson (2011) and Hoque and Haque (2013), who point out women's reduced opportunities after a natural disaster compared to men's. Thus, under disaster conditions, life expectancy is dramatically reduced for Bangladeshi climate-migrant women.

Likewise, it should be noted after the losses these women suffer due to natural disasters, they do not have enough material and psychological heritage to succeed in their next life stage in the urban area. Normal life opportunities, as Nussbaum defined it, have been reduced due to the loss of their household, land and livelihood, to which should be added the loss of health. Additionally, the loss of their cultural customs comes to complete the scenario of total depletion for climate-migrant women (Hoque & Haque 2013).

The presence of male family members of the family – husbands, sons, brothers –represents a guarantee for climate migrant women; their presence ensures the women’s integrity. Conversely, when male family members are absent, climate-migrant women remain unprotected and suffer from social depravities. During natural disasters, these women can place themselves in dangerous situations, due to the responsibility they have to protect belongings, children and family. Under these circumstances, women lack privacy, which keeps them from using the toilet when they need to and managing their own healthcare needs adequately.

The findings discussed above show that it is difficult for Bangladeshi climate women to develop real human opportunities to have a natural lifespan when they are frequently confronted with disasters such as floods and river erosion. In other words, natural disasters, socio-cultural customs, gender inequalities and personal vulnerability are the primary causes of their reduced capability of life, as Nussbaum defined it. Strongly related to this is Nussbaum’s capability of bodily health: “being able to have good health, including reproductive health and being adequately nourished; to have adequate shelter...” (Nussbaum 2011, p. 41). This study has demonstrated that women’s bodily health is in danger during and after natural disasters due to losses, privations and discomfort.

Additionally, it should be noted that, during and after natural disasters, women are more vulnerable to many types of water-related diseases. Proper treatments become nearly impossible due to disrupted transportation networks; moreover, the reduced number of medical places and the unavailability of medical services and proper attention enormously reduce the possibilities of balanced and healthy development. Thus, due to frequent natural disasters, affected women and their families suffer from diverse health-related physical and mental problems. Equally, the secondary role of women in Bangladeshi society becomes

more evident during natural disasters, because they are forced to provide food and potable water for all the family members, keeping themselves to be the last nourished.

Likewise, climate-migrant women's physical vulnerabilities are directly related to bodily integrity as a capability. Bangladeshi women cannot remain unprotected by family males; thus, those women and young girls who remain alone after a natural disaster are exposed to social depravities and dangerous situations that threaten their integrity. The frequency of this type of abuse is so high that even the key informants, as well as the women themselves, noted it in their interviews. Thus, the vulnerabilities of climate migrant women have been broadly verified by families and agencies, despite the poor public policy undertaken in this regard.

This theme of physical vulnerability complements the portrait of emotions as a capability. Indeed, because of the lack of privacy, and the loss of integrity and dignity, climate-migrant women often develop negative emotions like anger, fear and anxiety. Other emotions that can be considered as positive and related to the wellbeing of these women can be developed only in the absence of natural disasters and the distressing situation they face.

Nussbaum (2011) defines the capability of senses, imagination, and thoughts as "...being able to use the senses, to imagine, think and reason, and to do these things in a 'truly human' way, a way informed and cultivated by an adequate education, including...but not limited to literacy and basic mathematical and scientific training" (p. 42).

Given the definition of this capability, it should be noted that in the absence of natural disasters, study participants were able to enrich their thoughts and display their imagination. However, during and after natural disasters, they could not do so. Natural disasters came to modify their opportunities of human development: the continued loss, damage, injuries and traumatic situations that they confronted can explain why these women could not manifest this capability. In brief, Bangladeshi women lost this capability, as well as their decision-making competency. Hence, for these women, adverse climatic conditions are the most critical factor affecting their life and capabilities of human development.

Nussbaum (2011, p. 42) defines the capability of practical reason, as "being able to form a conception of the good and to engage in critical reflection about the planning of one's life". Climate migrant women in Bangladesh have a reduced engagement to develop practical

reasoning. Indeed, for them, it is possible to develop opportunities for engaging in critical thinking and reflection, but always, their thoughts are guided by religion and social customs. Because of gender domination, gender inequalities, religious imposition and an attitude of self-sacrifice, Bangladeshi women choose not to take full advantage of their opportunities for planning their own lives, and do not necessarily have the cultural background to develop the capability of practical reasoning. During natural disasters, practical reasoning as a capability remains diminished because of the numerous deprivations and conflicts these women confront as they struggle to survive and protect their family members. Lastly, concerning the capability of relationships with other species, it should be affirmed that this changes abruptly when a natural catastrophe such as river erosion arrives into the villages, because of they lose not only their material possessions, but their livestock as well.

Women's opportunities for full human development are abruptly disrupted due to climate change and natural disasters. The strength with which these factors hit the lives of these women is of such magnitude that their life opportunities change completely. What could previously be considered a worthy and admirable life now becomes a miserable, mediocre life full of difficulties that withdraw the opportunities to reach full development of the human competencies proposed by Nussbaum.

5.5 CONCLUSION

This chapter has shown that climate-migrant women regularly confront severe losses due to recurring natural disasters. These women experience river erosions about six or seven times in their lifetime, and each time they experience significant losses including loss of lives and health, loss of food and drinking-water sources, loss of shelter, sanitation and security, loss of communication, transportation and education, loss of household assets and loss of land, livelihood and other income sources. The chapter indicates that that every time they face these losses, they downsize their land, home and resources to live in their rural area, as they value their relationships with others in their rural area. However, as they lose more each time, eventually these women are left with no other option but to move to urban areas in search of their livelihoods. After migrating to an urban area, they resort to living in urban slums because they can afford nothing else. Further, this chapter also illuminates the challenges that climate-migrant women confront in an urban area, such as different culture and lifestyles;

poor environment; and lack of livelihood, social affiliations and dignity, health and education. The chapter points out that these women have limited external supports in slum areas. Finally, this chapter highlights the disruption to their human-development opportunities after natural disasters. Therefore, these women become deprived of even the limited capabilities that they had enjoyed in their rural lives before being affected by the adverse impacts of natural disasters caused by climate change.

CHAPTER SIX

THE VALUE OF SOCIAL NETWORKS FOR QUALITY OF LIFE

6.1 INTRODUCTION

This chapter examines the significance of social networks in the life of climate-migrant women in Bangladesh. Accordingly, this theme will portray the social networks that they value in their lives and how they develop these valuable networks throughout years of coexistence and exchanges of values, culture and norms. The social capital (Bourdieu 1986; Coleman 1990; Putnam 1995) incorporated into climate-migrant women's different networks represents intangible resources for their lives and wellbeing. Furthermore, this chapter will also show how these valuable networks become affected by recurring natural disasters. The external support that climate-migrant women receive through their networks with local Governments and NGOs will also be discussed in this chapter. Finally, this chapter will also examine the significance of social capital for maintaining the capabilities of climate-migrant women that relate to their quality of life (Nussbaum 2011). This chapter consists of the following sections: Section 6.2 includes discussions about getting resources through family and neighbour grids, which highlights their mutual reciprocity and trust and their beliefs, values and cultural traits; Section 6.3 examines the bonding networks during natural disasters, which highlights their flood preparation, sharing of food, medicine and care, safety and security, including the depletion of their social capital; Section 6.4 describes the bonding networks after moving to an urban area; Section 6.5 details the assistance from and flaws of external support that climate-migrant women receive; Section 6.6 considers social capital as an intangible resource to maintain capabilities for climate-migrant women in Bangladesh; and Section 6.7 contains concluding remarks for this chapter.

6.2 GETTING RESOURCES THROUGH FAMILY AND NEIGHBOUR GRIDS

This study has applied the concept of social capital following the general principles proposed by Bourdieu (1986), Coleman (1990) and Putnam (1995). Based on these authors' propositions, the social capital of climate-migrant women has been understood as the dynamic types of networks established among community members settled in a specific place (Ansari,

Munir & Gregg 2012; Islam & Walkerden 2014, 2015; Asteria et al. 2018; Chriest & Niles 2018). Scholars have suggested that the cultural values and norms of a community, including their signs of mutual trust, beliefs and reciprocity, allow the community to build their social relationships (Juran & Trivedi 2015; Sanyal & Routray 2016; Asteria et al. 2018; Chriest & Niles 2018). Consequently, these relationships constitute climate-migrant women's social capital.

Several studies have shown that the study of communities can be approached by taking into account the social capital developed by its members (Wright & Storr 2011; LaLone 2012; Islam & Walkerden 2014; Cummings et al. 2018). In the case of climate-migrant women in Bangladesh, who are affected by river erosion, it was observed that social capital had been translated into three types of networks: bonding, bridging and linking. Climate-migrant women's life stories show that bonding networks and bridging networks are the two major critical networks that they depend on, and that these networks show two significant characteristics in line with their beliefs, values and cultural traits: mutual reciprocity and mutual trust.

6.2.1 Mutual Reciprocity

This study finds that mutual reciprocity is a common behaviour among climate-migrant women. Their life stories and the field observations gathered for this study showed that mutual reciprocity was a natural attitude among family members of climate-migrant women, and was the foundation of their bonding networks (Islam & Walkerden 2014; Juran & Trivedi 2015; Chriest & Niles 2018; Tanjeela & Rutherford 2018). Similarly, mutual reciprocity was also found in the relationships with their neighbours and friends in their rural area that constituted their bridging networks.

Before river erosion affected our life severely, we had land, a house, a livelihood and cattle of our own. We may not have had a wealthy life in the village, but we could manage a decent life in our way. After downsizing our lands and homestead due to river erosion, we were not rich enough to spend money on educating our children. But, I wanted to teach my children Arabic so that they could learn how to read the holy Qur'an. We consider a knowledge of the Qur'an to be an essential and important part of life, which can give peace and prosperity. We believe that if someone can read the

Qur'an every day, that person will never be left out of getting the blessing of Almighty Allah. We felt that if they learned the Qur'an, at least they would be able to understand what is good and bad in life. My financial state was not good enough to hire someone to teach them the Qur'an. Even so, I was lucky enough to have a nice neighbour, who is my distant relative also. She taught my children free of charge. Sometimes when she is sick or doesn't feel like cooking, I help her to finish her cooking and cleaning. It is our good relationship that encourages us to help each other. (Salma from Sirajganj, 25 years old with three children)

In the village, we lived like an extended family. Many times it happened with my neighbours and me that after feeding all the family members we had very little or no food left for ourselves. And of course, we would not start cooking again just for one person, as cooking is a lengthy process considering gathering the fuel, cutting, washing etc. Interestingly, in those situations, we always could manage something from each others' houses. So, we rarely had to pass the day without a meal. We had the same experiences when any guest suddenly used to come to our houses. We shared not only our food, but our bedding, utensils, cooking pots, crockery, machinery etc. when needed. (Rashida from Dhaka, 50 years old with four children)

Throughout the year, we save seeds of different fruits and vegetables. When the season comes, we share our fruits and vegetable seeds with our neighbours and friends in the village. Sometimes we also exchange surplus items, which allows us to have a variety of food items at lower prices than the market. (Afroza from Bogra, 24 years old with three children)

In the village, we had good unity and feeling of togetherness; we shared each other's surplus with all our friends and families whenever there was any urgency or need. So, we never felt alone or deprived of any necessary aspects of life, such as food, medicine, clothes, shelter and livelihood. (Sokhina from Dhaka, 43 years old with three children)

I was standing in front of one woman's house to meet her. I saw two children who were playing at the front door of her house. I asked them about that woman, and they answered that she was their mother and went outside. While I was talking with the children, another woman came out from the next house and asked me about my identity

and purpose of coming here. As a result, she told me that the woman I wanted to meet with had gone to wash her clothes in the nearby pond and would be back very soon. She invited me to sit. (Field Journal, 2016)

The above evidence shows the reciprocity between climate-migrant women and their neighbours. In addition to education, these women share their surplus food items, household things and other necessities that may help each other to live a decent life according to their understanding. They also share their important sources of food, including income-generation options such as seeds. The above field observation also indicates that, in the absence of the mother of the household, the women of the community received the visitor and offered her a seat and even something to drink. This suggests that, in a way, neighbours took the place of the absent person, because they welcomed the visitor while waiting for her return from washing her clothes. This indicates that mutual reciprocity is a common behaviour among climate migrant women.

Likewise, climate-migrant women's life stories and the observations in this study also reveal the bonding networks associated with family and relatives. Mutual reciprocity is a common feature of such networks.

My husband was a farmer, and we had our own land for farming. We also had a house to live in. My parents-in-law and my younger brother-in-law and sister-in-law used to stay with us. After we lost our land four times due to river erosion, my husband and father-in-law lost their livelihood. They were surviving by working as day labourers on someone else's land. But that was not enough to meet our daily necessities. For that reason my husband went to Dhaka in search of a livelihood. He could find work as a rickshaw puller. We could not go with him as the living costs in Dhaka are high. But, he was able to send money to us in the village. I was living with my children and in-laws in the village. It is hard to live in a place without any male guardian. I was able to stay without my husband in the village, as I had my in-laws with me. As they were too old to take care of themselves, I used to take care of them along with doing all the household chores. (Halima from Dhaka, 34 years old with three children)

My husband used to work in Dhaka. Due to some acute health issues, he had to come back to the village, as he was not able to take care of himself on his own. After losing

our last homestead in erosion, we have no other savings that we can use for our living costs or his treatment. That is why my husband and I have decided to go Dhaka again, leaving our children with my in-laws in the village. (Rahima from Bogra, 34 years old with four children)

We were not rich before erosion, but at least we had a house to live in and some means of income to feed our children and family members. After we kept losing everything from river erosion, again and again, now we have not a single shade over our heads. We have no choice but to move to Dhaka, so my husband and I can earn money for our family. We can leave our children in the village because we still have the support of my parents. My parents will raise them, and I will send money to my parents. We cannot take them with us as it is more expensive in Dhaka. (Saleha from Sirajganj, 29 years old with four children)

Every year, when the flood comes, we take shelter here and there. For the past few years, I have taken shelter at different relatives' houses. Last year we stayed at the house of one of my cousins. This year they have moved to another village. I was scared about what to do because I did not feel safe to go to the shelter centre with my adolescent girls and aged mother-in-law. Luckily my cousin's son is still staying in the village, and he assured us that we could stay at his place if required. (Parvin from Sirajganj, 28 years old with three children)

This evidence indicates that climate-migrant women and their relatives share their help, caring and safety with each other. They can live in a rural area without their husbands as they have support from their relatives. These women are also able to go to distant places in search of their livelihood options, leaving their children with their relatives. In crisis periods their relatives also offer them support such as shelter. Their stories show that bonding networks help ensure their safety, security, earning sources and caring.

These stories also reveal the mutual reciprocity inherent in climate-migrant women's bonding (with family) and bridging (with neighbours and friends) networks, and show the importance of such networks in their lives (Islam & Walkerden 2014; Ingham, Islam & Hicks 2018). In parallel, and as a consequence of this shared assistance, mutual trust was also observed as a second characteristic complementing the interchange between family members or neighbours.

6.2.2 Mutual trust

This study identified trust as the second general characteristic that was found in both bonding and bridging networks of climate-migrant women in rural Bangladesh. The following stories along with the field observations in the rural areas under study show the trust and confidence of these climate migrant women in their neighbours and relatives:

All my children are married now. We had to struggle a lot to raise them. I must mention that without the help of my in-laws, we could never have raised them properly. After losing all our land and livelihood due to river erosion, my husband and I came to Dhaka, leaving our kids with my in-laws. We could not afford to keep our children with us. But we are grateful that we had our trustworthy in-laws there to raise our children. We could only visit our children quarterly, sometimes half-yearly. My in-laws helped us to raise our children as long as they were able to be active. After passing 10 years like this, I came back to the rural area, leaving my work to take care of my in-laws, as they are too old to do anything now. We could trust my in-laws to raise our children, and my in-laws also had trust in us that we would take care of them at their later stage of life. So, it is my turn now. My husband and elder sons continued to work in Dhaka. (Shefali from Bogra, 40 years old with five children)

Until my husband died in a road accident, I had a family of eight members, including my husband, six children (four sons and two daughters) and me. We did not have much left after multiple erosion events. I had to manage my six children with whatever I had. For the first few days, I was so shocked that I often fainted from thinking about my loss and my future ahead with six children and no financial support at all. My parents came to my house as soon as they heard the news of my husband's death. They used to live in the next village. My parents and neighbours helped me a lot in those first few days. It is said in villages that if someone dies, that dead person's house should not turn on his or her cooking stove for at least 40 days. It is a general courtesy that the deceased's relatives and neighbours will provide food to the family members. So, it helped me to survive for a few days. I realised that soon this time would finish, and I would have to manage the living costs for my family. I had to leave my sorrow and had to find a way to live and raise my children. My parents were not very well off, though they tried their best to support me financially for the first few months. After that, I started working in

other people's houses for one year. I started doing tailoring at home also. When I used to go outside for work, I had to leave my children at home. My neighbours were helpful; they used to take care of them. After about one year, my elder two sons started working in the shop of one of our friends in a nearby town. (Ameena from Dhaka, 50 years old with five children)

I felt relaxed and started looking around to find a place to sit. I found that the woman next door suddenly unlocked the door of the house, which looked locked. She brought out a chair and invited me to sit. Seeing my thirsty face, she asked me if needed something to drink. I was so thirsty that I could not say no; I answered her by saying the water would be good. She quickly went back to her house and came out with a glass of water in a very clean glass. By that time, some other women from other houses also came out; they all were sitting around me and chatting by asking about my work and myself. While that woman was giving me the glass of water, another woman called out, asking whether she could bring any biscuits for me to eat. (Field Journal, 2016)

The stories of climate-migrant women indicate that they help, feel and care for and trust each other to complete and share each other's duties and responsibilities. Moreover, the above field notes illustrate their trust in one another; for example, they could bring out something from their neighbour's house, even without asking permission, or entertain a neighbour's guest or keep an eye on a neighbour's house and children.

It can be stated that both bonding and bridging networks were characterised by mutual reciprocity and mutual trust, based on shared beliefs, values and general culture. In this sense, beliefs, values and cultural elements comprise a system that positively supports the lives of these people, regardless of their financial status (Islam & Walkerden 2014; Tanjeela 2015; Tanny & Rahman 2017).

6.2.3 Beliefs, Values and Cultural Traits

The rural context of the study participants lives influenced how they lived out their prevailing beliefs, values and culture. For example, they expressed that during harvest season, they gathered and shared fruit and vegetable seeds with their neighbours and friends in the village, allowing them all to grow more fruits and vegetables. They also exchanged surplus food

items, which allowed all of them to have a more varied diet. These actions express the attitude of sharing and providing assistance to their peers. Other studies have also found similar traits among rural women in Bangladesh (Alam & Rahman 2014; Jordan 2015; Juran & Trivedi 2015; Tanny & Rahman 2017; Chriest & Niles 2018; Tanjeela & Rutherford 2018). The continuous interchanges reinforce the characteristics of mutual reciprocity and mutual trust discussed in previous sections.

The same behaviours of service and mutual assistance were evident in other activities, such as sharing knowledge and skills.

I can sew blankets. I sell those blankets, and I can use that money for buying new dresses or shoes for my children. I feel so glad to see my children smile when they get anything new. I have learnt this skill from one of the aunties. If I get many orders at once, I struggle to complete them on time, and I become less able to give time to my children. My neighbours help me by keeping my children at their house. My children can also play with my neighbours' children. Sometimes they even feed my children. When my neighbour gets work orders for making paper bags, I also support her by taking care of her children. We know that this extra income is very helpful for our families. (Sayma from Bogra, 38 years old with five children)

By doing homestead gardening, I can sell vegetables in the local markets and earn money. I can invest this money in my husband's farming activities, like buying fertilisers and machinery. I have gathered much knowledge on homestead gardening, as my mother, mother-in-law and neighbours taught me a lot of things about this. (Jamila from Sirajganj, 30 years old with three children)

In the rural environment, we know each other even for generations. We possess the same culture, habits, language and financial status. After living together for so many years, we do not feel like we are just neighbours, we feel like we are relatives, very close to each other. We could easily understand each others' problems, sorrows, needs, happiness. On the other hand, the situation in urban areas are just the opposite. (Saleka from Dhaka, 34 years old with five children)

It should be noted that these participants learned from family members and neighbours: villagers share their knowledge and skills among themselves, which can give them opportunities for other income streams (Ansari, Munir & Gregg 2012; Chriest & Niles 2018; Tanjeela & Rutherford 2018; Momtaz & Asaduzzaman 2019). This is one of the cultural traits that characterised their system of beliefs, values and culture. It can be observed that both bonding and bridging networks are characterised by mutual reciprocity and mutual trust, and are based on the sharing of beliefs, values and general culture. In this sense, beliefs, values and cultural elements comprise a system that positively supports their lives, regardless of their financial level (LaLone 2012; Islam & Walkerden 2014; Tanjeela 2015; Chriest & Niles 2018; Tanjeela & Rutherford 2018).

This mutual trust and reciprocity and their shared common beliefs, values and cultural traits constitute their social capital (Bourdieu 1986; Coleman 1990; Putnam 1995). These women felt more united in rural life, and their relationships with each other became stronger. These ties helped them to build a robust store of social capital, on which they depended (Alam & Rahman 2014; Islam & Walkerden 2014; Islam et al. 2017).

This study found that the social capital for Bangladeshi climate migrant women is composed of bonding and bridging networks that are characterised by mutual trust, confidence and reciprocity, as well as shared cultural traits and values, and it is argued that this social capital represents an intangible wealth for these women. According to the participants' life stories and this study's field observations, these women find their attachment to be so secure that they consider themselves each other's sisters that constitutes their bonding networks robust.

The study participants valued the supports that their networks offered. In other words, their social capital reproduced their status through well-established social networks (Putnam 1995; O'Brien & Fathaigh 2005; Ansari, Munir & Gregg 2012; Islam & Walkerden 2014; Chriest & Niles 2018; Tanjeela & Rutherford 2018). Therefore, when a catastrophe, such as river erosion, occurred, this adversity intimately affected them, not only because they lost their material property, and thus their means of being productive human beings, but because they had to rely solely on their social networks to survive the catastrophe.

6.3 BONDING NETWORKS DURING NATURAL DISASTERS

The participants noted in their interviews that they had experienced river erosion six or seven times in their lifetimes (Shetu et al. 2016; Alam, Alam & Mushtaq 2017; Zaber, Nardi & Chen 2018; Sultana, Thompson & Wesselink 2020). Each time they experienced losses in their life including life, health, safety and dignity (Hoque & Haque 2013; Bhuiyan, Islam & Azam 2017; Khan, Nabia & Rahman 2018). While mentioning these losses, the participants also mentioned that the first help that they received came from their family members, neighbours, relatives and close friends living in the same area (Islam & Walkerden 2014; Christ & Niles 2018; Ingham, Islam & Hicks 2018; Tanjeela & Rutherford 2018).

6.3.1 Flood Preparation

According to the interviews with the participants, before natural disasters were to strike their area, they always made preparations together, sharing their prior experiences and knowledge to protect their family members and other assets.

Before the season of flood and erosion approaches, we share our prior experiences, what was a good or bad way to protect our lives and assets. Based on that, we decided what would be the appropriate preparation for this year. Usually, our elders have better ideas that help us to make the preparations. (Salma from Sirajganj, 25 years old with three children)

As a preparation to protect us from flood water, we help each other to build “machas” (raised platforms) to protect our valuable materials, like furniture, crops and electronic goods. We also use them to protect our poultry and cattle. Sometimes we make stronger machas so that we can keep our family members safe as well during flood time. Making this raised platform takes time and effort; for that reason, we need extra hands to build it. (Moriom from Dhaka, 27 years old with four children)

After finishing our everyday household chores, we keep some time free for ourselves to help each other prepare and store some of our necessary food items for disasters. Usually, we dry fish, make puffed rice and store dry food items. We tie our valuable belongings so that they can be moved easily. (Afroza from Bogra, 24 years old with three children)

We make portable clay ovens for cooking during disasters, as we live here and there. To move anywhere during floods, we need a boat. As many of us cannot afford to make a boat, we collect banana plants to make small rafts. These banana rafts are our only transport during floods. We grow banana plants in dry seasons, so that we can use them during the flood. Some of us also can afford small boats; those are costly, though. (Saleha from Sirajganj, 29 years old with four children)

During floods, if someone has a boat, we accept help to move from here and there. Otherwise, we use our banana rafts. We need to go further away with these boats or rafts for collecting fresh water. We go together as a group. Sometimes we spend our days and nights on these rafts. We even cook on them with our portable oven. (Farida from Dhaka, 30 years old with three children)

We are predicting that the river will erode our land this year. For that reason, with the help of each other's contacts with the buyers, we are selling our cattle. We are helping each other to cut the trees so that we can sell them. We are transferring other tangible resources to our relatives' houses. We are helping each other to disassemble housing materials and pile them in a safe area. (Hamida from Bogra, 35 years old with four children)

This indicates that women share their knowledge and prior experiences to protect each other from the devastating situations. This knowledge is considered an essential aspect of disaster management (Islam & Walkerden 2014; Juran & Trivedi 2015; Chriest & Niles 2018; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019). Apart from building the raised platforms, these women also mentioned that they prepare a food supply for use during disasters. They make portable ovens for cooking and banana rafts for transportation during disasters. They use these boats to travel to find resources such as fresh water, and sometimes stay and cook on these boats. The participants also mentioned that they help each other move their valuable assets and resources.

Research has suggested that in adverse situations these women feel more united and help each other more, as they consider that they all need to confront the adversity together (Aldrich 2011b; Alam & Rahman 2014; Asteria et al. 2018; Chriest & Niles 2018; Tanjeela & Rutherford 2018).

6.3.2 Sharing Food, Medicine and Care

The study participants mentioned the support they received from their bonding networks for many of their essential components of life such as food, health care and shelter during natural disasters.

After my divorce, when my only daughter was just six years old, I received strong support from my parents, neighbours and relatives. I was having bad health as I had had two miscarriages before the birth of my daughter. My daughter was also very weak after she was born. During the last flood, my daughter was suffering from pneumonia. My family and neighbours supported me to take care of my child. I was unable to give her any health or medical care. My neighbours took care of my child as their own child. They shared their extra food, clothes and medicine. (Shima from Sirajganj, 17 years old with one child)

River erosion took the last of our land and our house. My relative took his boat to rescue us from our rooftop. Just after we got on his boat, we saw our homestead to go under the water. It was tragic, horrifying. If my relative had reached us any later, we would have gone into the water with our homestead. Now we are living in my relative's house. My parents gave me money to buy food, as we had no options for our livelihood. My husband went to Dhaka in search of work with one of his childhood friends who work as a taxi driver there. We are also looking for other work that will pay enough to rent a house. Because how long we can stay in my relatives' house? (Sayma from Bogra, 38 years old with five children)

These statements show that climate-migrant women receive their primary help from their family members, relatives and neighbours: their bonding networks (Islam & Walkerden 2014; Tanny & Rahman 2017; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019).

6.3.3 Safety and Security

The study participants reported that they received significant support for safety and security during disasters.

Thinking of the safety and security of our children, at night we take turns to sleep. During flood periods we tie our children and elder family members to ourselves so that they cannot fall down into the water. (Shahida from Dhaka, 24 years old with three children)

When we go to collect water or fuel, we do it as a group. Some of us stay with family members to protect them. When we come back we stay with the family members and they go to collect. We also guard each other's family members when we go out to use the toilet or to take showers or wash clothes. (Jamia from Sirajganj, 30 years old with three children)

Shelter houses don't have separate rooms or bathrooms for women and girls. Hence, we always try to be more alert and try our best to care for our adolescent girls to protect them from sexual harassment. (Shefali from Bogra, 40 years old with five children)

The participants also reported that when they lived in any shelter house or any open area during disasters, their personal and social safety and security become a crisis, and they try to protect each other (Jahan 2012; Nasreen 2012; Christ & Niles 2018; Ingham, Islam & Hicks 2018; Tanjeela & Rutherford 2018).

6.3.4 Diminishing Social Capital

Participants affirmed that during natural disasters, their bonding networks were the only assured supports that they possessed to confront the initial challenges (Islam & Walkerden 2014, 2015; Khan, Nabia & Rahman 2018; Ferdous & Mallick 2019). At the onset of natural disasters, the robustness of their bonding networks increased, because they felt that this adverse situation was a collective challenge for them and they needed to overcome it together. The mutual identification among the community members promoted and increased their social capital (Bourdieu 1986; Coleman 1990; Putnam 1995), and the disaster itself reinforced their bonding networks (Ansari, Munir & Gregg 2012; LaLone 2012; Islam & Walkerden 2014; Christ & Niles 2018). However, their life stories also revealed that when they experienced repeated disasters and severe loss of their assets, they became less able to help each other.

After my husband became paralysed, I received significant help from my family, relatives and neighbours. With their support, I was able to find work whenever any training or work was offered from the NGOs or local Government. So, I was able to raise my children. My children are all grown up now. They are busy with the challenges of their lives. Before their marriages, they could help us by giving money for our food and medicine. But since they are also suffering from the losses of their land and properties, they are trying to support their extended family members. I have lost my last property this time. Now I am feeling helpless, because I know my children are not in a position to help me anymore. (Shefali from Bogra, 40 years old with five children)

My daughters are all married now. My relatives and neighbours helped me to arrange the weddings of my children, and helped my sons to get labourer work. As I have no other means to live in my village, I had to come to stay with my son in Dhaka, who is working as a rickshaw puller and staying here with his family. I can see him struggling to meet the living costs in Dhaka. I feel I am a burden on them. I cannot ask for any necessities, because I know they will not be able to help me with them. (Ameena from Dhaka, 50 years old with six children)

I don't blame my children, but my fate. If I hadn't lost everything from erosion, I would now have adequate resources to take care of myself. My children are struggling with their own lives. They feel an obligation, and I feel myself as a burden on them. (Rashida from Dhaka, 50 years old with four children)

This year we have lost our land too. Now we are living in a rented room. Now no relatives come to our place to visit. They feel that if they come, they may need to give money to us. Even I feel embarrassed if they come because I cannot entertain them in my current situation. (Hamida from Bogra, 35 years old with four children)

Due to the constant river erosion, these women have become a marginalised group. Sometimes we see that these women don't want to help each other by sharing the external support that they receive during and after the disasters. (Key Informant IX, Non-Government Official, National NGO)

Above statements indicate that when all the families in the area experience the similar devastating loss of their resources, they become less capable of sharing their help. According to the evidence, the immediate family members were not always able to support these women. They became reluctant to maintain their relationships with each other out of embarrassment. In these circumstances, their bonding networks became weaker; consequently, their social capital decreased significantly. However, they stated that because they valued their relationships with their extended families, they tried to stay in their rural area as long as possible by downsizing their land and homestead and selling off their livestock, household assets and personal belongings. After losing their land and livelihood several times, they found themselves with no choice but to move to an urban area in search of work (Black, Kniveton & Verkerk 2013; Chriest & Niles 2018; Ingham, Islam & Hicks 2018; Khan, Nabia & Rahman 2018; Tanjeela & Rutherford 2018). Field observations also identified that some were compelled to relocate as they had become destitute, and some were still living in the village but planning to migrate to an urban area, as they had no way to stay in their village.

6.4 BONDING NETWORKS AFTER MOVING TO URBAN AREAS

The study participants stated that most of the time they come to Dhaka in search of work with the help of their bonding networks from their rural area.

I came to Dhaka with my family after we lost everything in river erosion. Many of the people I knew in the villages were flocking to work in the garment industry in Dhaka at the time. So, we came to Dhaka with them, and moved several times in search of work. (Ashma from Dhaka, 26 years old with three children)

I came to Dhaka with my husband with the help of the brother-in-law of one of my cousins. When we first came, in the first few weeks, we shared a room with this brother-in-law. It was very difficult, as he had his own family of six, and they lived in one room. Then, as soon as my husband started learning rickshaw pulling, we rented a room in a slum, where we shared two bathrooms and one kitchen with other 25 tenant families. (Halima from Dhaka, 34 years old with five children)

We had our own life in the village with our dear ones. Here we are living alone by ourselves in an unhealthy environment. We want open spaces, more air, and more light.

We do not want to stay here. In search of work we are moving here and there, this is a floating life. We do not have a shelter where we can stay and think of as our own. We could mix with other people. In the village, we could easily understand each other's needs. In Dhaka, we feel helpless; we cannot express our feelings to the local people. (Moriom from Dhaka, 27 years old with four children)

Life is comparatively much more expensive than rural life, and so we cannot afford the expense to live in urban residential areas. That is why we survive somehow by living in slums, where the living cost is comparatively lower, even after knowing all the difficulties of living with people who came from different places and cultures. (Shefali from Bogra, 40 years old with five children)

These indicate that after coming to Dhaka, the participants became busy, frequently moving from place to place in search of work. Therefore, they became detached from each other. According to these women, the major challenge they needed to confront in an urban area was being alone in an unfamiliar environment with minimal, or sometimes no, other resources (Mallick & Vogt 2012; McNamara, Olson & Rahman 2016; Stojanov et al. 2016; Carrico & Donato 2019). Furthermore, the participants reported that they could not afford the cost of living in an urban area. Therefore, they were always looking for cheap living arrangements (Ishtiaque & Mahmud 2011; Haque & Islam 2012; Ahmed 2016; Adri & Simon 2017; Christ & Niles 2018; Tanjeela & Rutherford 2018).

Some of the participants had left their children and parents back in the village.

We have no choice but to move to Dhaka, leaving my children with my in-laws so that my husband and I can earn money for our family and they can at least rent a house and live in the village. We cannot take them with us, as it is more expensive in Dhaka. (Rahima from Bogra, 34 years old with four children)

We had to leave all our family and relatives to come to Dhaka. We had a respectable life in the village. These river erosions not only washed away our land and livelihood but also washed away all our happiness of living with other family members, relatives and neighbours. We are not only living hand-to-mouth in Dhaka but also missing all the

happiness of living with our loved ones. (Florida from Dhaka, 30 years old with three children)

Their statements show their sorrow and pain from leaving their family members, relatives and neighbours in their rural area, to whom they are deeply attached. These women live a floating life in urban areas. They also find that in urban areas people adhere to different beliefs, values and cultures, and they cannot build the same sort of mutual trust and reciprocity with them, that they had in their villages. Moving to an urban area may offer them new opportunities for work, but can never replace their original social networks. Other studies also suggest that rural women in Bangladesh develop tight bonds with their extended families and friends, and that they find these bonds significantly valuable (Jahan 2012; Islam & Walkerden 2014; Islam et al. 2017; Christ & Niles 2018; Tanjeela & Rutherford 2018). They find it challenging to build new bonds of confidence with other people who do not necessarily share the same beliefs, values and culture (Ishtiaque & Mahmud 2011; McNamara, Olson & Rahman 2016; Islam & Shamsuddoha 2017; Carrico & Donato 2019).

The study participants spoke of many barriers to building new bonds with their new neighbours. Their interviews showed that they were now living an unsettled life, moving frequently in search of work and comparatively lower living costs. Therefore, they found fewer opportunities to become familiar with their neighbours and other people in their new situation, and thus could not build confidence or trust in their new acquaintances.

We came in Dhaka two years back, and within these two years we have moved five times to different slums. Because wherever we find any work opportunities, we move there. Here I hardly can trust anyone, so there is no question of sharing any personal emotions or feelings. In our rural area, we could share everything with our family, relatives, neighbours and friends, as we had trust in each other. (Moriom from Dhaka, 27 years old with four children)

In the village, we had pleasant unity and a feeling of togetherness; we shared each other's surplus with all our friends and families whenever there was any urgency or need. So, we never felt alone or deprived of any necessary aspects of life, such as food, medicine, clothes, shelter and livelihood. In Dhaka, I know very few people. I cannot trust them, as I do not know them accurately. So, I cannot share and receive anything

from anyone. Even if I want to share my sorrow or grief, I do not have anyone here as I had in my village. (Rashida from Dhaka, 50 years old with four children)

The participants also mentioned that they did not find the same reciprocity in the urban area that they had in their rural life. This is evident from their statements that in a rural area they could not form the trust, confidence or reciprocity that they used to enjoy in their rural area (Jahan 2012; McNamara, Olson & Rahman 2016; Chriest & Niles 2018; Tanjeela & Rutherford 2018; Carrico & Donato 2019). They also said that they found the urban culture different from their rural culture: people were busy with the struggles of life, and thus they had less time to spend together, to know each other. The participants found little or no opportunity for social affiliation, which deprived them of building the social networks that they used to enjoy in their rural life. According to scholars, social interactions are essential for building the networks that form social capital (Carpenter 2013; Adri & Simon 2017; Asteria et al. 2018; Chriest & Niles 2018).

Due to lack of the social capital (Bourdieu 1986; Coleman 1990; Putnam 1995), climate-migrant women in urban areas confront severe challenges, as they had been used to depending on their social networks in a rural area (Jahan 2012; Islam & Walkerden 2014; Ingham, Islam & Hicks 2018). Below are some statements of climate-migrant women that portray their challenges in urban areas due to their lack of social networks.

In the village, we had good unity and feelings of togetherness; we shared each other's surplus with all our friends and families whenever there is any urgency or need. So, we never felt alone or deprived of any necessary aspects of life, such as food, medicine, clothes, shelter and livelihood. But in our new settlement in the urban area, we severely miss those supports. Life becomes very hard for us without anyone's support. (Sokhina from Dhaka, 43 years old with three children)

In the village, if we had to go outside for anything like work, fetching water or washing clothes, we could leave our children with our neighbours. But here we can't trust anyone; so, we leave our children alone at home. I feel tension for my children when I go out to work. The slum environment is not safe to leave them alone. (Saleka from Dhaka, 34 years old with five children)

I need to work outside to earn money for the family. I live in constant fear as I leave my three children at home on their own. In the village, I could have help from my relatives and neighbours to take care of them, but here I have no help. My elder son is nine years, the second son is seven years, and the youngest daughter is six years. The slum environment is not safe for them. There is the fear of sexual harassment, child trafficking, addiction to drugs. So, I am in constant tension for my children's safety. (Ashma from Dhaka, 26 years old with three children)

My son is 12 years old. My husband and I both work from morning to evening. Instead of keeping my son at home alone, I sent him to work in a nearby teashop. I cannot afford the school fees for my children. I feel bad that I cannot give them a proper education or values. In the village, we could ask our friends or neighbours to help with education. Here, everyone is busy, and no-one has spare time for others. (Shahida from Dhaka, 24 years old with three children)

The participants mentioned different challenges that they now had to confront in urban life without the help of their bonding networks. The statements above depict the hardship and mental stress they felt regarding the upbringing and development of their children. According to them, life is expensive in an urban area, so they found no options but to work as long as possible to earn their family members' bread. Leaving their children at home without any adult supervision was a challenge for them, especially considering the unsafe slum environment.

They also spoke of challenges regarding learning and sharing their knowledge and work burdens in the urban area.

In the rural area, I used to enjoy sewing blankets in my free time with others at home. By doing this, I could earn money. But, here I don't have any time for that, and even if I can manage my time I don't have that companion, as all are busy with their livelihood. I know only a few people. Everyone is busy with his or her own work. We can rarely meet with each other. (Sokhina from Dhaka, 43 years old with three children)

In the village, we could learn new skills from each other. Our shared skills, like homestead gardening, knitting and crafting, were a good source of income. Here, we

know no one to help us to learn something. We also miss the helping hands of our family members and neighbours. We need to do all our house chores by ourselves along with our outside work to earn money. (Aysha from Dhaka, 26 years old with four children)

We feel lonely and scared when our children or we get sick. There is no one to take care of my children or me. We hardly get any chance to take off from work. We need to go to work no matter if I or someone else is sick at home. (Farida from Dhaka, 30 years old with three children)

These statements show that the participants felt deprived of learning and sharing new skills in the urban area. Their opportunities to generate other income were absent in the urban area. They also felt the pressure of shouldering the entire burden of work, as they could no longer share the work as they could in their villages. Their statements also indicate that their leisure time in an urban area was curtailed, as they needed to work all day long. They also worried about what would happen if they or their children became sick in an urban area. They said it was difficult for them to take care of themselves or others without the support of the bonding networks that they had in their rural life.

Besides the challenges mentioned above, climate migrant women also expressed sorrow while talking about the lack of dignity and social status they experienced in the urban area.

In the rural area, we had a dignified life. We had respect from our acquaintances. But here in Dhaka, we have a poor life, nobody knows us, nobody shows any respect to us. We feel like an outsider in this new environment. (Rashida from Dhaka, 50 years old with four children)

After we had become destitute by losing everything to erosion, we started to lose our good times also. Here in the urban area, we are living an isolated life, where we have no respect, no affection from others. (Shahida from Dhaka, 24 years old with three children)

We came to Dhaka 15 years ago. We had to suffer a lot to resettle in the urban area. I used to work as a housemaid, and then I found work as a cook in a restaurant. My

husband is a rickshaw puller. We wanted our children to continue their education, but my two boys were not interested. Due to the slum environment, my boys were learning bad habits, like smoking, and mixing with evil people who are involved with smuggling in the slums. So, we sent our boys to work in my distant cousin's shop in Dhaka, instead of staying alone the whole day in the slum environment. Now both of our sons are working as shop sellers and earning well. I used to take my daughter with me to my workplace, as the owner permitted me to bring her with me. In my workplace, she used to read books sitting beside me. One day the restaurant owner asked me to admit my daughter in a local school. The owner helped me with money, leftover food from the restaurant, sharing his family's extra clothes. My daughter is studying for a Bachelor degree with Honours in a college now. Managing her school/college fees was hard but seeing my daughter's interest, my owner helped us a lot, and we were able to manage it somehow. My two sons were earning well; they also helped us. I hope that my daughter will be well educated so that she will not have to dependent on her husband's family for all her needs. (Sokhina from Dhaka, 43 years old with three children)

These statements indicate that in urban areas, climate-migrant women feel isolated due to their lack of affiliations. However, if they find affiliation and support, they not only have help to resettle themselves but also to fulfil their desires. Other studies also indicate that due to the lack of affiliation and dignity, the people who migrate to new and unfamiliar settlements in the urban area feel marginalised in their new settlements (Bhugra & Becker 2005; Ishtiaque & Mahmud 2011; Ahmed & Ting 2014; Adri & Simon 2017; Chriest & Niles 2018; Chu & Yang 2019).

6.5 ASSISTANCE FROM AND LIMITATIONS OF EXTERNAL SUPPORT

The study participants, both the climate-migrant women and the key informants, spoke about the existence and importance of external support. The following three sections will describe the assistance from and limitations of external support before, during and after the natural disasters.

6.5.1 Supports Before Natural Disaster in Rural Area

Participants mostly mentioned the short-term support and the limited long-term support provided by local Governments and NGOs in the research areas (Islam & Walkerden 2015; Ingham, Islam & Hicks 2018; Momtaz & Asaduzzaman 2019). These forms of support can be considered to comprise linking networks for climate-migrant women in Bangladesh, and can play an essential role in recovery from natural disasters (Islam & Walkerden 2015; Khan & Rahman 2016; Islam et al. 2017). However, the study participants stated that such support was neither helpful nor adequate to fulfil their and their families' needs, as they saw it to be subject to gender insensitivity, inadequacy, biases, nepotism, delay and corruption (Islam & Walkerden 2015; Khan & Rahman 2016; Islam et al. 2017; Rahman 2018; Rahman & Tosun 2018).

Field observation found that some of the local NGOs, such as Bangladesh Rural Advancement Committee (BRAC), Grameen Bank, Manab Mukti Sanstha (MMS), and Thengamara Mohila Sabuj Sangha (TMSS) were active in the rural area. With the collaboration of local Governments, these NGOs were providing support in the forms of micro-credit loans and education, health and livelihood support programs in rural areas.

The credit programs allow us to loan money so that we can start a small business of our own. It sounds helpful for us indeed, but the reality is that after starting the small business, sometimes we cannot continue it due to our other workload at home. Then it becomes a huge pressure on us to repay the loan. (Shefali from Bogra, 40 years old with five children)

I took out a loan for buying and rearing a cow and goat. But due to my workload at home and the sickness of my children, I couldn't rear them properly. I thought I would rear the cow and sell the milk so that I could pay back the loan. Now I am not able to pay the money. (Jamila from Sirajganj, 30 years old with three children)

The food for work is a good source of income for us, though it is hard to be enlisted to receive the work. Last year I was able to participate because my mother-in-law was alive and she could take care of my children at home. (Saleha from Sirajganj, 29 years old with four children)

These statements indicate that due to their household work burden and the lack of anyone to take care of children and older family members at home, these women could not properly take advantage of micro-loans.

Participants also spoke of nepotism on the part of the local authorities when selecting people for the available programs supported by local Governments and NGOs. Some other studies also mention nepotism and corruption on the part of local Governments' and NGOs' support programs in Bangladesh (Islam & Walkerden 2015; Islam et al. 2017; Ingham, Islam & Hicks 2018; Rahman 2018). Some participants also mentioned that the available support was inadequate for their needs, and that the programs lacked gender sensitivity.

The local Government and NGOs provide some livelihood programs, such as husbandry training and riverbank maintenance. The trainers are male and these training programs are provided to the male family members also. So, we feel hesitation about attending them. (Shima from Sirajganj, 17 years old with one child)

Most of the support is for general purposes such as reproductive health, child health, primary education and microcredit. There are few services for this area's water and sanitation issues. However, it is important to mention that this support is inadequate for the villagers' requirements. Additionally, there is a lot of room to make the support more gender-sensitive. (Key Informant V, Non-Government Official, International)

In Bangladesh, rural communities are strong with respect to their social capital. Regular natural disasters are suppressing the social capital of these rural communities. Therefore, it is essential to strengthen their social capital by enriching their social networks. (Key Informant II, Government Official)

To support the vulnerable communities like environmentally displaced communities, we need to focus on capacity-building at the ground level of public services and strengthening social capital at grassroots level, as the lives of these people, particularly the rural women, depend significantly on their close ties. (Key Informant VII, Researcher, Non-Government Official, National NGO)

6.5.2 Supports During Natural Disasters in Rural Areas

In addition to the more general support for rural areas discussed above, both the climate-migrant women and the key informants mentioned the crucial importance of external support for survival during disasters (Islam & Walkerden 2015; Islam et al. 2017; Chriest & Niles 2018; Tanjeela & Rutherford 2018).

In villages, we receive external support. For example, during floods, there are early-warning systems that warn us about the flood level. Sometimes we also receive relief items, like clothes, food, medicine, oral saline and blankets. (Sayma from Bogra, 38 years old with five children)

During floods, we receive relief items from the Government and NGOs. Mostly they are food items, like rice, lentils, puffed rice, sugar, salt, oil etc. (Parvin from Sirajganj, 28 years old with three children)

In rural areas during floods, we become helpless. Along with relief items, sometimes we receive money to relocate our belongings to a safe place and resettle after the flood. (Farida from Dhaka, 30 years old with three children)

There are significant external supports to reduce the sufferings and vulnerabilities of the people, especially for the woman and children in disaster-prone areas in Bangladesh. However, due to the increasing severity and frequency of natural disasters, we are working on how to support them more. (Key Informant I, Government Official)

There are disaster preparedness programs, early warning systems, and relief distribution. NGOs are working with the local authorities to provide support, including financial support for shifting people to shelter in a safe place. NGOs also provide support to rebuild their shelters and sanitary latrines. (Key Informant X, Non-Government Official, National NGO)

However, climate-migrant women also mentioned some of the flaws of this support.

We stay inside the house, and can't receive the information disseminated by the early-warning systems, as it is mostly announced in the marketplace area. We come to know from our male family members or neighbours. (Sayma from Bogra, 38 years old with five children)

I heard that there were some meetings organised by the NGOs for early action and disaster preparedness. I couldn't manage the time to attend those, as I needed to finish my household chores. I only went to a program once because my husband brought me along. (Parvin from Bogra, 28 years old with three children)

Participants mentioned that NGOs take forecast-based early action before the disaster approaches for increasing awareness among the villagers about the need prepare. However, due to climate-migrant women's everyday work burden and limited mobility, they cannot participate in all the programs organised by these NGOs. Additionally, climate-migrant women also mentioned the delay, corruptions, nepotism and gender insensitivity associated with the external support, including relief distribution and donations for settlements or shelter arrangements.

Relief comes after disasters hit us badly. We need to wait for a long time to receive the relief and unfortunately the amount of relief we receive only sustains us for four or five days. (Saleha from Sirajganj, 29 years old with four children)

The local Government. and NGOs are playing vital roles in reducing the sufferings and vulnerability of those affected by floods and erosion in these areas. However, it has been reported many times that due to the formal procedures and approval, there are delays in reaching the disaster-affected area. Therefore, it is important to have prompt action. The number of relief items should also be increased so that they can sustain families for longer. (Key Informant VI, Non-Government Official, International NGO)

We heard from the radio news that a huge amount of relief has been sent to our area. We barely receive any of that. Relief items are distributed among the local leader's favourite people, including their campaigners, voters, relatives and friends. My husband is sick and cannot serve the local leaders; so, we have no chance of receiving any assistance. (Shefali from Bogra, 40 years old with five children)

We also came to know about those issues [nepotism in making the list of vulnerable people in local areas, and corruption in the distribution of relief items] and we think there should be more transparency and accountability in making lists and distributing relief and rehabilitation items. (Key Informant III, Government Official)

More collaboration between NGO and local Governments is very much required for establishing a fair process to eradicate nepotism and corruption in the delivery of relief items. (Key Informant VIII, Non-Government Official, National NGO)

Poor women often tend to collect relief, if anything is on offer in the neighbourhood. However, they pay a substantial personal price by standing in a queue for hours in the waist- to chest-high floodwaters. A woman receiving relief like this is not considered to be “respectable” according to social norms, and those queuing for relief face hardships in post-flood normal life. To avoid such insulting treatment by others in society, sometimes some of them accept whatever consequences the flood has and do not accept relief along with other poor people. (Key Informant V, Non-Government Official, International NGO)

These statements depict the urgency of taking necessary steps to maintain a fair process for the distribution of external supports to disaster-affected people, including climate-migrant women in Bangladesh.

6.5.3 Support After Migration to Dhaka Due to Natural Disasters

The climate-migrant women in this study also shared some of their experiences with the available external support in their new urban homes. They said that they receive limited external support when they move into the urban area. Most of the climate migrant women eventually settle in urban slums, due to their lack of resources (Ishtiaque & Mahmud 2011; Ahmed 2016; McNamara, Olson & Rahman 2016; Adri & Simon 2017). The slums in Dhaka receive no direct support from Government agencies, and what they receive from other sources is inadequate and inappropriate (Ishtiaque & Ullah 2013; Ahmed 2016; McNamara, Olson & Rahman 2016; Adri & Simon 2017).

We do not receive any help from the Government. People from NGOs come to the slums to provide health support. They also have education support for slum children. But we can't get the benefits because we have moved to several places, including slums and the railway station. As we cannot be certain of living in one place, we cannot receive the benefits of this support. (Sokhina from Dhaka, 43 years old with three children)

Rural-urban migration NGOs provide health and education support to the slum areas in Dhaka. However, this health and education support is not nearly adequate to support these destitute people in living a better life. We must understand and provide support based on their context of migration, gender and age. (Key Informant X, Non-Government Official, National NGO)

Rural-urban migration is a regular phenomenon in Bangladesh. Due to climate change impacts, more people are moving towards urban areas; this is becoming a big challenge for major urban areas like Dhaka. However, to differentiate these migrant people as “climate migrants” or “environmentally displaced people” is essential to understanding their needs and supporting them accordingly. To do so, we need more attention from scholars and practitioners. (Key Informant IV, Government Official)

Only few NGOs are working with international migration. However, there is even less attention given to the internal migration or rural-urban migration in Bangladesh so far. The urban structure is not ready yet to handle the overflow of internal migration. It is already predicted that more people will be displaced due to climate-change impacts in Bangladesh.” (Key Informant VI, Non-Government Official, International NGO)

Attention has been given more to coastal areas for disaster management. People suffering from river erosion have not received enough attention yet, though it is one of the most devastating natural disasters in Bangladesh. Therefore, it is essential to focus on these people to understand their challenges and requirements. (Key Informant I, Government Official)

The Bangladesh government is committed to the [UN's] Sustainable Development Goals. Their expansive attribution of responsibility to protect women's wellbeing should be welcome in an era where the donor agencies, large multinational companies

and other stakeholders are in a better position to support the functioning of capabilities than many states. (Key Informant VII, Non-Government Official, National NGO)

Government, NGOs and other development agencies should work together to reach the Sustainable Development Goals, which have specific implications for women's wellbeing and climate-change issues. Bangladesh will fail to achieve the SDGs without coordinated effort. (Key Informant III, Government Official)

This statement indicates that some support from the Government and NGOs is available for migrants to Dhaka. This also indicates that due to the hardship of urban life, climate-migrant women lack stable living arrangements. Because of maintaining only short tenancies in any one place, they also become ineligible to receive services in that area. Thus the support for climate-migrant women from external sources are flawed and inadequate, first in their rural homes and then, even more so, when they arrive in the cities. These findings coincide with the declarations of other scholars like Islam and Walkerden (2015), Adri and Simon (2017), Ingham, Islam and Hicks (2018), Rahman (2018), and Rahman and Tosun (2018). However, the evidence also indicates that more extensive support is required from external sources to reduce the vulnerabilities of climate-migrant women in Bangladesh.

It is important to focus on internal migration in Bangladesh due to the increasing impacts of climate change, as it continues to increase and the urban structure is already overburdened (Ahmed 2016; McNamara, Olson & Rahman 2016; Adri & Simon 2017; Bernzen, Jenkins and Braun 2019; Carrico & Donato 2019). It is also important to identify people who migrate from one to another place due to climate-change impacts. This might help in understanding their issues and challenges and developing appropriate support for them.

6.6 SOCIAL CAPITAL AS AN INTANGIBLE RESOURCE TO MAINTAIN CAPABILITIES

According to Nussbaum, the capability of life refers to the opportunities to develop and enjoy a human life of standard length. Explicitly, the author defines it as "...being able to live to the end of a human life...not dying prematurely or before one's life is so reduced as to be not worth living" (Nussbaum 2011, p. 41). In this sense, the first sub-theme, Getting Resources Through Family and Neighbour Grids, affirms that this capability has been reached mainly

due to the mutual trust and mutual reciprocity evidenced in the data. The security provided by their bonding and bridging networks allows women to enjoy life, interacting and sharing with others every positive or negative moment. Likewise, the fact of sharing the same cultural and religious beliefs and values is a guarantee of mutual understanding, and an assurance that their useful resources are safely placed. These women can develop their lives undertaking the responsibilities that they are expected to manage. Thus, it can be assumed that climate-migrant women maintain a socio-cultural construction of gender (Islam 2014; Juran & Trivedi 2015; Tanny & Rahman 2017; Tanjeela & Rutherford 2018), based on the substantial nexus with their family members and neighbours.

These links become activated during natural disasters. The interview data affirms that during disasters, only the support of parents and neighbours can help to maintain the bodily health of these women, given that they support and help families in distress because they share similar beliefs and values. These outcomes agree with those of Islam and Walkerden (2014), Sanyal and Routray (2016), and Alam et al. (2017) regarding the instrumental value that bonding and bridging networks have in facilitating the recuperation and resilience of people affected by natural disasters in Bangladesh. However, as time passes, the same bonding and bridging networks become weak and perform less satisfactorily, because the catastrophe has touched every family. These outcomes coincide with statements by Islam and Walkerden (2014) referring to the general effects experienced by the whole community, impede individuals' ability to offer the same type of help and support. Thus, it can be assumed that due to natural disasters and the resulting material losses, women are also losing their life stability through the decline of parents and neighbours' support, as shown in the second sub-theme.

In addition to the weakening of the support from bonding and bridging networks as disaster response and recovery periods persist, the lack of health professionals and adequate health installations, as this study's field observations have noted, also have negative effects on climate-migrant women's health and wellbeing. The participants' life stories show that when they are affected by floods and river erosion, they suffer more from various diseases and become less able to get proper treatment. Moreover, they stated that Government hospitals are not convenient for climate-migrant women, because of the distance, the low number of beds and the unavailability of doctors. Private medical assistance becomes impossible for the women to perform; thus, they resort to pharmacies as the dominant healthcare source in both

urban slums and rural areas, findings that coincide with those of McNamara, Olson and Rahman (2016), who made the same observations in a slum in Dhaka.

Furthermore, even if medical and education facilities exist in their new homes, these women find it challenging to spend money on anything other than essential items like food and shelter. In urban areas, women cannot afford to maintain minimum health care, medical services or clean accommodation. People living in slums are deprived of health services because of inadequate facilities with high prices and low capacity to deliver services; they rarely go to any medical centre or hospital, preferring instead to consult with nearby medicine shops and buy medicine according to the shop owner's advice.

The lack of proper treatment keeps women unhealthy; this, in turn, reduces their income level. Likewise, untreated diseases leave traces that are evident in their poor health, sickness, malnutrition, low weight birth, miscarriages, perinatal mortality and the illiteracy of their children (Neumayer & Plumper 2007; Adri & Simon 2017; Razzaque et al. 2020).

The life expectancy for climate-migrant women is thus severely reduced, particularly during and after different natural disasters. The climate-migrant women in this study believed that they could have better health and less disease if they did not have to face the challenges of extensive erosion and regular flooding. Moreover, their mental and emotional health often suffer for lengthy periods as they struggle to recover from the shock of natural disasters, although they do have a strong capability to form and maintain familial and social attachments that provide them with love, confidence, support and reciprocity.

Similarly, during or after natural disasters, the data from this study highlights climate-migrant women's ability to develop attachments, as they stressed in interviews that compassion, gratitude and care were always present. Keeping and maintaining these attachments allowed the women to withstand frequent natural catastrophes.

By the same token, when natural disasters arrive, the women grieve at the loss of old habits and family or neighbour grids due to forced movement. These connections were crucial in the growth of climate-migrant women's capability of emotion. By losing them, climate migrant women remain in an unprotected and helpless situation that affects their ability to develop pleasant emotions towards life.

Concerning the capability of climate migrant women's freedom to act, the data supported the affirmation that these women could not attain freedom of choice, freedom of education or freedom to think and reason. This was true for the capability of affiliation, given that the data had shown the drastically reduced opportunities these women now had for developing their lives, especially during and after natural disasters, once their social networks became unable to provide an initial level of help and support. During natural disasters, the capability of freedom become severely reduced, and it is focused solely on survival; in other words, once their material properties have been lost, their social relationships are the only asset. Therefore, climate migrant women have no other choice but to hold on to these ties with family and neighbours to survive and try to rebuild their lives. This situation is repeated countless times for different families every year.

Moreover, during and after a natural disaster, Bangladeshi women are unable to develop a relationship with other species or have control over their environment. The opportunities to build these types of capabilities have evaporated in their new life circumstances.

The data from this study has shown that climate-migrant women were able to establish linking networks with national and international organisations, specifically through seeking assistance in the form of loans and support for land cultivation and other projects. These linking networks allow Bangladeshi women and their families to develop new projects and search for a better future. It should also be noted that the Bangladeshi women's linking networks were vulnerable after a natural disaster, because of the impossibility for these women to maintain the initial agreement with the organisation. Likewise, the priorities that such organisations could have in relation to the general population after a natural disaster may have caused the support to be delayed.

6.7 CONCLUSION

This chapter described the value of social capital for quality of life, highlighting the importance of social networks in the lives of climate-migrant women in Bangladesh. It noted that mutual reciprocity and trust along with the beliefs, values and cultural traits of rural life create robust relationships among climate-migrant women that form a social network that acts as social capital. This chapter identified that bonding and bridging networks compose the social capital of climate-migrant women in Bangladesh, and that both these networks are

characterised by mutual trust, confidence and reciprocity. These women feel united in rural life, and they find these secure bonding networks crucial for maintaining their lives.

This chapter also described the support from bonding networks during natural disasters. During natural disasters, these women felt more united and helped each other to confront adversity. These women relied on their social networks as their primary support to survive the catastrophe. However, this chapter also showed that recurring natural disasters exacerbate the loss of their resources and make them unable to help each other, which depletes their social capital. The chapter also examined climate-migrant women's bonding networks after their migration to an urban area. Due to the hardships of urban life, climate migrant women live an unstable life, without the affiliations with others that had constituted their social capital when they lived in villages. Moreover, because they moved frequently from place to place in search of work and affordable housing, they also become ineligible for the limited external supports available in cities.

This chapter also found that external supports could play a more significant and effective role in the lives of climate-migrant women if they could be purged of from corruption and nepotism, and made gender-sensitive and adequate for their needs. Finally, this chapter illustrated that social capital is an intangible resource for these women to maintain their capabilities. In the absence of natural disasters, social capital is one of their most precious assets for making the most of their limited capabilities. These women value the support that their bonding networks offer. However, during natural disasters and after moving to urban areas, where they have no social capital, they find themselves significantly deprived of the functioning of capabilities, which in turn makes them severely vulnerable to any further challenges.

CHAPTER SEVEN

INTEGRATION OF RESULTS AND THEORY

7.1 INTRODUCTION

This chapter summarises the overall findings of this thesis by highlighting the three themes from Chapters 4, 5 and 6. Applying both the capabilities approach (Nussbaum 2011) and the social capital theory (Bourdieu 1986; Coleman 1990; Putnam 1995) and analysing the overall findings (Figures 7.1, 7.2 and 7.3), this chapter discusses the role of social capital for the development of the capabilities of climate-migrant women in Bangladesh. This chapter identifies the major forces in the women's lives and shows the complexity of the paths from the debilitating effects of these forces to capability for climate-migrant women. Further, it discusses key insights about the relationship between social capital and the capabilities approach. This chapter consists of three sections. Section 7.1 introduces the chapter. Sections 7.2 reflects on the study findings in light of Nussbaum's capabilities model and social capital theories, with the subsections 7.2.1, 7.2.2 and 7.2.3 considering the situations of climate-migrant women in Bangladesh before, during and after disasters to summarise and justify the overall research findings of this thesis. Finally, Section 7.3 concludes the chapter.

7.2 REFLECTIONS ON THE STUDY FINDINGS IN LIGHT OF NUSSBAUM'S CAPABILITIES FRAMEWORK AND SOCIAL CAPITAL THEORIES

Bangladesh is regarded as one of the most vulnerable countries to climate change (Nishat et al. 2013; Alam et al. 2017; Bernzen, Jenkins & Braun 2019). Nearly every year a considerable area suffers natural disasters including floods, droughts, cyclonic storm surges and particularly river erosion. These disasters cause significant loss of life and damage to infrastructure and economic assets, particularly for the affected women (Arora-Jonsson 2011; Ferdous & Mallick 2019; Momtaz & Asaduzzaman 2019) According to Shetu et al. (2016) and Khan, Nabia and Rahman (2018) river erosion is a slow, silent disaster, ranking the most costly in Bangladesh. A previous study has indicated that 15–20 million people are at risk from the effects of erosion in Bangladesh (Mutton & Haque 2004).

The study has examined the vulnerabilities and survival strategies of climate-migrant women in Bangladesh: those who migrate from rural to urban areas due to the impacts of climate

change (Section 1.2.3). As presented in Section 2.1, this study is based on two theoretical approaches: Nussbaum's capabilities approach (Nussbaum 2011) and the social capital theory (Bourdieu 1986; Coleman 1990; Putnam 1995). Here, Nussbaum's (2011) capabilities approach has been interpreted as a normative framework where the wellbeing of the climate-migrant women of Bangladesh is a significant concern and the central point to observe. This approach also sheds light on how capabilities enhance the wellbeing, agency and empowerment of the women in the studied areas to survive along with their family members. The study has used the capabilities approach not just to identify the disadvantaged situations of climate-migrant women in Bangladesh, but also to provide recommendations to reduce their vulnerability and enhance their wellbeing, agency and empowerment. They also study refers to what they value in life, and gives insights into the capabilities that they can (or cannot) achieve in the context of Bangladesh. Accordingly, this study has included three themes, as discussed in Chapters 4, 5 and 6 and examined in Sections 7.2.1, 7.2.2 and 7.2.3 to present the overall outcome of the study results of this thesis.

7.2.1 The Intersection of Culture, Subsistence Rural life, and Social Capital under Pre-disaster Conditions

Figure 7.1 shows the pre-disaster living conditions of Bangladeshi climate-migrant women in rural areas. It represents culture and religion (red), the subsistence of rural/village life (green), social capital (yellow) and external support (orange); the dotted arrow illustrates a weaker relation to the women's lives. Accordingly, Figure 7.1 indicates that culture and religion limit these women's lives. They have limited opportunities and external supports to improve their quality of life. In contrast, social capital helps these women to maintain a minimum quality of life. The following paragraphs explain the four dimensions of Figure 7.1.

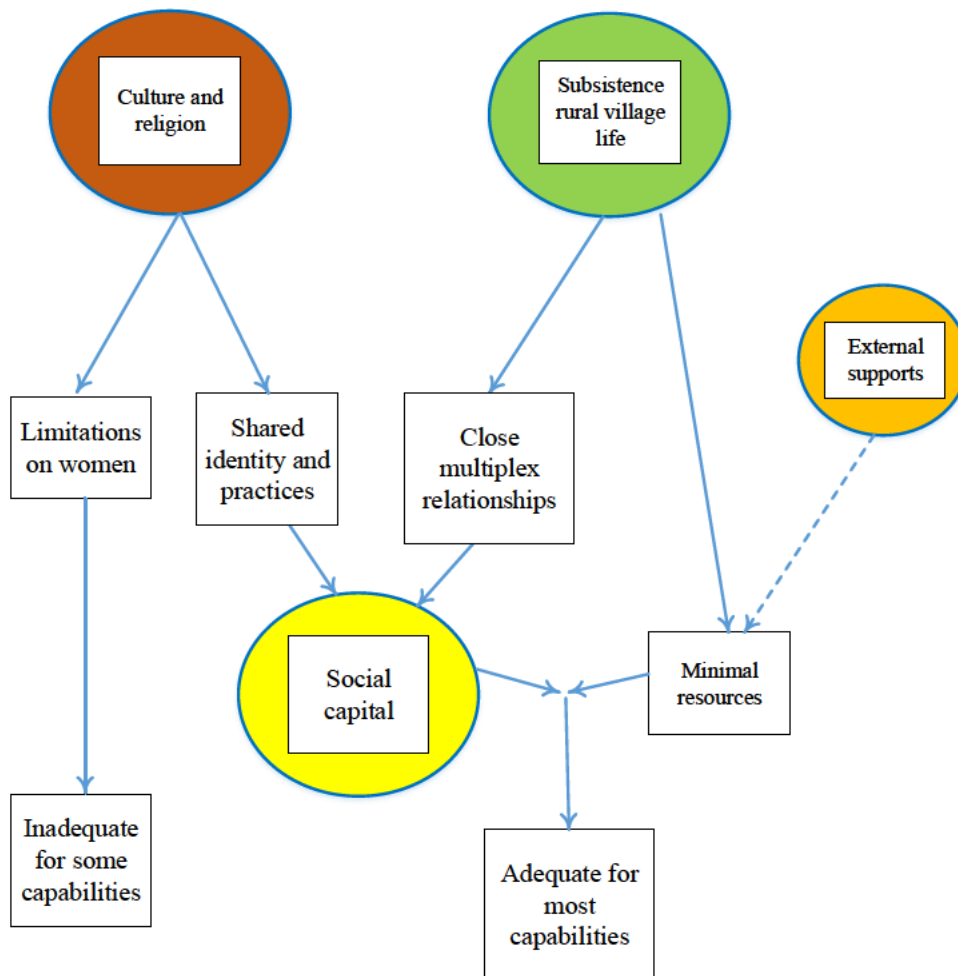


Figure 7.1: Bangladeshi climate-migrant women’s subsistence culture in rural areas

The first path shows the connections of climate-migrant women’s cultural and religious norms and values with the limitations. The limitations on women also connect to their inadequate capabilities. This indicates that climate-migrant women living in rural areas are restricted by their cultural and religious norms and values. The cultural and religious limitations impede many of the capabilities that affect their quality of life. The study results presented in Sections 4.4 and 4.5 showed that these women’s lives are embedded in their culture and religious norms and values. The results also indicated that culture and religious issues limit their lives. For example, they grow up with the belief that they should be respectful and follow the suggestions of males and older people in the family. They are also taught to follow religious rules and values. Therefore, according to these cultural and religious customs, they are expected to behave in a submissive manner throughout their lives.

As discussed in Section 2.2, research has shown that the submissive role of rural Bangladeshi women impedes their freedom of choice and decision-making (Kabeer 1990; Nasreen 2012; Tanny & Rahman 2017; Ingham, Islam & Hicks 2018; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019). These studies have also indicated that the gender roles of rural Bangladeshi women impose a disproportionate burden of work upon them. As mentioned in Section 4.4, climate-migrant women are the primary carers of the family. They are solely responsible for playing the roles of homemaker and carer for family members, including their children and older family members. This work burden, including their mental and emotional labour, cause them to suffer from health issues and, together with the norms of submissive behaviour they feel compelled to follow, limit their resources and opportunities to maintain quality of life in rural areas (Islam & Sultana 2006; Nasreen 2012; Asaduzzaman et al. 2015; Juran & Trivedi 2015; Tanjeela 2015; Islam & Shamsuddoha 2017).

Further, both the cultural and religious constraints on Bangladeshi climate-migrant women restrict their mobility (Section 2.2). The study results (Section 4.5) indicated that these women could not leave their homes without the permission of their husband or male guardian and the company of a male family member. Scholars have suggested that these cultural and religious issues create challenges for the women in Bangladesh and threaten their health, education, mobility, land ownership and empowerment (World Bank 2011; Gonzales et al. 2015; Banerjee & Jackson 2017; Islam 2017; Islam et al. 2017; Ferdous & Mallick 2019).

The cultural and religious limitations on Bangladeshi climate-migrant women deprive them of the freedom of choice needed to gain most of the capabilities in Nussbaum's list (Nussbaum 2011). As shown in Section 4.6, these women are deprived of several capabilities such as bodily health and integrity; senses, imagination and thought; emotions, practical reasoning, and play; and control over one's environment. Section 4.6 also showed that they have a limited capability of affiliation (Nussbaum 2011). As mentioned in Section 2.2, in a male-dominated society women can take advantage of a limited affiliation within their domestic sphere in a rural area (Nasreen 2012; Juran & Trivedi 2015; Tanjeela 2015; Islam 2017; Tanjeela & Rutherford 2018). However, the study results (Chapter 4) also revealed that these women accept the restrictions as part of their cultural and religious customs. They accept their submissive role and the domination of their male family members. This finding is supported by other research (Nasreen 2012; Juran & Trivedi 2015; Tanjeela 2015; Ferdous & Mallick

2019). Similarly, Roy and Venema (2002) found that the survival of women in India depended on their ability to deal with social and environmental challenges. Overall there is a clear dynamic whereby climate-migrant women's cultural and religious norms and values impede their capabilities to live a normal life.

However, such constraints on women's lives are not a necessary interpretation of Islam, and many Muslim women around the world are well-educated and playing a significant role in important sectors such as knowledge, healthcare and social welfare (Bailey, Cowling & Tomlinson 2015; Pandey 2015; Haque 2016; Tariq & Syed 2017; Tanjeela & Rutherford 2018). Within the capabilities approach, cultural and religious progress provides considerable potential for enabling and empowering climate-migrant women's survival capabilities. Sen (1999) notes "Different aspects (women's earning power, and economic role outside the family, literacy and education, property rights and so on) may, at first sight, appear to be rather diverse and disparate. However, what they have in common is their positive contribution in adding force to women's voice and agency – through independence and empowerment" (pp. 191-192).

The question arises: what does it take for the cultural and religious constrictions experienced by the women in this study to be replaced by progressive values that would empower poor women to better survive the climate crises they face?

The second path shows the connections of climate-migrant women's culture and religion with their shared identity and practices. This connects with their social capital, which in turn assists them in reaching at least a minimum level of adequacy for many of the capabilities, despite the minimal resources available in rural areas. In keeping with the research discussed in Section 2.6 showing that shared cultural and religious influences shape the shared identity and practices that generate social capital (Islam & Walkerden 2014; Juran & Trivedi 2015; Ahmed 2017; Christ & Niles 2018; Tanjeela & Rutherford 2018; Zaber, Nardi & Chen 2018), Sections 4.3, 4.5 and 6.2 demonstrated that cultural and religious issues contributed to constructing a common identity and practices for the women in this study.

The third path shows the connection of subsistence rural village life with social capital through close multiplex relationships. The study results showed the patterns of daily living and social behaviour that is maintained in rural areas (Section 4.3); Section 6.2 also depicts

the close relationships they form as part of rural life. As found in other research, these women treat their neighbours and friends like family and share their daily chores, responsibilities, knowledge and emotions (Alam & Rahman 2014; Islam & Walkerden 2014; Juran & Trivedi 2015; Islam 2017; Asteria et al. 2018; Ferdous & Mallick 2019).

The support from these close multiplex relationships help climate-migrant women to build social capital in rural areas. The study results showed that these women have a strong attachment amongst themselves that represents their sisterhood relationships (Section 6.2 and 6.6). The relationships help them to create and maintain robust social capital. For example, when a mother is absent, the neighbours take care of the children. They help each other to perform extra household chores, and teach each other agricultural and livestock-rearing skills. Accordingly, instead of being constrained by the limited resources available in their subsistence circumstances, they enhance their capabilities and develop new ones by using their affiliations as social capital. Lollo (2013) states that social relationships, together with other resources available to women, contribute to defining the set of opportunities and capabilities that they mobilise to reach their desired life. Similarly, Mubangizi (2003) emphasises that the notion of the social capital theory provides an understanding of the lives of poor and marginalised climate-change victims, and of their survival strategies. This scenario is also supported by other studies (Rawlani & Sovacool 2011; Islam & Walkerden 2014; Kim et al. 2017; Chriest & Niles 2018; Tanjeela & Rutherford 2018). Similarly, Sections 6.2 and 6.6 showed that close multiplex relationships in rural life build social capital that helps women to expand their limited capabilities instead of being constrained by limited resources.

Within the capabilities approach, social capital is most closely aligned with the capability of affiliation (Nussbaum 2011): the ability to care for, recognise and show concern for each other within the society. The study showed that climate-migrant women enjoy these affiliations with their neighbours and friends; specifically, Chapter 6 depicted the robust ties among these women and showed how they enhance the women's social capital.

What seems to be missing from Nussbaum's description of affiliation as one of the 10 capabilities is its ability to have a multiplier effect on other capabilities, including life itself and bodily health; bodily integrity; senses, imagination and thought; emotions; practical reasoning; affiliation; other species; and play were all facilitated through social capital. Social

capital can ensure quality of life in rural areas in ways that align with the women's cultural and religious norms and values. The climate-migrant women in this study could augment many of their limited capabilities with each other's cooperation and support. Sections 6.2 and 6.6 showed that social capital helped the functioning many of their capabilities through sharing the household work, sharing knowledge and selling and exchanging surpluses. Earning extra amount money can be key to improving their wellbeing (Alston & Akhter 2016; Ahmed 2017; Islam 2017; Islam & Shamsuddoha 2017; Tanjeela & Rutherford 2018; Momtaz & Asaduzzaman 2019).

Further, as mentioned in Sections 1.5 and 2.7, several studies have shown that social capital can produce a variety of positive outcomes beyond economic advantages, such as improved health and wellbeing (Leonard & Onyx 2004; Halpern 2005; Horsfall, Cleary & Hunt 2010; Ansari, Munir & Gregg 2012; Hoque & Haque 2013). Islam and Walkerden (2014) and Cummings et al. (2018) recommended social capital as an essential resource for rural women in Bangladesh, as it helps them achieve most capabilities to an adequate level despite the reality of minimal resources in rural areas.

Despite robust social capital, however, the climate-migrant women in this study remained deprived of the capabilities described in the first path in Figure 7.1. They could not make decisions or own land or other resources due to the prevailing religious and cultural restrictions (Islam & Sultana 2006; Juran & Trivedi 2015; Khan et al. 2016; Islam & Shamsuddoha 2017; Ingham, Islam & Hicks 2018; Ferdous & Mallick 2019). As a result, they could obtain the capability of control over one's environment (Nussbaum 2011).

The fourth path shows a dotted line that represents the weaker and/or insufficient connection of external support (e.g. from local Governments and NGOs) to the minimal resources. The study results (Section 6.5) indicated that the women consider the external support in rural areas to be inadequate, gender-insensitive, corrupt and biased. For example, microcredit programs in rural areas are in high demand, as they are designed and intended for rural women (Islam & Walkerden 2015; Banerjee & Jackson 2017; Momtaz & Asaduzzaman 2019; Akhter & Cheng 2020). However, the study results (Section 6.5) showed that the demands of household work along with lack of other support such as childcare impedes these women from using the loans effectively. The livelihood training programs are also alleged to be gender-insensitive, considering the rural social values and norms (Islam & Walkerden 2015;

Rahman 2018; Rahman & Tosun 2018; Tanjeela & Rutherford 2018; Momtaz & Asaduzzaman 2019).

Further, the external support mostly addresses family planning, reproductive health and education, which do not meet the needs of rural people. Moreover, the study results (Section 6.5) showed that this support are believed to be corrupt and biased in the selection and distribution process. For example, the Government of Bangladesh provides food-for-work programs in rural areas. Local authorities' nepotism in selecting people for this program deprive women of the support. Other studies have also examined the flaws in external support programs (Islam & Walkerden 2015, Islam et al. 2017; Chriest & Niles 2018; Tanjeela & Rutherford 2018; Momtaz & Asaduzzaman 2019). Therefore, external resources make an insignificant contribution to the minimal resources of rural life.

In summary, Figure 7.1 illustrates that cultural and religious issues constraint climate-migrant women's lives. They become deprived of their freedom of choice and resources to achieve some of their capabilities. However, shared religious identification and the close multiplex relationships developed in their village life facilitate the growth of social capital. Social capital then significantly helps the functioning of many of their capabilities so they can live their lives in an adequate manner that aligns with their religious and cultural values despite difficult circumstances and minimal external supports.

Finally, this study finds an inconsistency with Nussbaum's (2011) finding of a set of fundamental human capabilities that are held to be essential to an extraordinary human life (Section 2.5). She also states that her lists of human capabilities can be convincingly argued to be of central importance in any human life, whatever else the person pursues or chooses. This study showed that due to cultural and religious issues (Section 4.6), not all the capabilities are realistically achievable for Bangladeshi climate-migrant women. Therefore, this study claims Nussbaum's assertion that the capabilities are universal values, even in the absence of an expressed consensus; this western feminist position contradicts the opinions of oppressed women themselves. In other words, this study corroborates other research claiming that Nussbaum's capabilities list reflects western views (Stewart 2001; Menon 2002; Okin 2003; Alkire 2005; Kim 2012). Instead, this study states that while climate-migrant women in Bangladesh have limited opportunities and external support to ensure a full quality of life in rural areas, social capital helps them to maintain a minimum quality of life.

7.2.2 Encountering the Ramifications of River Erosion in Rural Areas in Bangladesh

Figure 7.2 portrays the situational outcomes of climate-migrant women during natural disasters. It shows five elements: river erosion (blue), culture and religious issues (red), social capital (yellow), destruction of land and livelihood (green) and external support (orange). The dotted arrows indicate a fragile connection between external support and the destruction of these women’s land and livelihoods. Accordingly, it indicates that during natural disasters, climate-migrant women’s increased social capital helps them to confront the challenges. However, the destruction of land and livelihoods reduces their capabilities. Eventually, their decreased social capital, caused by repeated natural disasters and lack of adequate external support, reduces their capabilities further and affects their quality of life significantly.

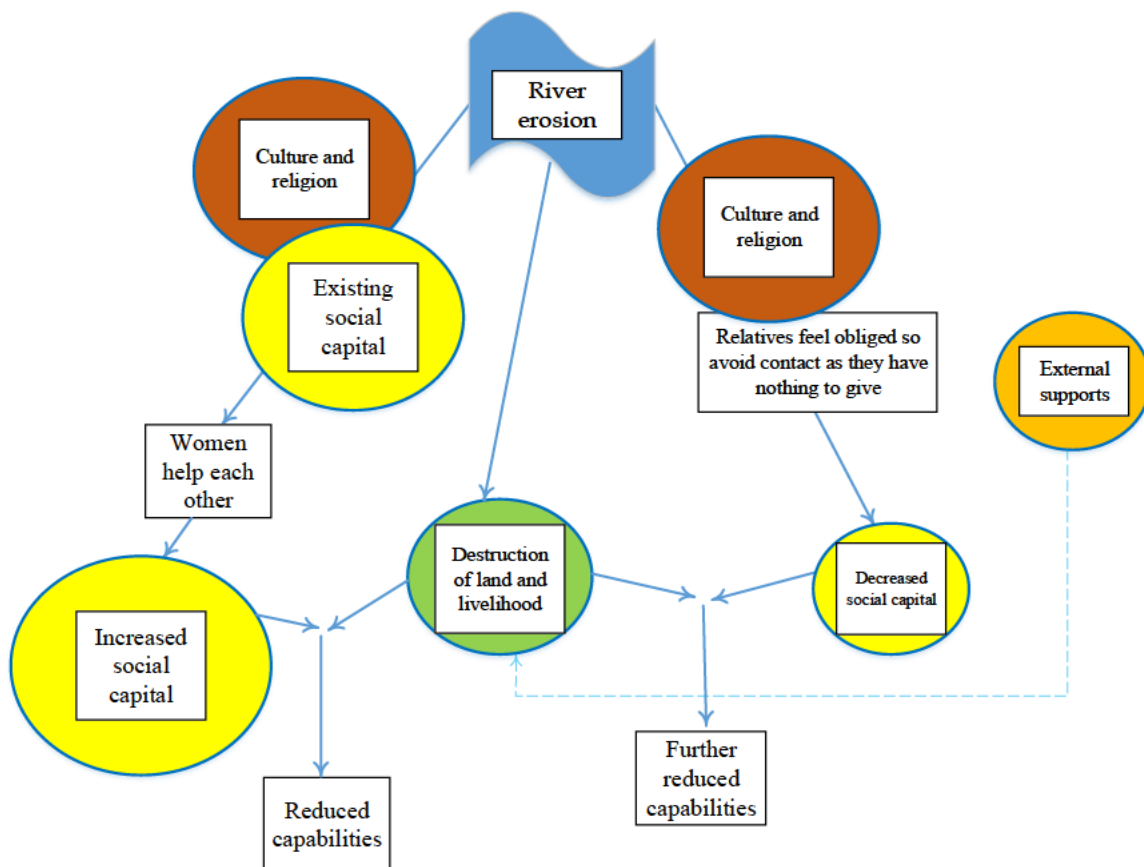


Figure 7.2: Encountering the ramifications of river erosion in rural areas

The first path in Figure 7.2 connects climate-migrant women’s existing social capital with the further help they receive during disasters by drawing on their shared culture and religion. It also connects their increased social capital with the reduced capabilities by ameliorating the effects of the destruction of land and livelihood. This illustrates the way that during natural

disasters, these women collaborate and cooperate more by drawing on their cultural and religious values; as a result, their social capital increases. It also illustrates that despite the increased social capital, their capabilities decline because of the losses of land and livelihood. The following paragraphs explain this path in more detail.

Social capital increases during natural disasters due to climate migrant women's increased help to each other. The study results (Section 6.3) showed that during natural disasters, these women stood by each other to confront the challenges. They cooperated within their cultural, religious values and norms by using their existing social capital. Sections 1.5 and 2.6 showed that social capital increases during crises due to cooperative actions as people use their social capital to recover from the initial event (Bourdieu 1986; Coleman 1990; Putman 1995; LaLone 2012; Islam & Walkerden 2014, 2015). For example, climate migrant women helped each other build raised platforms to protect their valuable items such as crops, dry food and cattle. They shared their work burden and concern for their safety and security. This indicates that they mobilised their collaborative and cooperative efforts to overcome their challenges, and as a result, their existing social capital increased. The findings of the study concur with Putnam (1995), who notes that women's support of and cooperation with each other might secure both social and psychological support within their families and with their neighbours.

Further, drawing on social capital theory, Fukuyama (1999, p. 16) writes that it is “instantiated set of informal values or norms shared among members of a group that permits them to cooperate. If members of the group come to expect that others will behave reliably and honestly, then they will come to trust one another”. This cooperative behaviour and trust in each other play a critical role in the response to natural calamities (Hawkins & Maurer 2009; LaLone 2012; Islam & Walkerden 2014, 2015; Sanyal & Routray 2016). Accordingly, during crises, social capital increases because of cooperative support and exchanges (LaLone 2012; Islam & Walkerden 2014, 2015).

However, despite their increased social capital, the second path in Figure 7.2 shows how climate-migrant women reduce their capabilities over time because of the destruction of land and livelihoods due to river erosion. The study results (Section 5.2) showed that these women lose their homes, land, cattle and other belongings due to flood and river erosion. Their ability to earn extra income through selling handicrafts is also removed. As mentioned in Section 1.1, natural disasters are regular phenomena in Bangladesh, and the frequency of intense

natural disasters caused by climate change is increasing across the world (Dasgupta et al. 2009; 2011; Thomas, Albert & Hepburn 2014; Islam & Amstel 2018; Carrico & Donato 2019). As others have found, natural disasters have a widespread adverse impact on food, water, health and energy security and lives and livelihoods (Pouliotte, Smit & Westerhoff 2009; Nishat et al. 2013; Thomas, Albert & Hepburn 2014; Carrico & Donato 2019; Alam et al. 2020). As found in other research (Alam et al. 2017; Khan, Nabia & Rahman 2018; Sarker et al. 2019; Sultana, Thompson & Wesselink 2020), this study's results (Section 5.2) show that recurring river erosion destroyed the participants' homesteads and agricultural lands and prompted financial crises. Therefore, these women lost not only their resources but their freedom of choice; these losses adversely affected their capabilities (Sen 1999; Hoque & Haque 2013; Islam 2017; Chriest & Niles 2018; Tanjeela & Rutherford 2018). From the perspective of the capabilities approach (Sen 1999; Nussbaum 2000; Robeyns 2005), climate-migrant women's freedom to achieve wellbeing significantly declined because of their deprivation of capabilities that they valued most in their life (e.g., life, bodily health and integrity, affiliation, other species) (Section 5.4).

The third path in Figure 7.2 connects cultural and religious issues to decreased social capital due to the feeling of obligation among the women's relatives and friends – obligations they can no longer fulfil because they have also lost too much. The decreased social capital along with the severe destruction of land and livelihood further reduces climate-migrant women's already limited capabilities. The following paragraphs explain this path in detail.

Climate-migrant women's social capital decreases due to natural disasters. This study's results (Section 6.3) found that after confronting increasing and severe disasters numerous times, climate-migrant women's bonding networks become weaker. This is because disasters affect every family in their surrounding villages. Therefore, they lose their additional (or saved) resources that they could have offered to others, and they feel too embarrassed to ask their relatives and friends for help because they have nothing to offer in return. As mentioned in Section 2.6, social networks and the level of cooperation among disaster victims can be reduced because of they all suffer lack of financial and other valuable resources at the same time (Aldrich 2010; Islam & Walkerden 2014; Jordan 2015; Chriest & Niles 2018). Therefore, at some point, these women lose their social links and relationships. This study found that due to the recurring loss of all the material resources, the usual social relationships became weak.

This finding reflects a different perspective on the social capital approach. As mentioned in Section 2.6, Coleman (1990), Jones (2005) and Grootaert (1999) write that social capital comes from both horizontal networks (positive social networks that contribute to the overall productivity of a community) and vertical networks (characterised by unequal power distribution among members and able to produce negative as well as positive associations). From this perspective, a possible explanation for this situation is that lack of resources and increasing inequality of resources turn horizontal networks into vertical ones, and thus climate-migrant women's links with their networks generate negative results for their social capital. This finding is contrary to previous studies that have suggested that people receive only positive support from their social networks during crises. Therefore, due to the decreased social capital, lack of support from social networks further reduces the women's capabilities during natural disasters.

The fourth path in Figure 7.2 shows the connection between external support and the destruction of land and livelihood. Here, the dotted line indicates that these supports are weak and insufficient for recovery considering the scale of the destruction. However, during disasters, the local Governments in Bangladesh and numerous NGOs provide substantial support to climate-migrant women (Section 6.5).

Consistent with previous studies, the women participating in this study perceived external support as essential for their survival during and immediately after natural disasters (Section 2.6) (Benson, Twigg & Myers 2001; Allen 2006; Khan & Rahman 2007; Ikeda 2009; Aldrich 2011a, Akter & Mallick 2013; Islam & Walkerden 2015; Islam et al. 2017; Tanjeela & Rutherford 2018). The study results (Section 6.5) showed that these women received mostly early/short-term support during disasters. For example, NGOs usually provided emergency relief items such as food, water and sanitation to last for four or five days. They also received minimal long-term support (e.g., food-for-work programs, road repair and maintenance and reconstruction of houses and toilets). However, as they had lost their lands, they found this support insufficient. Furthermore, as described in Section 1.5 and 1.7, the external support mechanisms were also prone to nepotism and corruptions and were not woman-friendly. The external support has also been shown in other research to lack gender sensitivity and to make a relatively small contribution to the long-term recovery (e.g. rehabilitation, livelihood support

programs) of disaster-affected people in Bangladesh (Baird 2010; Islam & Walkerden 2014, 2015; Ingham, Islam & Hicks 2018; Rahman 2018; Tanjeela & Rutherford 2018).

However, previous research has found that for longer-term recovery, disaster victims usually need support through external agencies, notably from local government, national and foreign NGOs and community-based organisations (Allen 2006; Khan & Rahman 2007; Ikeda 2009; Aldrich 2011b; Carpenter 2013; Rahman 2018; Tanjeela & Rutherford 2018). They have argued that providing only relief items (instead of long-term recovery assistance) may catalyse relief dependence. Long-term support helps affected people to reduce their suffering and relief dependency in the long run. Scholars have also suggested that eliminating corruption, ensuring support is delivered in a timely way and striving for gender suitability and organisational transparency can significantly enhance the effectiveness of external support (Islam & Walkerden 2015; Ingham, Islam & Hicks 2018; Ferdous & Mallick 2019).

In summary, Figure 7.2 illustrates that social capital helps climate-migrant women to cope with the ramifications of natural disasters. During disasters, these women help each other in their need; this, in turn, increases their social capital and the support and cooperation they receive and provide for the survival and wellbeing of their families and those of their neighbours. However, it also shows the risks of social capital, in that it is no longer effective if the network members have all lost resources. There is also the risk that loss of resources can turn horizontal bonding networks into vertical bridging networks. Such dynamics need more exploration. Thus Figure 7.2 also indicates a more complex relationship between the theory of social capital and Nussbaum's (2011) capabilities approach.

7.2.3 Climate Migrant Women’s Migration to Dhaka Slums after Encountering Recurring Erosion

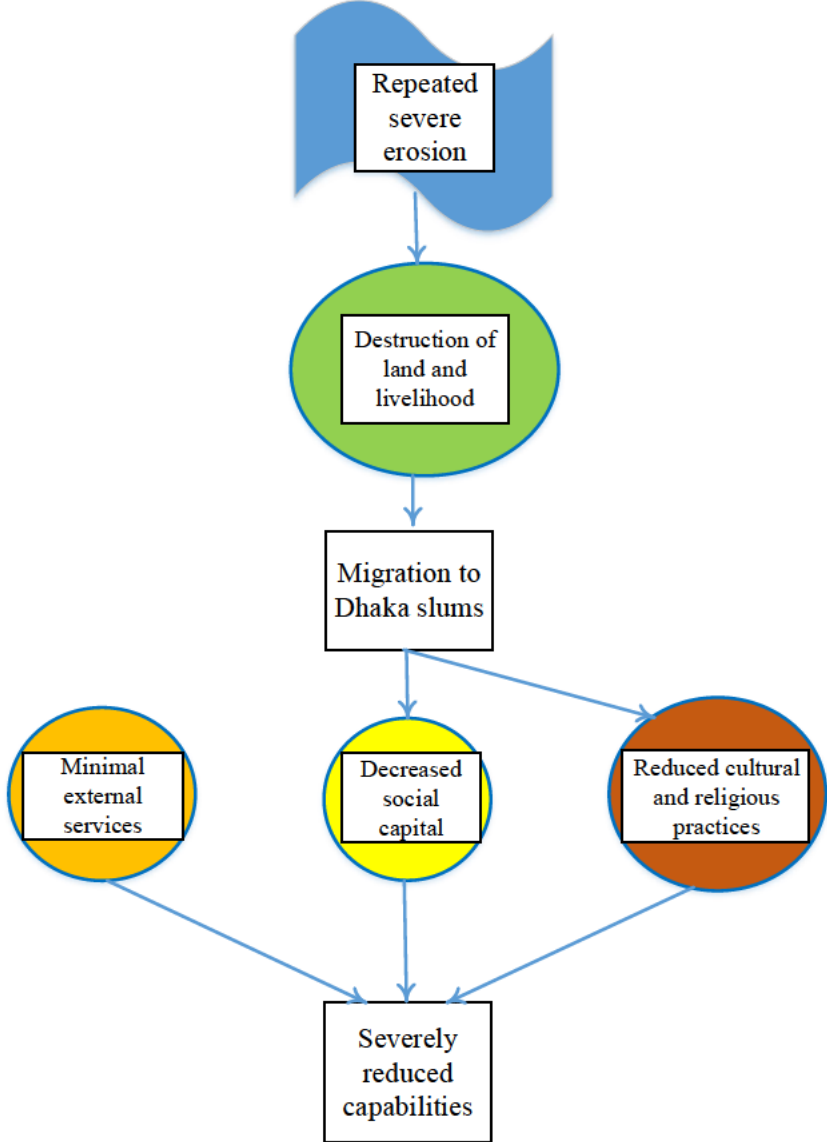


Figure 7.3: Climate-migrant women’s migration to Dhaka slums after encountering recurring erosion

Figure 7.3 depicts the outcomes of the Bangladeshi climate-migrant women's lives once they migrate to urban areas. This figure portrays five elements: recurring river erosion (blue), destruction of land and livelihood (green), social capital (yellow), culture and religious practices (red) and external support (orange). Here, arrows show the sequential relations of the study findings: climate-migrant women are compelled to migrate to the slums of Dhaka due to the destruction of land and livelihood from recurring river erosions. In the urban areas, their decreased the social capital causes them to be severely deprived of capabilities. Further,

the unfamiliar urban lifestyle and minimal external support also reduce their capabilities significantly. The following paragraphs explain this figure.

The first path in Figure 7.3 shows the connections of climate-migrant women's migration to urban slums due to losses of their land and livelihood caused by river erosion and decreased social capital. It further connects to the severe reduction of capabilities. When recurring river erosions cause these women to lose their land and livelihoods, they migrate to an urban area in search of new livelihood options, and eventually settle in slums. Not only have they lost their valuable social capital from the village, but they find it difficult to build social capital in their new urban neighbourhoods. Therefore, they experience a severe reduction in their already limited capabilities.

Results from Section 5.2 showed that climate-migrant women generally do not want to leave their rural areas as long as they can find resources that they can use to stay near their families and friends; for example, by downsizing their land and homesteads. Sometimes they borrow money from their social network. However, after repeatedly losing resources, they find no other way but to migrate to urban areas (Ishtiaque & Mahmud 2011; Islam & Shamsuddoha 2017; Bernzen, Jenkins & Braun 2019; Carrico & Donato 2019; Iqbal 2019; Subhani & Ahmad 2019; Evertsen & Geest 2020).

When these women do migrate to urban areas, they eventually settle in slums that are remarkable for their unhealthy living conditions (Section 5.3). As mentioned in Section 1.2, research has shown that urban areas become the common destinations for disaster-affected rural people searching for work (O'Brien et al. 2008; Ishtiaque & Mahmud 2011; Ahmed 2016; McNamara, Olson & Rahman 2016; Subhani & Ahmad 2019; Razzaque et al. 2020). The research also suggests that migrants settle in the urban slums because of their cheaper living costs. Further results in Section 6.4 indicated that climate-migrant women often leave their children with their parents or in-laws in their villages because they find it expensive to live in an urban area with dependents. As mentioned in Section 2.3, researchers have mentioned that the living cost in urban areas is much higher than in rural areas (Wood & Salway 2000; Jahan 2012; Ahmed 2016; McNamara, Olson & Rahman 2016; Adri & Simon 2017; Islam & Shamsuddoha 2017). More than 37% of the city's population live in slums, and almost all are rural poor migrants; for this reason, Dhaka is now considered as a "city of

urban poor” (Ahmed 2016; Adri & Simon 2017; Islam & Shamsuddoha 2017; Subhani & Ahmad 2019).

Climate-migrant women in Bangladesh live an itinerant life in urban areas that hinders them from building their social capital. They move from place to place based on the availability of work and cheaper living costs. Due to this short tenancy in each place, these women face challenges in building trust, confidence and reciprocity with their neighbours (Sections 5.3 and 6.4). As mentioned in Section 2.6, scholars have suggested that social capital arises through trust and the norms and values of reciprocity (Bourdieu 1986; Coleman 1990; Putnam 1995; Durlauf & Fafchamps 2004; Attar 2007; Islam & Walkerden 2014; Chriest & Niles 2018).

Further, climate-migrant women find less opportunity to be affiliated with others in urban areas (Section 5.3). Life in Dhaka is expensive and challenging for these women. In addition to performing the household chores, they also need to work long hours to be able to afford the living expenses. As a result, they find less time to socialise and talk, less opportunity to associate with their new neighbours (who are also working long hours) or take advantage of available local supporting organisations (e.g., NGOs) and fewer opportunities for leisure time. Thus, overall, they have less chance of developing bonding and bridging social capital (Section 6.4) Scholar have argued that social capital develops through social interaction, collective activity and networking between individuals or groups for common interests and better wellbeing (Bourdieu 1986; Coleman 1990; Putnam 1995; Adger 2003; Islam & Walkerden 2014; Chriest & Niles 2018) Therefore, the women’s social capital decreases significantly in urban areas due to their inability to engage in such interactions.

Climate-migrant women's decreased social capital severely reduces their capabilities in the urban area. The study results (Section 6.4) showed that these women experience significant challenges from their decreased social capital in the urban area. For example, they cannot share their skills, care, workload and emotions with each other. Thus their lower levels of social capital decrease the functionality of capabilities such as bodily health; bodily integrity; senses, imagination and thoughts; emotions; affiliation; and play (Section 6.6).

The occasion where a woman created a strong connection with her employer, an example of linking social capital, illustrated the potential for social capital to make a major contribution

to women's lives in the city (Section 6.4). Consistent with previous research, the social network that constitutes migrants' social capital helps them to have better access to livelihood and resources, such as land, housing and jobs (Islam & Walkerden 2014; Karlsson et al. 2016; Islam & Shamsuddoha 2017; Chriest & Niles 2018), thus increasing the likelihood of turning migration into a successful adaptation strategy (Kniveton et al. 2008; Black et al. 2011b; Kartiki 2011; Warner & Geest 2013; Chriest & Niles 2018). The challenge is how to facilitate its development in such overstretched itinerant lives.

The second path shows the connections between climate-migrant women's migration to Dhaka slums and their reduced cultural and religious practices, which connect in turn to severely reduced capabilities.

Sections 1.2 and 2.3 showed that due to the challenges of living in an urban area, migrants find themselves as a marginalised and destitute group (Gemenne 2011; Mallick & Vogt 2012; McNamara, Olson & Rahman 2016; Adri & Simon 2017; Carrico & Donato 2019). Scholars have stated that the urban socio-economic structure is different to the rural social structure, in that it is characterised by rapid transformation in terms of lifestyle (Ishtiaque & Mahmud 2011; Jahan 2012; Adri & Simon 2017; Carrico & Donato 2019). These scholars have argued that migrants often suffer hardship and economic marginalisation at their destination. Women in particular feel separated from their surrounding communities and perceive that they now have a lower social status. They commonly experience a sense of loss, dislocation, alienation and isolation that hinder their acculturation (Bhugra & Becker 2005; Ishtiaque & Mahmud 2011; Adri & Simon 2017; Carrico & Donato 2019; Chu & Yang 2019). Therefore, these women become deprived of their health and self-esteem in the urban area.

Furthermore, the study results (Section 5.3) found that climate-migrant women experience a lack of privacy in urban areas that offends their cultural and religious values. They find it extremely uncomfortable to share a limited number of toilets with unfamiliar male tenants, and to bathe in an open space where anyone can enter anytime. Due to this discomfort and fear, they take showers before dawn. They cannot even sleep properly at night because of the tension they feel because they need to wake up early to take a shower. During wintertime, this practice becomes even harder to maintain; therefore, they often suffer from coughs, colds and fever. The unhygienic environment in Dhaka slums affects their psychological and physical

health (Bhugra & Becker 2005; Ishtiaque & Mahmud 2011; Jahan 2012; Adri & Simon 2017; Chu & Yang 2019; Subhani & Ahmad 2019; Razzaque et al. 2020).

Additionally, in urban areas, these women face the challenges of social stigma associated with women in employment (Section 5.3) The stigma comes from the assumption that women who work outside the home are unable to adhere to the practice of purdah. As mentioned in Section 2.2, purdah has a significant value for Muslim people and societies in Bangladesh (Kabeer 1990; Jahan 2012; Juran & Trivedi 2015; Tariq & Syed 2017; Ferdous & Mallick 2019), and women are taught from childhood that they must take responsibility for their own safety and privacy by practicing it (Section 4.5). Therefore, they perceive working outside the home as compromising their religious practices, and they need to make a pragmatic balance between the norms of purdah and the reality of their situation. Despite this stigma, they try to earn money in an unfamiliar environment to help their family members survive. However, they feel compelled to compromise their freedom of choice, which deprives of achieving their capabilities of bodily health, bodily integrity, emotions and play (Nussbaum 2011).

The third path connects minimal external services to the severely reduced capabilities in urban areas. The study results (Section 6.5) showed that there is little to no support to slum-dwellers from external sources. As mentioned in Section 1.2, more than one-third of the megacity's population lives in slums and squats and suffer a poor quality of life. For example, the study results (Section 5.3) indicated that there is a severe crisis of lack of drinking water and sanitation facilities in the slums. McNamara, Olson and Rahman (2016) and Adri and Simon (2017) noted that there is no governmental or NGO support for the drinking water and sanitation and some landlords or crime bosses (mastans) pressure tenants for bribes in exchange for temporary solutions to these problems. According to Ishtiaque and Ullah (2013), the City Council show minimal attention to slums compared to other residential areas for drainage and solid-waste disposal. As a result, the quality of life is even worse in the slums for climate-migrant women (Ishtiaque & Mahmud 2011; Ahmed 2016; Adri & Simon 2017; Carrico & Donato 2019).

Even when there was limited support from NGOs, such as for health or education, the climate-migrant women in this study needed to move from place to place in search of work, and hence lost access to this support (Section 6.5). As mentioned in Section 1.2, urban benefits fail to reach the majority of poor migrants; therefore, the migrants find themselves

helpless once they arrive in urban areas (Ishtiaque & Mahmud 2011; Jahan 2012; McNamara, Olson & Rahman 2016; Adri & Simon 2017; Carrico & Donato 2019; Subhani & Ahmad 2019). As a result, due to the lack of external supports, climate-migrant women become deprived of the opportunities and resources that can help them to use and enhance their capabilities. Section 5.4 showed the deprivation of their capabilities – life; bodily health; bodily integrity; senses, imagination and thoughts; emotions; affiliations; other species; and play – in urban areas.

In summary, Figure 7.3 illustrated the significant deprivation of climate-migrant women's capabilities in urban areas. The capabilities of a full life span with good health are challenged by life in the slums, which is demanding, undignified and unhygienic. The women lose and cannot rebuild the social networks that constitute their social capital; thus they lose not only the capability of affiliation but also the multiplier effect that social capital can bring to other resources. The differences in urban culture also hinder these women from practising their cultural and religious norms and values. Further, lack of external support means that it is difficult for the women to rebuild their capabilities. Taken together, the challenges and hardships they experience in rural lives continue in their urban lives as well. Building and using capabilities becomes significantly harder as they become marginalised and receive minimal support from external sources. Moreover, they become deprived of their valuable social capital. Therefore, Bangladeshi climate-migrant women become severely deprived of quality of life in the urban area.

7.3 CONCLUSION

As shown in the three diagrams, this chapter has explored the complexity of the paths to capability for climate-migrant women. The diagrams identify the five major forces in the women's lives: Religion and culture, Subsistence rural village lifestyle, Disaster due to climate change, Social capital and External supports. They then track the intersection of the paths from these forces to show their effects on the women's capabilities. Three key insights emerged about the relationship between social capital and the capabilities approach. First, Nussbaum's description of affiliation as just one of the 10 capabilities misses its role in developing social capital, and therefore its ability to have a multiplier effect on other capabilities. Second, the results led to questions about the universality of Nussbaum's list of capabilities due to differences in cultural and religious values, and suggests contradictions

between a western feminist position and the opinions of oppressed women (Stewart 2001; Menon 2002; Okin 2003; Alkire 2005; Kim 2012). Third, it revealed the risks of so great a reliance on social capital, which is no longer effective if the network members have all lost resources. There is also the risk that loss of resources can turn horizontal bonding networks into vertical bridging networks, which are not reciprocal and can be oppressive.

CHAPTER EIGHT

DISCUSSION AND CONCLUSION

8.1 INTRODUCTION

This chapter addresses the research objectives and questions of the study. It also proposes recommendations based on situations of climate-migrant women in Bangladesh before, during and after disasters. Further, this chapter explains the study's theoretical and empirical contributions. The chapter makes explicit the limitations of this study, which in turn suggest future research opportunities in this field, followed by a final word. Accordingly, this chapter includes six sections. Section 8.2 addresses the research questions and Section 8.3 presents the recommendations. Section 8.4 states the theoretical (Section 8.4.1) and empirical (Section 8.4.2) contributions and potential limitations (Section 8.4.3). Finally, Section 8.5 presents the final words of this thesis.

8.2 ADDRESSING THE RESEARCH QUESTIONS

The aim of this study was to gain insight into the vulnerabilities and survival strategies of climate-migrant women in Bangladesh, and to make recommendations for overcoming their vulnerabilities and challenges. Five research questions were formulated to achieve these aims. First, what are the living conditions faced by climate-migrant women in Bangladesh? Second, what survival strategies are climate-migrant women using to address these living conditions? Third, how appropriate is Nussbaum's capabilities approach for understanding the lives of climate-migrant women in Bangladesh? Fourth, how are the capabilities and social capital of climate-migrant women in Bangladesh related to each other? And, fifth, what policy recommendations have the potential to improve climate-migrant women's living conditions? The following paragraphs summarise how this study has answered its research questions.

Research Question 1: What are the living conditions faced by climate-migrant women in Bangladesh?

Climate-migrant women's subsistence rural life is embedded in their prevailing cultural and religious norms and values. They need to confront gender inequality and gender power relations in the context of Bangladesh's patriarchal social structure. Like other research, this study also states that Bangladesh's cultural and religious norms and values limit many of the

activities and life choices of women; e.g. their mobility, and access to and control over resources (Islam 2014; Asaduzzaman et al. 2015; Juran & Trivedi 2015; Haque 2016; Islam et al. 2017; Tanny & Rahman 2017; Ferdous & Mallick 2019; Banarjee 2020).

Further, these norms and values constrain many of the capabilities of climate-migrant women in Bangladesh. Due to the limited choices and resources of rural life, they they cannot fully take advantage of their capabilities to ensure their quality of life (Nussbaum 2011; Jahan 2012; Hoque & Haque 2013; Juran & Trivedi 2015; Cummings et al. 2018; Ferdous & Mallick 2019). Despite the socio-cultural and religious constraints under which they live, these women play a vital role in their household and income-generation activities. Additionally, the existing norms and values that they share help them to build a robust homogeneous affiliation among themselves. They value their relationships with their families, friends and neighbours, and these affiliations or ties create their social networks, which in turn constitute their social capital (Hoque & Haque 2013; Islam & Walkerden 2014; Asaduzzaman et al. 2015; Jordan 2015;Chriest & Niles 2018).

Climate-migrant women confront severe challenges due to the extensive loss of their resources during natural disasters. These losses include loss of lives and health, loss of food and drinking-water sources, loss of shelter, sanitation and security and loss of communication, transportation and education (Mehta 2007; Ara & Reazul 2013; Nishat et al. 2013; Alston & Akhter 2016; Bouwer 2018; Haque et al. 2019; Sarker et al. 2019; Alam et al. 2020).

Despite the challenges and losses they suffer, climate-migrant women play an active role in saving their family members and household resources: preparing for disasters, shifting to safer places, comforting and caring for family members and looking after cattle and other livestock. Their level of responsibility for dealing with severe losses, along with the constraints of existing cultural and religious norms and values, make them more vulnerable than men to natural disasters (UN Women Watch 2009; Nasreen 2012; Juran & Trivedi 2015; Alam 2017; Islam 2017; Ingham, Islam & Hicks 2018).

However, the challenges of preparing for, responding to and recovering from natural disasters unite climate-migrant women strongly. As a result, their bonding becomes more robust, and they find themselves with increased social capital. Other research also suggests that during crises, social capital increases (LaLone 2012; Islam & Walkerden 2014, 2015; Jordan 2015;

Sanyal & Routray 2016; Kim et al. 2017; Asteria et al. 2018; Chriest & Niles 2018). However, because natural disasters and the resulting losses recur at frequent intervals, the women lose their resources, become less able to help each other, and their social capital eventually diminishes.

The repeated loss of their land and livelihood options compels climate-migrant women to migrate to an urban area, usually in Dhaka, to look for work to support their families. Due to the high cost of urban life, these women eventually settle in slum areas (McNamara, Olson & Rahman 2016; Adri & Simon 2017; Islam & Shamsuddoha 2017; Carrico & Donato 2019; Iqbal 2019; Evertsen & Geest 2020). Slums in Dhaka are remarkable for their unhealthy living conditions. Usually, the women find lower-skilled, unstable work, and must move from one slum to another as their employment shifts.

The living conditions of climate-migrant women become significantly disrupted due to their unstable life in the noxious slums of Dhaka (Ishtiaque & Mahmud 2011; Haque & Islam 2012; Ishtiaque & Ullah 2013; Ahmed 2016; Adri & Simon 2017). Further, in the unfamiliar urban environment, they need to compromise their cultural and religious norms and values to survive. They find themselves as a destitute and marginalised group. Moreover, the need to keep moving and the cultural dissimilarities between urban residents and the villagers they have left behind hinder these women in forming affiliations with others in their new homes. Therefore, they also become deprived of the social networks that they are used to depending on and find indispensable (Islam & Walkerden 2014; McNamara, Olson & Rahman 2016; Adri & Simon 2017; Chriest & Niles 2018). Consequently, their capabilities become even more constrained in urban areas.

Research Question 2: What the survival strategies do climate-migrant women use to address these living conditions?

Climate-migrant women's social capital works as a sufficient intangible resource for rural subsistence life in Bangladesh. Social capital helps these women to achieve and enact many of their capabilities at an adequate level (Ansari, Munir & Gregg 2012; Hoque & Haque 2013; Islam & Walkerden 2014; Jordan 2015; Chriest & Niles 2018). However, some of the capabilities are yet not fully despite the women's store of social capital. For example, they cannot achieve the right of acquiring property and their mobility and affiliation are limited due to their cultural norms and practices. Other research also suggests the limitations of

culture and religion on women in Bangladesh (Juran & Trivedi 2015; Haque 2016; Islam 2017; Tanny & Rahman 2017; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019; Banarjee 2020). However, these women regard these norms and practices as socially acceptable, and thus can live a life under these norms that they find satisfactory.

External support also plays a significant role in the lives of climate-migrant women in Bangladesh. Due to the lack of adequate resources in their rural subsistence economy, these women become dependent on the support that they receive from external sources, such as local Governments or NGOs. While the women find this support important, it is often inadequate. Some other studies have also identified the significant role of external support, as well as highlighting their inadequacy for meeting recipients' needs (Islam & Walkerden 2015, Khan & Rahman 2016; Ingham, Islam & Hicks 2018. Rahman 2018; Rahman & Tosun 2018; Momtaz & Asaduzzaman 2019). However, even with access to only minimal resources, rural women can ensure their quality of life with the help of social capital.

During natural disasters, social capital plays a significant role. The first help that women receive during disasters comes from their families, neighbours, and friends: their social capital. For example, these women survive primarily by receiving their essential components of life – food and water, healthcare, shelter and safety – through social capital. Research has shown that social capital has played a significant role during the various natural disasters (Aldrich 2011b; Ansari, Munir & Gregg 2012; Islam & Walkerden 2014; Jordan 2015; Asteria et al. 2018; Chriest & Niles 2018; Cummings et al. 2018). Therefore, with the help of social capital, women become able to enact some of their capabilities to some minimum extent.

However, the repeated occurrence of natural disasters reduces climate-migrant women's valuable social capital. For example, when all the families in the area experience a similar devastating loss of their resources due to repeated natural disasters, they become less capable of sharing their help and resources to help others survive. They become reluctant to maintain their relationships with each other. Consequently, their social capital eventually shrinks. Scholars have suggested that social capital can be dissolved due to natural catastrophes and lack of resources (Grootaert 1999; Jones 2005; Aldrich 2010; Jordan 2015; Chriest & Niles 2018). Therefore, as a result of reduced social capital, these women become deprived of achieving their already limited capabilities during natural disasters.

During disasters, climate-migrant women's lives are significantly dependent on external support. This mostly takes the form of short-term support, such as early-warning systems, relief distribution and assistance in relocating to a safer place. However, this support has significant flaws (Islam & Walkerden 2015; Ingham, Islam & Hicks 2018; Rahman 2018; Rahman & Tosun 2018; Momtaz & Asaduzzaman 2019). The inappropriate timing, inadequate quantity and gender sensitivity of the support initiatives make them less useful. They also become less effective due to corruption, favouritism and nepotism. As a result, external support becomes less effective in helping the women to maintain their already limited capabilities during natural disasters.

In urban areas, climate-migrant women's survival becomes desperate due to the absence of their valuable social capital and lack of external support. When they move to urban areas, they lose all support from the social capital they had built in their villages. Moreover, they find it difficult, if not impossible, to build social capital in urban areas due to their now-unstable life and the cultural differences of urban lifestyles (Ishtiaque & Mahmud 2011; Ahmed 2016; McNamara, Olson & Rahman 2016; Islam & Shamsuddoha 2017; Carrico & Donato 2019; Subhani & Ahmad 2019). Because these women's opportunities for achieving and enacting many of their limited capabilities depend on their social capital, in urban areas they find themselves significantly deprived of most of their capabilities.

Furthermore, the support that climate-migrant women receive from the external sources in urban areas is generally inadequate. Some studies have suggested that almost no Government support, and only a small amount of support (such as for health and education) from NGOs, are available in urban areas (Mallick & Vogt 2012; Ahmed 2016; Carrico & Donato 2019; Iqbal 2019; Subhani & Ahmad 2019). Further, due to the fact that these women often need to move from place to place in search of work and affordable housing, they become unable to take advantage of what external support is available. Additionally, the lack of both official acknowledgement of their circumstances as climate-induced migrants and identification of their requirements hinders the external support from providing them with basic quality of life.

In summary, social capital and external support play a significant role in the survival of climate-migrant women in Bangladesh. Although social capital helps to maintain what limited capabilities they have and bolster their survival strengths, the consequences of losing social

capital when they emigrate severely depletes their capabilities. Moreover, flaws in the system of external support make that support far less helpful for them.

Research Question 3: How appropriate is Nussbaum's capabilities approach for understanding the lives of climate-migrant women in Bangladesh?

Nussbaum's (2011) list of 10 capabilities are useful for gaining insights into the living conditions of climate-migrant women in Bangladesh in their social and cultural context, examining what they value, and what they do not value. For example, they value their land, livelihood options and relationships with their families, friends and neighbours (Hoque & Haque 2013; Islam & Walkerden 2014; Juran & Trivedi 2015; Tanjeela & Rutherford 2018; Momtaz & Asaduzzaman 2019). Moreover, they expressed their inmost desire for a better life, education and health for their family members, particularly their children. Other scholars also support that Nussbaum's list is useful to highlight the state of human lives that have been blighted (Deneulin & McGregor 2010, Hick 2012; Hoque & Haque 2013; Preibisch, Dodd & Su 2016).

According to Nussbaum's (2011) list, climate-migrant women in Bangladesh are able to achieve a limited number of capabilities in their life, such as health and integrity. However, the cultural and religious norms and values of society hinder their freedom of choice, keeping them from achieving many of their valued capabilities. For example, they value education; however, due to lack of choice and resources, they become unable to avail themselves of formal education. Therefore, this study supports both Sen's and Nussbaum's assertion that harmful cultural norms corrode the functioning of capabilities (Sen 1995; Nussbaum 2000). Further, this study also agrees that Nussbaum's list of capabilities has the potential to provide insights into the lives of deprived women (Robeyns 2005; Murphy & Gardoni 2006; Truong & Gasper 2008; Gupta 2015).

However, Nussbaum's (2011) capabilities list is not realistic in the context of climate-migrant women in Bangladesh. These women are deprived of some of their capabilities due to cultural and religious issues. Further, they accept their deprivations, as they consider them part of their cultural and religious norms and values (Jahan 2012; Islam 2014; Juran & Trivedi 2015; Khan et al. 2016; Tanny & Rahman, 2017; Ferdous & Mallick 2019; Banarjee 2020). For example, they are deprived of the capability of control over the environment, which is one of the capabilities in Nussbaum's list, but consider to be in accordance with their cultural customs

and habits. Therefore, this thesis states that Nussbaum's list of 10 basic capabilities is not a universal list, in that it does not fully apply to the context of climate migrant women in Bangladesh. (Stewart 2001; Menon 2002; Okin 2003; Kim 2012; Evans 2017).

Ideally, Nussbaum's central capabilities have the potential to help women flourish, and their irreducible integrity is essential for their survival strategies (Robeyns 2005; Hopper 2007; Nussbaum 2011; Hick 2012; Braber 2013; Ahmed & Ting 2014; Gupta 2015). However, this study disagrees with Nussbaum's claim to the universality her list, which does not fully reflect cultural diversity. This study agrees with Sen's argument that human capabilities are context- and purpose-specific (Stewart 2001; Menon 2002; Okin 2003; Alkire 2005; Sen 2005, Goerne 2010; Kim 2012; Burchi, Muro & Kollar 2014; Evans 2017). Therefore, in concurring with other scholars, this study raises question about the pluralism of Nussbaum's capabilities list and criticises its Western orientation (Stewart 2001; Menon 2002; Okin 2003; Alkire 2005; Goerne 2010; Burchi, Muro & Kollar 2014; Gupta 2015; Evans 2017).

Nussbaum's lists of capabilities are valuable for shedding light on climate-migrant women's vulnerabilities due to natural disasters. Natural disasters exacerbate the existing gender restrictions and limitations on these women (Nasreen 2008; Kim 2012; Hoque & Haque 2013; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019). For example, during disasters, these women experience additional limitations on their integrity. The devastating calamities of natural disasters deprive them of their limited capabilities, such as health, shelters, food and affiliations (Kim 2012; Hoque & Haque 2013; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019; Alam et al. 2020).

Furthermore, the lists of capabilities are also helpful to reveal the challenges of climate migration when these women relocate to urban areas due to the repeated loss of their land and livelihood options (Mallick & Vogt 2012; Mollah & Ferdaush 2015; Alam 2017; Momtaz & Asaduzzaman 2019). For example, they must endure the impoverished environment of slums, lack of health and education facilities and lack of social affiliation (McNamara, Olson & Rahman 2016; Adri & Simon 2017; Carrico & Donato 2019; Tanjeela & Rutherford 2019). Consequently, they become drastically deprived of their capabilities, including shelter, health, affiliations and emotions. Therefore, Nussbaum's assists in an examination of their vulnerabilities and deprivations (Roy & Venema 2002; Kim 2012, Hoque & Haque 2013; Preibisch, Dodd & Su 2016).

This study found limitations in the ability of Nussbaum's list to explore the survival strategies of climate-migrant women in Bangladesh. While it can refer to what capabilities they are able to achieve, it does not give any account of what helps or does not help to enact these capabilities. For example, these women can achieve many of their capabilities with the help of social capital (Bourdieu 1986; Coleman 1990; Putnam 1995; Ansari, Munir & Gregg 2012; Carpenter 2013; Islam & Walkerden 2014; Chriest & Niles 2018; Cummings et al. 2018). They share their food, medicine, shelter and caring, which helps them to enjoy the capabilities of health and emotions, albeit to a limited degree. Therefore, this study states that Nussbaum's list is helpful as a referential point to establish the current state of the opportunities to develop, but offers only limited insights into what factors support and contribute to the achievement of the capabilities (Migheli 2011; Claassen & Duwell 2012; Robeyns 2016; Comim, Flavio & Fennell 2018).

Nussbaum's list is valuable in the development of recommendations for climate-migrant women in Bangladesh. These women shared their life experiences based on the issues in Nussbaum's list. Their concerns were further discussed with the key informants, whose role it was to provide solutions for the issues that the study revealed. Therefore, this study, based on Nussbaum's list, could empower these women (Sen 1999; Roy & Venema 2002; Murphy & Gardoni 2006; Hoque & Haque 2013). Furthermore, based on shared concerns and suggestions, this study could offer recommendations for reducing the vulnerabilities of these women and improving their quality of life. Therefore, this study agrees with Nussbaum's claim that the list of capabilities has the potential to support the development of policy recommendations, as it is "closer to the ground, looking at life stories and the human meaning of policy changes for real people" (2011, p.14). Further, this study also agrees with Nussbaum's claim that all entitlements require affirmative government action, as well as others, which may include NGOs, corporations, social and community groups and individuals (Briones 2011, Czaika & Haas 2014; Preibisch, Dodd & Su 2016).

Finally, Nussbaum's capabilities approach is valuable as a framework to focus directly on the quality of life of Bangladeshi climate-migrant women. However, the appropriateness of the approach resides in its potential to be used as a reference. Furthermore, this approach is helpful not just to identify disadvantage, but also to provide recommendations to reduce vulnerabilities and enhance wellbeing (Cutter, Boruff & Shirley 2003; Lindell & Prater 2003; Haynes 2009; Murphy & Gardoni 2010; Kim 2012; Ahmed & Ting 2014).

Research Question 4: How are the capabilities and social capital of climate-migrant women in Bangladesh related to each other?

Social capital plays a significant role in the ability of climate-migrant women in Bangladesh to achieve the capabilities. These women build robust bonding networks among themselves that represent and strengthen their social capital. They build their networks throughout years of coexistence and exchange of values, culture and norms, and consider these networks to be valuable resources (Ansari, Munir & Gregg 2012; Jordan 2015; Islam & Walkerden 2014; Chriest & Niles 2018; Cummings et al. 2018). Cultural and religious issues restrict their freedom of choice and constrain their attempts to achieve their capabilities. Although they have minimal external supports to do so, their robust social capital helps them achieve some capabilities adequately. Scholars have also suggested that individuals use their social capital to reach new states that allow them to widen their capability set (Migheli 2011; Ansari, Munir & Gregg 2012; Hoque & Haque 2013; Islam & Walkerden 2014; Jordan 2015; Chriest & Niles 2018).

Climate-migrant women's social capital is essential for their initial recovery from the impacts of natural disasters. However, the recurring natural disasters and severe losses of resources prevent them from helping each other, and cause them to distance themselves from their relatives and friends because they cannot help, which reduces their social capital and, in turn, decreases their capabilities severely. This indicates that climate-migrant women's social capital is both the result of and the prerequisite for some of the capabilities (Gandjour 2008; Migheli 2011; Chriest & Niles 2018).

Climate-migrant women's social capital significantly declines when they migrate to urban areas, and they become severely vulnerable to further stresses (McNamara, Olson & Rahman 2016; Adri & Simon 2017; Islam & Shamsuddoha, 2017; Carrico & Donato 2019; Iqbal 2019). Further, due to the instability of their lives in urban areas, they find few opportunities to have affiliations with others. Additionally, due to cultural differences with their new neighbours, they cannot build trust and share their cultural beliefs, traits and norms with others. Therefore, they can not rebuild their social capital. As a result, they find themselves significantly deprived of most of their capabilities. Research has also suggested that without the ability to rebuild social capital, some sets of capabilities will never be attainable (Migheli 2011; Ansari, Munir & Gregg 2012; Chriest & Niles 2018).

However, the opportunity to rebuild social capital in urban areas can help climate-migrant women to regain some of their capabilities and attain new ones (Migheli 2011; Carpenter 2013; Ahmed 2016; Chriest & Niles 2018). Therefore, climate-migrant women's social capital is an essential factor that activates new functionings and enables them to attain new capabilities (Sayer 2000; Smith & Seward 2009; Migheli 2011; Chriest & Niles 2018).

According to Nussbaum's list of capabilities (Nussbaum 2011), "affiliation" is a distinctive capability, which she defines as the ability to care, recognise and show concern for other each other within the society and also engage in various forms of social interaction. This social affiliation strengthens social ties with each other and foster social capital (Migheli 2011; Carpenter 2013; Chriest & Niles 2018).

Migheli (2011) finds that social capital is a factor used to reach new valuable functionings. This means that individuals use social capital to reach new states, which allow them to widen their capability set. Researchers suggest that a higher level of social capital can uphold a higher level of wellbeing and increase capabilities (Gandjour 2008; Migheli 2011; Carpenter 2013; Jordan 2015). Adger (2003) argues that social capital develops through social interaction, collective activity and networking between individuals or groups for their shared interests and wellbeing.

In the context of climate-migrant women in Bangladesh, social capital and capabilities influence each other, and are mediated by the cultural and religious norms and practices of this community. As Nussbaum states that cultural and religious issues show considerable potentials for enabling and empowering women's capabilities. Sen (1999) also notes that "these different aspects (women's earning power, an economic role outside the family, literacy and education, property rights and so on) may, at first sight, appear to be rather diverse and disparate. However, what they have in common is their positive contribution in adding force to women's voice and agency – through independence and empowerment" (pp. 191-192). In the study context, there is a connection between the functioning of the capabilities and social capital. Therefore, this study agrees with the scholars who argue that the concept of social capital entangles both functioning and the capabilities of Nussbaum's list of ten capabilities (Gandjour 2008, Migheli 2011; Nussbaum 2011; Ansari, Munir & Gregg 2012; Chriest & Niles 2018).

Research Question 5: What policy recommendations have the potential to improve climate-migrant women's living conditions in Bangladesh?

Based on the overall findings of this thesis, the following section addresses this research question.

8.3 RECOMMENDATIONS

Climate-migrant women are currently working to the maximum of their capacity, capabilities and social capital, whether in rural or urban areas, and they have nothing more to give. Therefore, this thesis argues that the government and NGOs need to make up the deficit which these women have no possibility of meeting themselves. This study recommends that the government and NGOs have greater responsibility to increase resources and services.

Based on the findings, this thesis has several recommendations for policy-makers, the Government of Bangladesh and NGOs to overcome the challenges that climate-migrant women in Bangladesh face. The recommendations are presented in three different stages (before, during and after disasters), and aim to create an environment that confirms gender-sensitive climate-change adaptation procedures. As mentioned in Chapter 1, national policies in Bangladesh hardly address the issue of climate migration. Despite several revisions of the two primary relevant documents on national climate change – Bangladesh Climate Change Strategy and Action Plan (BCCSAP, 2009) and the National Adaptation Program of Action (NAPA, 2005) – neither of these documents addresses the issue of women's climate migration in Bangladesh. These research findings can play a significant role as guidance in terms of establishing strong recognition of climate-migrant women as a group in both rural and urban areas. Hence, the following recommendations of this thesis can help policy-makers gain insight into the vulnerabilities and survival strategies of climate-migrant women; and therefore, the recommendations are likely to contribute to better living conditions and integrate the migrants in their origin and destination areas through necessary policy changes.

8.3.1 Pre-Disaster Recommendations

Pre-disaster recommendations are formed based on the findings of living conditions of climate-migrant women in Bangladesh reported in Chapters 4 and 6 (specifically, Sections 6.2 and 6.5).

1. The Government of Bangladesh and NGOs (i.e. local and international) should promote climate-migrant women's empowerment through capacity-building in rural areas. For example, counselling services can be made available to help them build self-esteem and capacity and offer mentoring and life-skills training.
2. More opportunities need to be created for climate-migrant women to generate income. It should be ensured that these women have equal access to developmental facilities. For example, they can be provided skill-development training, technical assistance for small-business enterprises and can be linked with appropriate services to ensure the long-term sustainability of their financial endeavours.
3. Climate-migrant women's social, economic, physical and psychological vulnerabilities due to cultural and religious norms and practices need to be acknowledged in order to help the women be more resilient during natural disasters. Despite their heroic efforts, women's contributions are not given due recognition as they continue to face challenges. Therefore, the Government and NGOs can promote different activities and programs for families and communities to improve the status of women and girls and a shift of gender norms.
4. Both the Government of Bangladesh and NGOs (local and international) can focus more on programs to mobilise social capital, particularly women's, at the grassroots level. Some of the NGOs in Bangladesh are already providing significant support for women's collectives, access to credit and skill training. However, further initiatives can create an environment that allows them to use this support to their best advantage. For example, providing childcare facilities can reduce women's work burden, and they can find enough time to effectively use the credit amount. Providing relevant information, job placements and economic literacy also can support them.
5. Women's access to land and assets, information and education, participation in decision-making and self-dependence needs to be increased through community-development programs. This needs to be a systemic approach and may require greater involvement of moderate religious clerics and local leaders to ensure that the message does not encounter unnecessary cultural bias (for example, beliefs that girls are born to

serve and take care of others, therefore, they shouldn't be encouraged to have an education).

6. Community-based awareness-raising programs, particularly in disaster-prone village areas, should be strengthened and gender-sensitised. For example, to promote climate-change or disaster-management information or awareness, seminars, local Governments and NGOs can arrange symposiums and workshops. The participation of the local people, particularly the village women, needs to be ensured. Accordingly, active promotional activities such as posters or leaflet distributions and the use of loudspeaker announcements could be useful for the village areas. Finally, some incentives of food or gifts can increase participation in these events.
7. Local Governments and NGOs are now playing a significant role in women's empowerment by increasing female education and building capacity and social awareness through different programs such as free school, credit programs, livestock training and campaigns to stop early marriages. However, these initiatives need to be gender-sensitive and adequate to the need. There should be no corruption or nepotism in the process of implementing these programs. For example, training and employing women to run the training programs would be more effective for reaching other women and less open to nepotism. Further, better coordination between local Governments and NGOs will ensure the transparency of these process.

8.3.2 Recommendations for During Disasters

Recommendations for during disasters are constructed based on the findings of the study that reflect climate-migrant women's challenges and hardships during times of disaster. The following recommendations are based on the findings of Chapter 5 (Sections 5.2 and 5.4) and Chapter 6 (Sections 6.3 and 6.6).

1. The Government and NGOs need to include policies and programs for disaster management based on gender-mainstreaming efforts. Adequate numbers of gender-specific shelter centres need to be built in areas where women's access during disasters time will be direct and straightforward, to ensure climate-migrant women's safety. Disaster shelters should have separate facilities for women. Apart from the shelter centres, portable toilets should be made available at flood refuges, or temporarily

constructed during flood periods. Furthermore, the safety of women and adolescent girls should be priority during disasters. The Government of Bangladesh has allocated the US \$400 million to counteract climate change by enhancing people's adaptive capacity. Similarly, it should allocate budget and funding for the development of woman-friendly shelter centres and other initiatives for ensuring female safety, particularly in disaster-prone areas.

2. Early-warning systems need to improve the ways they reach women so that they manage their situations adequately before natural disaster strikes. For example, the Government has had much success in Bangladesh in expanding the telecommunication facilities in each area of the country. These facilities can be used, and the network companies can play a significant role in broadcasting weather forecasts and warning messages and facilitating calls to the villagers during the disaster period. Both the Government of Bangladesh and NGOs can ensure that rural women have easy access to mobile phones; for example, in Bangladesh, Grameen Phone has already ensured easy access to mobile phones to many rural women.
3. The Government of Bangladesh along with NGOs and other international donor agencies should address issues of gender sensitivity, adequacy, timeliness and freedom from corruption and bias in relief operations. Increased access to food, drinking water and other consumable items should be provided in an adequate amount according to the needs of the affected families. The relief items should also include hygiene kits and menstrual hygiene supplies for women's healthcare and wellbeing.
4. The number of community health clinics should also be increased, especially during natural disasters. The availability of doctors and nurses in health clinics should be ensured and monitored so that the impacts of climate-induced events can be attended to immediately. For example, the NGO named "Friendship" is operating mobile community hospitals in the north of Bangladesh that provide significant health supports to those communities during natural disasters.
5. Initiatives should be taken to resettle climate-migrant women back in their original rural homes, as they often do not want to leave their homes, but have no other option but to migrate to an urban area. This resettlement should not only offer shelter but also means

of sustainable livelihoods and other income sources. For example, with the help of international donor agencies, the Government is providing shelters to disaster-affected people in rural areas. However, this support is not adequate, according to a number of the affected people. Therefore, more funds are needed to provide an adequate number of shelters. Furthermore, women can be provided with financial support to rear cattle and engage in other income-generating activities. For example, local Governments and NGOs can introduce local and home-based industries such as food-processing mills, thread mills and other cottage industries.

8.3.3 Post-Disaster Recommendations (After Migrating in the Urban Area)

Post-disaster recommendations (after women and their families migrate to urban areas) are based on the overall findings of the thesis, specifically Chapter 5 (Sections 5.3 and 5.4) and Chapter 6 (Sections 6.4, 6.5 and 6.6).

1. The Government of Bangladesh and local and international NGOs should focus more on the adaptation capacity at local and regional scales so as to regulate and control the migration flow towards other vulnerable areas of urban settlement.
2. The Government should enforce appropriate laws to allow climate-migrant women to access a range of necessities they need in the urban economy, such as fair wages, medical leave and health supports. For example, women can be provided with an identity card or insurance card as climate victims under the social safety net that will allow them to access necessities in urban areas. International organisations addressing climate-change impacts can fund this initiative.
3. Climate-migrant women's challenges need to be identified and recognised in the relevant national policy documents to ensure the implementation of adaptation strategies and development efforts. For example, with the help of the Government, NGOs can help these women to find affordable and safe housing with essential infrastructure services provided at a subsidised rate. That would make the process of transition from rural to urban life much safer and more comfortable.
4. The Government of Bangladesh should take the initiative in formulating gender-sensitive policies to protect the rights of climate-migrant woman and train them to adopt

diversified new urban-based livelihoods. One crucial policy suggestion is that the women should be given priority in obtaining vocational and technical training. A range of training and skills activities in the informal sector should be arranged to encourage recruitment and employment.

5. The Government of Bangladesh and NGOs can focus more on social-inclusion programs for climate-migrant women in urban areas. Such programs can help these women to have more affiliation and build social capital in urban neighbourhoods. In this regard, the Ministry of Women and Children's Affairs in Bangladesh can take significant initiatives with the help of NGOs and community-based organisations in Dhaka. Awareness programs initiated by NGOs and community-based and civil-society organisations can enhance social inclusion and promote their own services. These organisations can also arrange awareness programs to inform climate-migrant women of their fundamental and institutional rights.
6. In urban areas, women without fixed abodes should also be provided with health, education and childcare support. For example, essential medicines should be available to all women, irrespective of their level of income, as a fundamental human right. Finally, the need for psychological counselling for climate-migrant women cannot be ignored because of their drastically changed socio-economic status.

8.4 CONTRIBUTIONS OF THE THESIS

The implications of this thesis have been presented in three sections: theoretical contributions, empirical contributions and the limitations of this study, which should be considered as future research opportunities in this field.

8.4.1 Theoretical Contributions

This thesis makes the following theoretical contributions.

First, this thesis extends the limited understanding and literature of the living conditions, survival strategies and support mechanisms of climate-migrant women in Bangladesh. Spence, Poortinga and Pidgeon (2012) suggested that “avoiding dangerous climate change is one of the most urgent social risk issues we face today and understanding related public

perceptions is critical to engaging the public with the major societal transformations required to combat climate change” (p. 957). Similarly, several scholars have suggested that there is a lack of literature from the socio-cultural perspective that examines the circumstances of climate-migrant victims, particularly Bangladeshi women (Hoque & Haque 2013; Alam & Rahman 2014; Juran & Trivedi 2015; Islam et al. 2017; Ferdous & Mallick 2019; Evertsen & Geest 2020). Hence, this thesis contributes to the literature of climate change focusing on women’s issue and presents the victims’ strategies and support mechanisms at a micro-level in the context of Bangladesh. This theoretical contribution also responds to Western (Lee, McCollum & Eschoo 2009; Jones, Hine & Marks 2016) and the Asian (Nasreen 2012; Tanjeela & Rutherford 2018; Ferdous & Mallick 2019; Chu & Yang 2019) calls to develop the literature of the social impacts of natural disaster caused by climate change.

Second, the thesis makes a significant contribution to climate change literature by considering the Nussbaum’s capabilities approach (Nussbaum 2011) as an analytical concept to examine the lives of environmentally displaced women in Bangladesh, which could be adopted effectively for other climate-change victims, as this approach helps to answer the research questions relating to quality of life or wellbeing of climate-migrant victims. Researchers have recommended Nussbaum’s capabilities approach (Nussbaum 2003) as a potential and important tool to explore the socio-economic conditions for climate-migrant victims, particularly in developing countries (Sen 1999; Roy & Venema 2002; Murphy & Gardoni 2006; Hoque & Haque 2013). Moreover, scholars have suggested that the approach be constructively criticised to develop it further (Stewart 2001; Okin 2003; Alkire 2005). This thesis applies Nussbaum’s list of capabilities (Nussbaum 2011) to explore the living conditions, survival strategies and support mechanisms of Bangladeshi climate-migrant women and to recommend sustainable solutions from the study findings. Accordingly, this thesis contributes to extending Nussbaum’s capabilities approach to use the capabilities from Bangladeshi climate-migrant women’s perspective to analyse their quality of life and wellbeing (Nussbaum 1995). According to Kelly and Adger (2000), “climate impact studies have tended to focus on direct physical, chemical or biological effects, yet a full assessment of consequences for human well-being requires evaluation of how society is likely to respond through the deployment of coping strategies and measures which promote recovery and, in the longer-term, adaptation” (pp. 325-326). Hence, this thesis has explored the application of Nussbaum’s list of capabilities (Nussbaum 2011) to enhance the climate-change literature in a non-Western context.

Third, in addition to Nussbaum's capabilities approach (Nussbaum 2011), this thesis also applied the social capital theory (Carpenter 2013; Islam & Walkerden 2015; Christ & Niles 2018) to answer the research questions. The concept of social capital is not well incorporated into the Government's policies, programs and actions in Bangladesh (Ansari, Munir & Gregg 2012; Islam & Walkerden 2014; Jordan 2015; Cummings et al. 2018). This theory has been considered as a significant tool to analyse disaster-related consequences and a way for climate-migrant women to enhance their capabilities to survive and manage their families; however, there is a lack of evidence in the literature for its suitability for this purpose (Nakagawa & Shaw 2004; Joshi & Aoki 2014; Islam & Walkerden 2015; Jordan 2015; Christ & Niles 2018). Hence, this thesis contributes to advancing the literature regarding the implications of and evidence for social capital theory in the context of climate-change research (Carpenter 2013; Islam & Walkerden 2014, 2015; Jordan 2015) in the context of Bangladeshi.

Fourth, this thesis makes a theoretical contribution to the climate-migrant literature for its critical and relational analyses between Nussbaum's capabilities approach (Nussbaum 2011) and the social network as it exists within the social capital theory (Ansari, Munir & Gregg 2012; Carpenter 2013; Islam & Walkerden 2014; Jordan 2015). For example, this thesis suggested that Nussbaum's (2011) capabilities approach indicates individual dignity where the aim is to produce capabilities for climate-migrant women in Bangladesh, and recommends enhancing their freedom to access the socio-economic support and resources they need to survive with a quality of life. Social networks (Migheli 2011; Carpenter 2013; Islam & Walkerden 2014; Jordan 2015; Christ & Niles 2018) have been identified as an essential and complementary element of Nussbaum's (2011) capabilities approach to survive and overcome climate-change-related disasters. Scholars have suggested that Nussbaum's (2011) capabilities approach helps to explore the challenges of climate-migrant victims and develop solutions for them, and that the social network (particularly the bonding network) can play a significant role in this process (Patulny & Svendsen 2007; Hennig et al. 2012; Carpenter 2013; Islam & Walkerden 2014; Kadushin 2018). This thesis has further clarified the relationship between the two approaches in the context of Bangladesh.

Fifth, this thesis contributes to the literature of climate change linked to the United Nations' Sustainable Development Goals (SDGs in transforming our world: 2030). Mainly, this thesis has advanced the literature of climate-migrant women and their issues associated with SDG

13 (Actions on Climate Change), which has special application to the likelihood that Bangladesh will achieve the SDGs by 2030. Campbell et al. (2018) noted, “SDG 13 considers both adaptation and mitigation, and includes foci on strengthening resilience; integrating climate change measures into national policies and planning; monitoring progress towards climate financial commitments; and, improving capacity on climate change, especially in the least Developed Countries” (p. 14). This thesis has indicated that achieving SDG 13 in Bangladesh will be challenging and will need further governmental interventions to create a sustainable future for climate-migrant women. Hence, in addition to Bangladeshi women’s social capital, or bonding networks, the Government must focus more on supportive initiatives for climate-migrant victims to create more opportunities as well as sustainable solutions to overcome the adverse impacts of climate change (Cooper & Nirenberg 2012; Haque & Jahid 2019; Palmer & Stevens 2019).

Finally, the socio-economic consequences of climate change affect men and women differently (Alston 2007, 2010; Ferdous & Mallick 2019; Evertsen & Geest 2020). This thesis contributes to the increasing body of literature on gender issues, focusing on climate-migrant women in Bangladesh and their living conditions, survival strategies and support mechanisms. Alston (2007) noted that “the economic and environmental focus of the climate change debate has overshadowed the significant social implications and almost completely ignored the gendered consequences” (p. 29). Similarly, the assessment reports of IPCC (2007, 2014) recommended that gender-based roles and relations within societies affect women’s vulnerability and capabilities to manage the impact of climate change. By drawing on the feminist perspective of Nussbaum’s capabilities approach (Nussbaum 2011), this thesis develops and contributes to the climate-change literature to overcome the limitations regarding generalising approaches to gender.

8.4.2 Empirical Contributions

This thesis provides insight into the vulnerabilities and survival strategies of Bangladeshi climate-migrant women from the perspectives of the capabilities approach (Nussbaum 2011) and the idea of social capital (Bourdieu 1986; Coleman 1990; Putnam 1995). It also explains both the applicability of and justification for Nussbaum’s capabilities approach and analyses the relationship between the capabilities and social capital of climate-migrant women in Bangladesh. This thesis makes several significant empirical contributions.

First, the empirical findings of this thesis will help future researchers, policy-makers, governmental and NGO officials and the affected climate-migrant victims to be more aware of the consequences of the issues that affect climate-migrant women and to enhance their future capabilities to withstand climate change. For example, the Government of Bangladesh can increase the empowerment of local Government officials and strengthen their collaboration with NGOs to increase their support and engagement with the affected climate-migrant women to implement the NAPA (2005), BCCSAP (2009) and the Five-Year Plan (2016-2021), and to achieve the UN's SDG 13.

Second, the findings of this thesis have supported Nussbaum's (2000, 2003) findings and suggested that Bangladeshi climate-migrant women face discrimination, particularly in relation to issues such as poverty and development. The implications of this thesis will highlight the real status of climate-migrant women as reflected in their living conditions in the study areas in Bangladesh. Accordingly, the findings of this thesis will help to achieve SDG 13 by recognising the challenges that climate-migrant women experience due to natural disasters caused or worsened by climate change. The findings can also help the Government of Bangladesh, NGOs and policy-makers to develop and implement solutions to these challenges.

Third, the Government of Bangladesh has applied several strategies and initiatives to overcome the challenges of climate-change impacts. Some of these initiatives have included the National Adaptation Programme of Action (NAPA) in 2005; the National Plan on Disaster Management in 2009-2010; the Bangladesh Climate Change Strategy and Action Plan; and the 2016-2021 Five-Year Plan (Ahmed et al. 2015). Prior to 2015, the Government of Bangladesh had shown significant progress towards achieving the Millennium Development Goals (MDGs), including alleviating poverty; reducing both infant and maternal mortality rates; increasing immunisation coverage; and reducing the occurrence of communicable diseases (Ministry of Planning 2015). This thesis will help policy-makers and Government officials to make a similar sustainable impact on climate-migrant women's lives in Bangladesh. Accordingly, the Government of Bangladesh will be able to recognise women's climate migration as a critical issue and will prioritise their initiatives to incorporate potential response measures to reduce the impacts of climate change into the overall development-planning process.

Finally, the findings of the thesis can be a significant resource for the Government of Bangladesh, NGOs and other development organisations to understand the living conditions of climate-migrant women, the ramifications of repeated natural disasters and the consequences of rural-urban migration due to the severe impacts of natural disasters caused by climate change. To have a more fruitful outcome to development efforts, the Government and NGOs can educate local Government officials and local stakeholders/leaders, and can organise informal get-togethers and cultural programs promoting climate-change awareness in the affected areas. Moreover, these activities will also uphold the climate action of SDG 13 in Bangladesh. For example, the Government of Bangladesh has integrated the 2030 Agenda in its 2016–2020 Five-Year Plan (FYP), which prioritises the SDGs in the national development plan (Islam & Shamsuddoha 2018). Ignoring an especially vulnerable group while formulating policy can never bring desirable developments to the society. Therefore, the empirical findings of this thesis can inform policy-makers of the need to educate the local Government officials and local stakeholders/leaders to increase the influence of Governmental effectiveness and contribute to future FYPs and SDG 13.

8.4.3 Limitations and Future Research Directions

Some limitations of this thesis are highlighted as follows to indicate future research directions.

First, this thesis considered Bangladeshi women's perspectives to answer the research questions. Several scholars have noted that there are significant and visible gender differences and discrimination in the distribution of resources, education, health care and food consumption for men and women, particularly in developing countries like Bangladesh (Islam et al. 2017; Carrico & Donato 2019; Ferdous & Mallick 2019; Alam et al. 2020; Evertsen & Geest 2020). Hence, the survival and adaptation initiatives linked to natural disasters have been found to be “gender-sensitive” particularly in terms of how they meet men's or women's practical needs and capabilities (Juran & Trivedi 2015; Alston & Akhter 2016; Tanjeela & Rutherford 2018). This thesis specifically considered the perspectives of women, and thus cannot explain men's perspectives. Therefore, future researchers may examine the same research questions to explore the answers relative to men's issues and perspectives. Similarly, these research questions could also be examined from the perspectives of children, or aged or disabled people.

Second, because of the number of women participants and the social context of Bangladesh, the social, religious and cultural traditions constraints of which were integral to understanding the women's strengths and vulnerabilities, the results of this thesis are not generalisable, particularly to Western countries and their socio-cultural context. Therefore, studies in other places must also take into account the participants' religious and cultural traditions and constraints. Further cross-nation comparative research studies may also help countries learn from each other. Moreover, cross-country studies can deliver further understanding and solutions for setting policy priorities on a regional and global basis (International Food Policy Research Institute 2000). This will open future research opportunities to look at how their studies fit into the broader development context. Hence, there is an opportunity to replicate this study for other Western or Asian countries to explore the vulnerabilities and survival strategies of climate-migrant women.

Third, the concepts of capabilities and social capital may be considered as significant determinants that affect the climate-migrant women's living conditions and their survival strategies to withstand climate change (Ansari, Munir & Gregg 2012; Islam & Walkerden 2014; Jordan 2015; Campbell et al. 2018; Cummings et al. 2018). However, there may have been other, more profound influences, such as religion, spiritual influences, political dynamics, racial grouping or local Government leadership effectiveness, that may also have significantly influenced the research findings. Therefore, future researchers may go beyond the more commonly cited socio-cultural influences to examine such elements in a deeper exploration of the vulnerabilities, capabilities and survival strategies of climate-migrant women.

Fourth, the findings and participants' demographics for this thesis may differ from those in other Bangladeshi cities susceptible to flooding, and may not show the same results when extended to Bangladesh as a whole. Researchers have suggested that on the local regional and global scales, socio-cultural issues may vary and lack context-based findings and solutions (IFPRI 2000; Campbell et al. 2018). Therefore, future researchers may choose to conduct a comparative study to see the differences between the mainland and coastal areas in Bangladesh for the same research questions.

Finally, this study highlighted the significance of SDG 13 for the research findings. However, SDG 13 actions can have a significant relationship with other SDGs such as 2, 3, 5, 6, and 11

(Campbell et al. 2018). Currently, there is a lack of literature and empirical research evidence on climate-migrant women and the UN's SDGs in the context of Bangladesh. Hence, there is a scope to explore the significance of these research findings from the perspective of the UN's SDGs and efforts to achieve the goals they specify by 2030. For example, future researchers may explore the impact or outcome of governmental or non-governmental initiatives to examine the progress of the countries towards the UN's SDGs and 2030 goal achievements.

8.5 A FINAL WORD

A final word is necessary regarding the topic explored in this study. As a researcher, I want to highlight that the climate-migrant women of Bangladesh are indeed “muted women” due to the characteristics of their culture and religion. These women mentioned their constraints, challenges and desires for a better life with a hope that while this shared information may not help them, it may help the next generations. Therefore, I want to emphasise that the Bangladeshi climate-migrant women are the silent warriors of the society, because they fight relentlessly to maintain what is most important to them: their family. Therefore, these women must be considered as “*the family warriors*” who silently fight with the weapons that the culture and religion allow them.

REFERENCES

- Abdullah, A 2016, 'Rural-Urban Migration and Informal Sector of Dhaka City: Issues and Facts', *Research Journal of Humanities and Social Sciences*, vol. 7, no. 2, p. 101.
- Abedin, M, Collins, A, Habiba, U & Shaw, R 2019, 'Climate Change, Water Scarcity, and Health Adaptation in Southwestern Coastal Bangladesh', *International Journal of Disaster Risk Science*, vol. 10, no. 1, pp. 28-42.
- Adamo, S & Izazola, H 2010, 'Human migration and the environment', *Population and Environment*, vol. 32, no. 2-3, pp. 105-108.
- Adeola, F & Picou, J 2016, 'Hurricane Katrina-linked environmental injustice: race, class, and place differentials in attitudes', *Disasters*, vol. 41, no. 2, pp. 228-257.
- Adger, W 2003, 'Social capital, collective action, and adaptation to climate change', *Economic Geography*, vol. 79, no. 4, pp. 387-404.
- Adri, N & Simon, D 2017, 'A tale of two groups: focusing on the differential vulnerability of 'climate-induced' and 'non-climate-induced' migrants in Dhaka City', *Climate and Development*, vol. 10, no. 4, pp. 321-336.
- Agrawala, S, Ota, T, Ahmed, A, Smith, J & Aalst, M 2003, *Development and Climate Change in Bangladesh: Focus on Coastal Flooding and The Sundarbans*, Organisation for Economic Co-operation and Development, Paris, pp.1-70.
- Ahmed, A & Neelormi, S 2007, *Livelihoods of Coastal Fisherman in Peril: In Search of Early Evidence of Climate Change Induced Adverse Effects in Bangladesh*, Campaign for Sustainable Rural Livelihoods (CSRL), Centre for Global Change (CGC), Dhaka. viewed February 10 2017 <http://csrlbd.org/resourcecontent/climatechange/climate_change_newdatativelihood-coastal.pdf>.
- Ahmed, A, Haq, S, Nasreen, M & Hassan, A 2015, *Climate Change and Disaster Management*, Government of Bangladesh, Dhaka, pp.1-59.
- Ahmed, C 2017, 'Community participation in building climate change resilient rural housing: examining the socio-economic viability of case In Jamuna river basin of Bangladesh', *ASEAN Journal of Community Engagement*, vol. 1, no. 2, pp. 99-110.
- Ahmed, I 2016, 'Building Resilience of urban slums in Dhaka, Bangladesh', *Procedia - Social and Behavioral Sciences*, vol. 218, pp. 202-213.
- Ahmed, S & Ting, P 2014, 'Martha Nussbaum's capabilities and urban working poor women in Bangladesh', *IOSR Journal of Humanities and Social Science*, vol. 19, no. 5, pp. 12-19.
- Ahsan, D 2014, 'Does natural disaster influence people's risk preference and trust? An experiment from cyclone prone coast of Bangladesh', *International Journal of Disaster Risk Reduction*, vol. 9, pp. 48-57.
- Akhter, J & Cheng, K 2020, 'Sustainable empowerment initiatives among rural women through microcredit borrowings in Bangladesh', *Sustainability*, vol. 12, no. 6, p. 2275.

- Akter, S & Mallick, B 2013, 'The poverty–vulnerability–resilience nexus: evidence from Bangladesh', *Ecological Economics*, vol. 96, pp. 114-124.
- Alam, E & Collins, A 2010, 'Cyclone disaster vulnerability and response experiences in coastal Bangladesh', *Disasters*, vol. 34, no. 4, pp. 931-954.
- Alam, G 2017, 'Livelihood cycle and vulnerability of rural households to climate change and hazards in Bangladesh', *Environmental Management*, vol. 59, no. 5, pp. 777-791.
- Alam, G, Alam, K, Mushtaq, S, Sarker, M & Hossain, M 2020, 'Hazards, food insecurity and human displacement in rural riverine Bangladesh: implications for policy', *International Journal of Disaster Risk Reduction*, vol. 43, p. 101364.
- Alam, G, Alam, K & Mushtaq, S 2017, 'Climate change perceptions and local adaptation strategies of hazard-prone rural households in Bangladesh', *Climate Risk Management*, vol. 17, pp. 52-63.
- Alam, M. G., Alam, K., Mushtaq, S. and Clarke, M., 2017. Vulnerability to climatic change in riparian char and river-bank households in Bangladesh: Implication for policy, livelihoods and social development. *Ecological Indicators*, 72, pp. 23-32.
- Alam, K & Rahman, M 2014, 'Women in natural disasters: A case study from southern coastal region of Bangladesh', *International Journal of Disaster Risk Reduction*, vol. 8, pp. 68-82.
- Aldrich, D 2010, 'The power of people: social capital's role in recovery from the 1995 Kobe earthquake', *Natural Hazards*, vol. 56, no. 3, pp. 595-611.
- Aldrich, D 2011a, 'The externalities of strong social capital: post-tsunami recovery in southeast India', *Journal of Civil Society*, vol. 7, no. 1, pp. 81-99.
- Aldrich, D 2011b, 'Ties that bond, ties that build: social capital and governments in post disaster recovery', *Studies In Emergent Order*, vol. 4, pp. 58-68.
- Alexander, J 2004, 'Capabilities, human rights and moral pluralism', *The International Journal of Human Rights*, vol. 8, no. 4, pp. 451-469.
- Alkire, S & Santos, M 2013, 'A multidimensional approach: poverty measurement & beyond', *Social Indicators Research*, vol. 112, no. 2, pp. 239-257.
- Alkire, S 2002, *Valuing Freedoms: Sen's Capability Approach and Poverty Reduction*, Oxford University Press, Oxford.
- Alkire, S 2005, 'Why the capability approach?', *Journal of Human Development*, vol. 6, no. 1, pp. 115-135.
- Alkire, S 2008, 'Using the capability approach: prospective and evaluative analyses', *The Capability Approach*, pp. 26-50.
- Alkire, S & Santos, M 2013, 'A multidimensional approach: poverty measurement & beyond', *Social Indicators Research*, vol. 112, no. 2, pp. 239-257.

- Allen, K 2006, 'Community-based disaster preparedness and climate adaptation: local capacity-building in the Philippines', *Disasters*, vol. 30, no. 1, pp. 81-101.
- Alston, M 2007, 'Gender and climate change: variable adaptations of women and men', *Just Policy: A Journal of Australian Social Policy*, vol. 46, pp. 29-35.
- Alston, M 2010, 'Gender and climate change in Australia', *Journal of Sociology*, vol. 47, no. 1, pp. 53-70.
- Alston, M 2013, 'Environmental social work: accounting for gender in climate disasters', *Australian Social Work*, vol. 66, no. 2, pp. 218-233.
- Alston, M & Akhter, B 2016, 'Gender and food security in Bangladesh: the impact of climate change', *Gender, Place & Culture*, vol. 23, no. 10, pp. 1450-1464.
- Alves, M & Mariano, E 2018, 'Climate justice and human development: a systematic literature review', *Journal of Cleaner Production*, vol. 202, pp. 360-375.
- Anand, S & Sen, A 2000, 'Human development and economic sustainability', *World Development*, vol. 28, no. 12, pp. 2029-2049.
- Ansari, S, Munir, K & Gregg, T 2012, 'Impact at the 'bottom of the pyramid': the role of social capital in capability development and community empowerment', *Journal of Management Studies*, vol. 49, no. 4, pp. 813-842.
- Ara, G & Reazul, A S 2013, 'Impacts of climate change on food security of rural poor women in Bangladesh', *Management of Environmental Quality: An International Journal*, vol. 24, no. 6, pp. 802-814.
- Arora-Jonsson, S 2011, 'Virtue and vulnerability: discourses on women, gender and climate change', *Global Environmental Change*, vol. 21, no. 2, pp. 744-751.
- Asaduzzaman, M, Kabir, M, Ali, R & Markovic, M 2015, 'Gender inequality in Bangladesh', *Journal of Women's Entrepreneurship and Education*, no. 3-4, pp. 54-64.
- Asian Development Bank (ADB) 2017. [online] Adb.org, viewed December 18 2019, <<https://www.adb.org/sites/default/files/institutional-document/395641/bangladesh-gender-equality-diagnostic.pdf>>.
- Asteria, D, Halimatussadiah, A, Budidarmono, Utari, D & Dwi Handayani, R 2018, 'Relation of social capital to women's proactive participation in the community for sustainability of river in urban areas', *E3S Web of Conferences*, vol. 73, pp. 1-5.
- Atkinson, R 1998, *The life story interview*, SAGE Publications, California.
- Attar, M 2007, *Trust and Reciprocity: Social Capital and Political Engagement*, pp. 1-31.
- Bachman, R & Schutt, R 2014, *Bachman: Fundamentals of research in criminology and criminal justice, 3e + Bachman: Fundamentals of research in criminology and criminal justice, 3e, Interactive Ebook*, Sage Pubns.

Bailey, D, Cowling, K & Tomlinson, P 2015, *New perspectives on industrial policy for a modern Britain*, Oxford University Press, Oxford.

Baird, M 2010, *The recovery phase of emergency management*, Intermodal Freight Transportation Institute (ITFI), University of Memphis, pp. 1-31.

Banarjee, S 2020, 'Identifying factors of sexual violence against women and protection of their rights in Bangladesh', *Aggression and Violent Behavior*, p. 101384.

Banerjee, S & Jackson, L 2017, 'Microfinance and the business of poverty reduction: critical perspectives from rural Bangladesh', *Human Relations*, vol. 70, no. 1, pp. 63-91.

Bangladesh Bureau of Statistics (BBS) 2013, *Literacy assessment survey (LAS)-2011*, Bangladesh Bureau of Statistics, Statistics and Informatics Division (SID), Ministry of Planning, Government of the People's Republic of Bangladesh.

Bangladesh Bureau of Statistics (BBS) 2015, 'Statistical Pocket Book Bangladesh, Planning Division, Ministry of Planning, The People's Republic of Bangladesh.', *Sciepub.com*, viewed February 16 2017, <<http://www.sciepub.com/reference/183055>>.

Banks, N 2013, 'Female employment in Dhaka, Bangladesh: participation, perceptions and pressures', *Environment and Urbanization*, vol. 25, no. 1, pp. 95-109.

Bartlett, R, Bharati, L, Pant, D, Hosterman, H & McCornick, P 2010, *Climate Change Impacts and Adaptation in Nepal*, IWMI Working Paper139, Colombo, viewed October 8 2017, <<http://www.environmentportal.in/files/Climate%20Change%20Impacts.pdf>>.

Barton, L 1996, *Disability and society: emerging issues and insights*, Longman Publishing, New York.

Basit, T 2003, 'Manual or electronic? the role of coding in qualitative data analysis', *Educational Research*, vol. 45, no. 2, pp. 143-154.

Bates, D 2002, 'Environmental refugees? Classifying human migrations caused by environmental change', *Population and Environment*, vol. 23, no. 5, pp. 465-477.

Beall, J 2004, "Surviving in the city: livelihoods and linkages of the urban poor", in *Urban Governance, Voice and Poverty in the Developing World*, edited by N. Devas. Sterling, VA: Earthscan, pp. 53-67.

Benson, C, Twigg, J & Myers, M 2001, 'NGO initiatives in risk reduction: an overview', *Disasters*, vol. 25, no. 3, pp. 199-215.

Bernzen, A, Jenkins, J & Braun, B 2019, 'Climate change-induced migration in coastal Bangladesh? A critical assessment of migration drivers in rural households under economic and environmental stress', *Geosciences*, vol. 9, p. 51.

Betts, A 2011, 'Conclusion', in A Betts (ed), *Global Migration Governance*, Oxford University Press, New York, pp. 307-328.

Bhugra, D & Becker, M 2005, 'Migration, cultural bereavement and cultural identity', *World Psychiatry*, vol. 4, no. 1, pp. 18-24.

- Bhuiyan, M, Islam, S & Azam, G 2017, 'Exploring impacts and livelihood vulnerability of riverbank erosion hazard among rural household along the river Padma of Bangladesh', *Environmental Systems Research*, vol. 6, no. 1, pp. 1-15.
- Biswas, J, Kalra, N, Maniruzzaman, M, Choudhury, A, Jahan, M & Hossain, M et al. 2018, 'Development of mungbean model (MungGro) and its application for climate change impact analysis in Bangladesh', *Ecological Modelling*, vol. 384, pp. 1-9.
- Black, R, Adger, W, Arnell, N, Dercon, S, Geddes, A & Thomas, D 2011, 'The effect of environmental change on human migration', *Global Environmental Change*, vol. 21, pp. S3-S11.
- Black, R, Bennett, S, Thomas, S & Beddington, J 2011, 'Migration as adaptation', *Nature*, vol. 478, no. 7370, pp. 447-449.
- Black, R, Kniveton, D & Verkerk, K 2013, 'Migration and climate change: toward an integrated assessment of sensitivity', in T Faist & J Schade (ed), *Disentangling migration and climate change*, Springer, Dordrecht, pp. 29-53.
- Black, R, Kniveton, D, Skeldon, R, Coppard, D, Murata, A & Verkerk, K 2008, *Demographics and climate change: future trends and their policy implications for migration*, Working Paper T-27, Development research centre on migration, globalisation and poverty, Brighton, pp. 1-38.
- Boano, C, Zetter, R & Morris, T 2008, '*Environmentally displaced people: understanding the linkages between environmental change, livelihoods and forced migration*', Forced migration policy briefings, Refugee studies centre, University of Oxford.
- Bohan, J 1992, *Seldom seen, rarely heard*, Westview Press, Boulder.
- Bourdieu, P 1986, 'The forms of capital', in J Richardson (ed), *Handbook of theory and research for the sociology of education*, Greenwood Press, Westport, pp. 241-260.
- Bouwer, L 2018, 'Observed and Projected Impacts from Extreme Weather Events: Implications for Loss and Damage', in R Mechler, L Bouwer, T Schinko, S Surminski & J Linnerooth-Bayer (ed), *Loss and damage from climate change: concepts, methods and policy options*, Springer, Cham, pp. 63-82.
- Braber, C 2013, 'The introduction of the capability approach in social work across a neoliberal Europe', *Journal of Social Intervention: Theory and Practice*, vol. 22, no. 4, p. 61.
- Brannick, T & Coghlan, D 2007, 'In defense of being 'Native': the case for insider academic research', *Organizational Research Methods*, vol. 10, no. 1, pp. 59-74.
- Braun, B & Aßheuer, T 2011, 'Floods in megacity environments: vulnerability and coping strategies of slum dwellers in Dhaka/Bangladesh', *Natural Hazards*, vol. 58, no. 2, pp. 771-787.
- Briones, L 2011, 'Rights with capabilities: towards a social justice framework for migrant activism', *Studies in Social Justice*, vol. 5, no. 1, pp. 127-143.

- Brooks, J, McCluskey, S, Turley, E & King, N 2014, 'The utility of template analysis in qualitative psychology research', *Qualitative Research in Psychology*, vol. 12, no. 2, pp. 202-222.
- Brown, O & McLeman, R 2009, 'A recurring anarchy? The emergence of climate change as a threat to international peace and security', *Conflict, Security & Development*, vol.9, no.3, pp. 289-305.
- Burchardt, T & Vizard, P 2011, "'Operationalizing' the capability approach as a basis for equality and human rights monitoring in twenty first century Britain", *Journal of Human Development and Capabilities*, vol. 12, no. 1, pp. 91-119.
- Burchi, F, Muro, P & Kollar, E 2014, 'Which dimensions should matter for capabilities? A constitutional approach', *Ethics and Social Welfare*, vol. 8, no. 3, pp. 233-247.
- Burns, H, Diamond-Vaught, H & Bauman, C 2015, 'Leadership for sustainability: theoretical foundations and pedagogical practices that foster change', *International Journal of Leadership Studies*, vol. 9, no. 1, pp. 131-143.
- Campbell, B, Hansen, J, Rioux, J, Stirling, C, Twomlow, S & (Lini) Wollenberg, E 2018, 'Urgent action to combat climate change and its impacts (SDG 13): transforming agriculture and food systems', *Current Opinion in Environmental Sustainability*, vol. 34, pp. 13-20.
- Campbell, R & Schram, P 1995, 'Feminist research methods: a content analysis of psychology and social science textbooks', *Psychology of Women Quarterly*, vol. 19, no. 1, pp. 85-106.
- Carpenter, A 2013, 'Social ties, space, and resilience: Literature review of community resilience to disasters and constituent social and built environment factors. Community and economic development discussion paper', *Frbatlanta.org*, viewed January 12 2018, <<https://www.frbatlanta.org/-/media/Documents/community-development/publications/discussion-papers/2013/02-literature-review-of-community-resilience-to-disasters-2013-09-25.pdf>>.
- Carrico, A & Donato, K 2019, 'Extreme weather and migration: evidence from Bangladesh', *Population and Environment*, vol. 41, no. 1, pp. 1-31.
- Centre for Environmental Geographic Information Systems (CEGIS) 2012, *Master plan of haor area*, Bangladesh haor and wetland development board, Ministry of water resources, Government of the peoples republic of Bangladesh, Dhaka, pp.1-72.
- Charlesworth, H 2000, 'Martha Nussbaum's feminist internationalism', *Ethics*, vol. 111, no. 1, pp. 64-78.
- Check, J & Schutt, R 2011, *Research methods in education*, University of Massachusetts Boston, USA.
- Christ, A & Niles, M 2018, 'The role of community social capital for food security following an extreme weather event', *Journal of Rural Studies*, vol. 64, pp. 80-90.

- Chowdhury, R & Moore, G 2017, 'Floating agriculture: a potential cleaner production technique for climate change adaptation and sustainable community development in Bangladesh', *Journal of Cleaner Production*, vol. 150, pp. 371-389.
- Chu, H & Yang, J 2019, 'Emotion and the psychological distance of climate change', *Science Communication*, vol. 41, no. 6, pp. 761-789.
- Claassen, R & Düwell, M 2012, 'The foundations of capability theory: comparing Nussbaum and Gewirth', *Ethical Theory and Moral Practice*, vol. 16, no. 3, pp. 493-510.
- Cloke, P, Cook, I, Crang, P, Goodwin, M, Painter, J & Philo, C 2004, 'Practising Human Geography'.
- Coleman, J 1990, *Foundations of social theory*, Harvard University Press, Cambridge, Mass.
- Comim, Flavio & Fennell 2018, 'New frontiers of the capability approach'.
- Commonwealth Local Government Forum (CLGF) 2015, *Local government 2030: achieving the vision*, Commonwealth Local Government Conference 2, Gaborone, viewed October 25 2018,
<http://www.clgf.org.uk/default/assets/File/Publications/reports/Local_Govt_2030_Achieving_the_Vision_Conference_background_paperCLGF2015.pdf>.
- Cooper, J & Nirenberg, J 2012, *Leadership effectiveness, encyclopaedia of leadership edition*, Sage, Thousand Oaks, CA.
- Crang, M & Cook, I 2007, *Doing ethnographies*, SAGE, London.
- Creswell, J 2014, *Research design: qualitative, quantitative, and mixed methods approaches* 4th edition, SAGE, Thousand Oaks [etc.].
- Cummings, S, Seferiadis, A, Maas, J, Bunders, J & Zweekhorst, M 2018, 'Knowledge, social capital, and grassroots development: insights from rural Bangladesh', *The Journal of Development Studies*, vol. 55, no. 2, pp. 161-176.
- Cutter, S, Boruff, B & Shirley, W 2003, 'Social vulnerability to environmental hazards*', *Social Science Quarterly*, vol. 84, no. 2, pp. 242-261.
- Czaika, M & de Haas, H 2014, 'The globalization of migration: has the world become more migratory?', *International Migration Review*, vol. 48, no. 2, pp. 283-323.
- D'Eath, M, Sixsmith, J, Cannon, R & Kelly, L 2020, *The experience of people with disabilities in accessing health services in Ireland: do inequalities exist?*, Centre for Health Promotion Studies. Department of Health Promotion, National University of Ireland, Galway.
- Dankelman, I, Alam, K, Ahmed, W, Gueye, Y, Fatema, N & Kutin, R 2008, *Gender, climate change and human security lessons from Bangladesh, Ghana and Senegal*, The women's environment and development organization (WEDO) with ABANTU for development in Ghana, Action Aid Bangladesh and ENDA in Senegal, New York.
- Das, B 2011, 'Stakeholders' perception in identification of river bank erosion hazard: a case study', *Natural Hazards*, vol. 58, no. 3, pp. 905-928.

- Dasgupta, S, Laplante, B, Meisner, C, Wheeler, D & Yan, J 2009, 'The impact of sea level rise on developing countries: a comparative analysis', *Climatic Change*, vol. 93, no. 3-4, pp. 379-388.
- Dasgupta, S, Laplante, B, Murray, S & Wheeler, D 2011, 'Erratum to: Exposure of developing countries to sea-level rise and storm surges', *Climatic Change*, vol. 106, no. 4, pp. 567-579.
- Dastagir, M 2015, 'Modeling recent climate change induced extreme events in Bangladesh: A review', *Weather and Climate Extremes*, vol. 7, pp. 49-60.
- Dekker, P & Uslaner, E 2001, *Social capital and participation in everyday life*, Routledge, London.
- Delaporte, I & Maurel, M 2018, 'Adaptation to climate change in Bangladesh', *Climate Policy*, vol. 18, no. 1, pp. 49-62.
- Demetriades, J & Esplen, E 2009, 'The gender dimensions of poverty and climate change adaptation', *IDS Bulletin*, vol. 39, no. 4, pp. 24-31.
- Demo, D, McLanahan, S & Sandefur, G 1996, 'Growing up with a single parent: what hurts, what helps', *Family Relations*, vol. 45, no. 2, p. 244.
- Deneulin, S & McGregor, J 2010, 'The capability approach and the politics of a social conception of wellbeing', *European Journal of Social Theory*, vol. 13, no. 4, pp. 501-519.
- Depner, C 2020, 'Toward the further development of feminist psychology', in *mid-winter conference of the Association of Women in Psychology*, Boston.
- Drèze, J & Sen, A 2002, *India, economic development and social opportunity*, Clarendon Press, Oxford.
- Durlauf, S & Fafchamps, M 2004, *Social capital*, Working Paper No. 214, The centre for the study of African economies.
- Dwyer, S & Buckle, J 2009, 'The space between: on being an insider-outsider in qualitative research', *International Journal of Qualitative Methods*, vol. 8, no. 1, pp. 54-63.
- Ellem, K & Wilson, J 2010, 'Life story work and social work practice: a case study with ex-prisoners labelled as having an intellectual disability', *Australian Social Work*, vol. 63, no. 1, pp. 67-82.
- Emerson, R, Fretz, R & Shaw, L 1995, *Writing ethnographic fieldnotes*.
- Esterberg, K 2002, *Qualitative methods in social research*, McGraw-Hill, Boston.
- Evans, S 2017, 'What should social welfare seek to achieve? Applying the capability approach', *Ethics and Social Welfare*, vol. 11, no. 1, pp. 19-32.
- Evertsen, K & Geest, K 2020, 'Gender, environment and migration in Bangladesh', *Climate and Development*, vol. 12, no. 1, pp. 12-22.

- Ferdous, J & Mallick, D 2019, 'Norms, practices, and gendered vulnerabilities in the lower Teesta basin, Bangladesh', *Environmental Development*, vol. 31, pp. 88-96.
- Flick, C 2015, 'Informed consent and the Facebook emotional manipulation study', *Research Ethics*, vol. 12, no. 1, pp. 14-28.
- Floyd, A & Arthur, L 2012, 'Researching from within: external and internal ethical engagement', *International Journal of Research & Method in Education*, vol. 35, no. 2, pp. 171-180.
- Food and Agriculture Organization (FAO) 2011, *Global food losses and food waste – Extent, causes and prevention*, The Swedish Institute for Food and Biotechnology (SIK), Food and agriculture organization of the United Nations, Rome, pp.1-29.
- Forrest, R & Kearns, A 2001, 'Social cohesion, social capital and the neighbourhood', *Urban Studies*, vol. 38, no. 12, pp. 2125-2143.
- Fukuda-Parr, S 2003, 'The human development paradigm: operationalizing Sen's ideas on capabilities', *Feminist Economics*, vol. 9, no. 2-3, pp. 301-317.
- Fukuda-Parr, S 2016, 'From the millennium development goals to the sustainable development goals: shifts in purpose, concept, and politics of global goal setting for development', *Gender & Development*, vol. 24, no. 1, pp. 43-52.
- Fukuyama, F 1999, 'Social capital and development: the coming agenda', *SAIS Review*, vol. 22, no. 1, pp. 23-37.
- Gandjour, A 2008, 'Mutual dependency between capabilities and functionings in Amartya Sen's capability approach', *Social Choice and Welfare*, vol. 31, no. 2, pp. 345-350.
- Gemenne, F 2011, 'Why the numbers don't add up: a review of estimates and predictions of people displaced by environmental changes', *Global Environmental Change*, vol. 21, pp. S41-S49.
- German Advisory Council on Global Change 2007, *Changing world: security risk of climate change*, Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen (WBGU), Berlin.
- Gibb, C & Ford, J 2012, 'Should the United Nations framework convention on climate change recognize climate migrants?', *Environmental Research Letters*, vol. 7, no. 4, pp. 1-7.
- Gilbertson, A 2015, 'Food security, conjugal conflict, and uncertainty in 'Bangladesh', Mombasa, Kenya', *Ethnographies of Uncertainty in Africa*, pp. 84-108.
- Goerne, A 2010, 'The capability approach in social policy analysis - yet another concept?', *SSRN Electronic Journal*.
- Gonzales, C, Chandra, S, Kochhar, K & Newiak, M 2015, *Fair play: more equal laws boost female labor force participation*, International monetary fund, p.34.
- Goodley, D 1998, 'Supporting people with learning difficulties in self advocacy groups and models of disability', *Health & Social Care in the Community*, vol. 6, no. 6, pp. 438-446.

Gough, I 2003, 'Lists and thresholds: comparing the Doyal–Gough theory of human need with Nussbaum's capabilities approach*', *Capabilities, Gender, Equality*, pp. 357-381.

Government of Bangladesh (GoB) 2008a, *Millennium development goals: Bangladesh progress report 2008*, Planning commission, Government of the people's republic of Bangladesh, Dhaka, pp.1-102.

Government of Bangladesh (GoB) 2008b, *Cyclone Sidr in Bangladesh: damage, loss and needs assessment for disaster recovery and reconstruction*, Government of the people's republic of Bangladesh, Dhaka.

Government of Bangladesh (GoB) 2015, *Bangladesh Climate Change Trust Annual Report 2014-2015*, viewed February 8 2016, <<http://www.bcct.gov.bd/index.php/publications-downloads>>.

Graham, D & Rawlings, E 1980, 'Feminist research methodology: comparisons, guidelines and ethics'.

Griffin, C 2004, 'The advantages and limitations of qualitative research in psychology and education', *Scientific Annals of the Psychological Society of Northern Greece*, vol. 2, pp. 3-15.

Grootaert, C 1999, *Social capital, household welfare and poverty in Indonesia*, The world bank social development department social capital working paper series, Washington, DC, pp. 3-75.

Guha, J & Chakrabarti, B 2019, 'Achieving the sustainable development goals (SDGs) through decentralisation and the role of local governments: a systematic review', *Commonwealth Journal of Local Governance*, pp. 1-22.

Gupta, A 2015, 'Learning from others: an autoethnographic exploration of children and families social work, poverty and the capability approach', *Qualitative Social Work: Research and Practice*, vol. 16, no. 4, pp. 449-464.

Halpern, D 2005, *Social capital*, Polity Press, Cambridge.

Haque, A & Jahid, A 2019, 'Climate change belief and resilience to climate change in Bangladesh: is leadership making any difference?', in 33rd Annual Australian & New Zealand Academy of Management Conference, Queensland.

Haque, M & Islam, M 2012, 'Rural to urban migration and household living conditions in Bangladesh', *Dhaka University Journal of Science*, vol. 60, no. 2, pp. 253-257.

Haque, M, Pervin, M, Sultana, S & Huq, S 2019, 'Towards establishing a national mechanism to address losses and damages: a case study from Bangladesh', *Loss and Damage from Climate Change*, pp. 451-473.

Haque, T 2016, 'Exploring uncounted contribution of women in Bangladesh: barriers, implications and opportunities', *Advances in Diabetes and Metabolism*, vol. 4, no. 4, pp. 85-97.

- Hawkins, R & Maurer, K 2009, 'Bonding, bridging and linking: how social capital operated in New Orleans following hurricane Katrina', *British Journal of Social Work*, vol. 40, no. 6, pp. 1777-1793.
- Hay, I 2010, *Qualitative research methods in human geography* 3rd edition, Oxford University Press, Toronto.
- Haynes, S 2009, *Displaced People and the Challenge to Development*, Ph.D ,University of Leeds.
- Hennig, M, Borgatti, S, Krempel, L & Schnegg, M 2012, *Studying social networks*, Campus Verlag, Frankfurt.
- Hick, R 2012, 'The capability approach: insights for a new poverty focus', *Journal of Social Policy*, vol. 41, no. 2, pp. 291-308.
- Hockey, J 1993, 'Research methods - researching peers and familiar settings', *Research Papers in Education*, vol. 8, no. 2, pp. 199-225.
- Hoffman, A 2015, *How culture shapes the climate change debate*, Stanford University Press, California.
- Hoffmann, J 2002, 'The community context of family structure and adolescent drug use', *Journal of Marriage and Family*, vol. 64, no. 2, pp. 314-330.
- Hopper, K 2007, 'Rethinking social recovery in schizophrenia: what a capabilities approach might offer', *Social Science & Medicine*, vol. 65, no. 5, pp. 868-879.
- Hoque, A & Haque, M 2013, 'River erosion: vulnerability & its social consequences on the life of women: a study at Chondonbaisha & Kutubpur in Sariakandi, Bogra', *Review of European Studies*, vol. 5, no. 4, pp. 99-119.
- Horsfall, D, Leonard, R, Rosenberg, J & Noonan, K 2017, 'Home as a place of caring and wellbeing? A qualitative study of informal carers and caring networks lived experiences of providing in-home end-of-life care', *Health & Place*, vol. 46, pp. 58-64.
- Horsfall, D, Noonan, K & Leonard, R 2012, 'Bringing our dying home: how caring for someone at end of life builds social capital and develops compassionate communities', *Health Sociology Review: Journal of The Australian Sociological Association*, vol. 21, no. 4, pp. 373-382.
- Horsfall, J, Cleary, M & Hunt, G 2010, 'Stigma in mental health: clients and professionals', *Issues in Mental Health Nursing*, vol. 31, no. 7, pp. 450-455.
- Hossain, A 2016, 'The impact of domestic violence on women: a case study of rural Bangladesh', *Sociology and Criminology-Open Access*, vol. 4, no. 1, pp. 1-8.
- Hsieh, H & Shannon, S 2005, 'Three approaches to qualitative content analysis', *Qualitative Health Research*, vol. 15, no. 9, pp. 1277-1288.
- Hughes, J & Sharrock, W 2007, *Theory and methods in sociology*, Palgrave Macmillan, Basingstoke.

Hulme, M 2009, *Why we disagree about climate change: understanding controversy, inaction and opportunity*, Cambridge University Press, New York.

Hulme, M 2015, 'Climates and Cultures', *SAGE Publications Ltd*, viewed February 7 2018, <<https://uk.sagepub.com/en-gb/eur/climates-and-cultures/book243800>>.

Human Development Report (HDR) 2008, *Fighting climate change: Human solidarity in a divided world. Human Development Reports, Hdr.undp.org*, viewed May 4 2017, <<http://hdr.undp.org/en/content/human-development-report-20078>>.

Hunter, L 1998, 'The association between environmental risk and internal migration flows', *Population and Environment*, vol. 19, no. 3, pp. 247-277.

International Food Policy Research Institute (IFPRI) 2000, *Overcoming child malnutrition in developing countries - past achievements and future choices*, 2020 Vision for food, agriculture, and the environment. Discussion Paper 30, Washington D.C., pp. 1-73.

Ikeda, K 2009, 'How women's concerns are shaped in community-based disaster risk management in Bangladesh', *Contemporary South Asia*, vol. 17, no. 1, pp. 65-78.

Ingham, V, Islam, M & Hicks, J 2018, 'Adaptive flood mobilities in Bangladesh', *Mobilities*, vol. 14, no. 2, pp. 158-172.

Intergovernmental Panel on Climate Change (IPCC) 2007, 'AR4 Climate Change 2007: Synthesis Report — IPCC', *Ippc.ch*, viewed August 7 2017, <<https://www.ipcc.ch/report/ar4/syr/>>.

Intergovernmental Panel on Climate Change (IPCC) 2001, *Climate change 2001: the scientific basis*, Press syndicate of the university of Cambridge, Cambridge.

Intergovernmental Panel on Climate Change (IPCC) 2014, *Climate change 2007 - mitigation of climate change*, Cambridge University Press, Geneva.

International Labour Organization (ILO) 2014, *Ilo.org*, viewed July 7 2017, <http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-dhaka/documents/publication/wcms_310411.pdf>.

Iqbal, I 2019, 'Governing mass migration to Dhaka: revisiting climate factors', *Economic & Political Weekly*, vol. 36.

Ishtiaque, A & Mahmud, M 2011, 'Migration objectives and their fulfillment: a micro study of the rural-urban migration of the slums of Dhaka city', *Malaysian Journal of Society and Space*, vol. 7, no. 4, pp. 24-29.

Ishtiaque, A & Ullah, S 2013, 'The influence of factors of migration on the migration status of rural-urban migrants in Dhaka, Bangladesh', *Human Geographies – Journal of Studies and Research in Human Geography*, vol. 7, no. 2, pp. 45-52.

Islam, M 2014, 'Women, politics and patriarchy: a case of Bangladesh', in M Alston (ed), *Women, political struggles and gender equality in south Asia*, Palgrave Macmillan, London, pp. 238-253.

Islam, M & Nursey-Bray, M 2017, 'Adaptation to climate change in agriculture in Bangladesh: the role of formal institutions', *Journal of Environmental Management*, vol. 200, pp. 347-358.

Islam, M & Shamsuddoha, M 2017, 'Socioeconomic consequences of climate induced human displacement and migration in Bangladesh', *International Sociology*, vol. 32, no. 3, pp. 277-298.

Islam, M & Shamsuddoha, M 2018, 'Coastal and marine conservation strategy for Bangladesh in the context of achieving blue growth and sustainable development goals (SDGs)', *Environmental Science & Policy*, vol. 87, pp. 45-54.

Islam, M & Amstel, A 2018, *Bangladesh I: climate change impacts, mitigation and adaptation in developing countries 1st edition*, Springer International Publishing.

Islam, M, Ingham, V, Hicks, J & Manock, I 2017, 'The changing role of women in resilience, recovery and economic development at the intersection of recurrent disaster: a case study from Sirajgang, Bangladesh', *Journal of Asian and African Studies*, vol. 52, no. 1, pp. 50-67.

Islam, N & Sultana, N 2006, 'The status of women In Bangladesh: is the situation really encouraging?', *Research Journal of Social Sciences*, vol. 1, no. 1, pp. 56-65.

Islam, N, Mahbub, A, Nazem, N, Angeles, G & Lance, P 2006, *Slums of urban Bangladesh: mapping and census, 2005*, University of Dhaka, Dhaka, pp. 1-54.

Islam, R & Walkerden, G 2014, 'How bonding and bridging networks contribute to disaster resilience and recovery on the Bangladeshi coast', *International Journal of Disaster Risk Reduction*, vol. 10, pp. 281-291.

Islam, R & Walkerden, G 2015, 'How do links between households and NGOs promote disaster resilience and recovery? A case study of linking social networks on the Bangladeshi coast', *Natural Hazards*, vol. 78, no. 3, pp. 1707-1727

Islam, S 2017, 'An assessment of women vulnerability for flooding hazard and socio economic condition: a case study on Char Gonai of Tepamadhapur Union, Kaunia, Rangpur, Bangladesh', *Imperial Journal of Interdisciplinary Research (IJIR)*, vol. 3, no. 4, pp. 211-231.

Jabri, V 2004, 'Feminist ethics and hegemonic global politics', *Alternatives: Global, Local, Political*, vol. 29, no. 3, pp. 265-284.

Jahan, M 2008, 'The impact of environmental degradation on women in Bangladesh: an overview', *Asian Affair*, vol. 30, no. 2, pp. 5-15.

Jahan, M 2012, 'Impact of rural urban migration on physical and social environment: the case of Dhaka city', *International Journal of Development and Sustainability*, vol. 1, no. 2, pp. 186-194.

Jahan, S, Jespersen, E, Mukherjee, S, Kovacevic, M, Bonini, A & Calderon, C et al. 2015, *Human Development Report 2015: Work for Human Development*, United Nations Development Programme (UNDP), New York.

- Joarder, M & Hasanuzzaman, S 2008, 'Migration decision from Bangladesh: permanent versus temporary', *Asia Europe Journal*, vol. 6, no. 3-4, pp. 531-545.
- Jones, C, Hine, D & Marks, A 2016, 'The future is now: reducing psychological distance to increase public engagement with climate change', *Risk Analysis*, vol. 37, no. 2, pp. 331-341.
- Jones, S 2005, 'Community-based ecotourism', *Annals of Tourism Research*, vol. 32, no. 2, pp. 303-324.
- Jordan, J 2015, 'Swimming alone? The role of social capital in enhancing local resilience to climate stress: a case study from Bangladesh', *Climate and Development*, vol. 7, no. 2, pp. 110-123.
- Joshi, A & Aoki, M 2014, 'The role of social capital and public policy in disaster recovery: A case study of Tamil Nadu State, India', *International Journal of Disaster Risk Reduction*, vol. 7, pp. 100-108.
- Juran, L & Trivedi, J 2015, 'Women, gender norms, and natural disasters in Bangladesh', *Geographical Review*, vol. 105, no. 4, pp. 601-611.
- Kabeer, N 1990, 'Poverty, purdah and women's survival strategies in rural Bangladesh', in H Bernstein, B Crow, M Mackintosh & C Martin (ed), *Food question: profits versus people?*, Earthscan Publication Ltd, London, pp. 134-148.
- Kabeer, N 2005, 'Gender equality and women's empowerment: A critical analysis of the third millennium development goal 1', *Gender & Development*, vol. 13, no. 1, pp. 13-24.
- Kabir, R & Arafat, S 2018, 'Public health perspectives due to climate change in Bangladesh', *Birat Journal of Health Sciences*, vol. 2, no. 3, pp. 316-317.
- Kadushin, C 2018, *Understanding social networks*, Oxford University Press, Oxford [i pozostałe].
- Kais, S & Islam, M 2018, 'Impacts of and resilience to climate change at the bottom of the shrimp commodity chain in Bangladesh: a preliminary investigation', *Aquaculture*, vol. 493, pp. 406-415.
- Karlsson, S, van der Geest, K, Ahmed, I, Huq, S & Warner, K 2016, 'A people-centred perspective on climate change, environmental stress, and livelihood resilience in Bangladesh', *Sustainability Science*, vol. 11, no. 4, pp. 679-694.
- Kartiki, K 2011, 'Climate change and migration: a case study from rural Bangladesh', *Gender & Development*, vol. 19, no. 1, pp. 23-38.
- Kelly, P & Adger, W 2000, 'Theory and practice in assessing vulnerability to climate change and facilitating adaptation', *Climatic Change*, vol. 47, pp. 325-352.
- Khan, B, Nabia, S & Rahman, M 2018, 'The effect of riverbank erosion on lives and livelihoods of rural people: a study on Nolian village, Khulna, Bangladesh', *Journal of Science Technology and Environment Informatics*, vol. 6, no. 1, pp. 466-473.

- Khan, H & Rahman, T 2016, 'Women's participations in economic and NGO activities in Bangladesh', *International Journal of Sociology and Social Policy*, vol. 36, no. 7/8, pp. 491-515.
- Khan, I, Abdullah, M, Rahman, N, Nor, M & Yusoff, M 2016, 'The right of women in property sharing in Bangladesh: Can the islamic inheritance system eliminate discrimination?', *SpringerPlus*, vol. 5, no. 1, pp. 1-8.
- Khan, M 2008, 'Disaster preparedness for sustainable development in Bangladesh', *Disaster Prevention and Management: An International Journal*, vol. 17, no. 5, pp. 662-671.
- Khan, M & Rahman, M 2007, 'Partnership approach to disaster management in Bangladesh: a critical policy assessment', *Natural Hazards*, vol. 41, no. 2, pp. 359-378.
- Khan, N 2016, 'Leisure and recreation among women of selected hill-farming families in Bangladesh', *Journal of Leisure Research*, vol. 29, no. 1, pp. 5-20.
- Kibria, G, Haroon, A & Nugegoda, D 2017, 'An innovative model for engagement of rural citizens/community of Bangladesh with climate change', *Journal of Climate Change*, vol. 3, no. 2, pp. 73-80.
- Kim, C, Nakanishi, H, Blackman, D, Freyens, B & Benson, A 2017, 'The effect of social capital on community co-production: towards community-oriented development in post-disaster recovery', *Procedia Engineering*, vol. 180, pp. 901-911.
- Kim, K 2012, 'The capability approach to environmental refugees', Presented at the Western Political Science Association Annual Meeting, Korea University, 22-24 March 2012, Department of Public Administration, Portland.
- Kniveton, D, Verkerk, K, Smith, C & Black, R 2008, *Climate change and migration: improving methodologies to estimate flows*, International organization for migration (IOM), Geneva, pp. 5-59.
- Koenig, M, Ahmed, S, Hossain, M & Mozumder, A 2003, 'Women's status and domestic violence in rural Bangladesh: individual- and community-level effects', *Demography*, vol. 40, no. 2, pp. 269-288.
- Kolmannskog, V 2008, *Future floods of refugees: a comment on climate change, conflict and forced migration*, Norwegian Refugee Council, Oslo.
- Kontuly, T & Smith, K 1995, 'Culture as a determinant of reasons for migration', *The Social Science Journal*, vol. 32, no. 2, pp. 179-193.
- Kreft, S, Eckstein, D & Melchior, I 2017, *Who suffers most from extreme weather events? Weather-related loss events in 2015 and 1996 to 2015*, Germanwatch, Berlin, viewed October 25 2017, <<https://germanwatch.org/sites/germanwatch.org/files/publication/16411.pdf>>.
- Kumar, K, 1989. *Conducting key informant interviews in developing countries*. A.I.D. Program design and evaluation methodology report No. 13. Agency for International Development, pp.1-33.

Kwon, S & Adler, P 2014, 'Social capital: maturation of a field of research', *Academy of Management Review*, vol. 39, no. 4, pp. 412-422.

Lacey, A & Luff, D 2007, 'Qualitative data analysis', Rds-yh.nihr.ac.uk, viewed March 10 2017, <https://www.rds-yh.nihr.ac.uk/wp-content/uploads/2013/05/9_Qualitative_Data_Analysis_Revision_2009.pdf>.

LaLone, M 2012, 'Neighbors helping neighbors: an examination of the social capital mobilization process for community resilience to environmental disasters', *Journal of Applied Social Science*, vol. 6, no. 2, pp. 209-237.

Lee B, B, McCollum, B & Eschoo, A 2009, *Recognizing the Disparate Impact of Climate Change on Women and the Efforts of Women Globally to Address Climate Change*, House of Representatives, Resolution 98.

Leonard, R & Onyx, J 2004, *Social capital & community building: spinning straw into gold*, Janus Pub. Co., London.

Leonard, R, Horsfall, D, Rosenberg, J & Noonan, K 2018, 'Carer experience of end-of-life service provision: a social network analysis', *BMJ Supportive & Palliative Care*, pp. bmjspcare-2017-001344.

Lewis, W 1954, 'Economic development with unlimited supplies of labour', *Manchester School of Economic and Social Studies*, vol. 22, no. 2, pp. 139-191.

Lindell, M & Prater, C 2003, 'Assessing community impacts of natural disasters', *Natural Hazards Review*, vol. 4, no. 4, pp. 176-185.

Lollo, M 2013, 'Social Capital in the context of Development: Which Measure and Which Impact on the Women Empowerment in Indonesia?', Ph.D. Aix-Marseille University.

Luhmann, N 1995, 'Inklusion und Exklusion', in N Luhmann (ed), *Soziologische aufklärung 6: Die Soziologie und der Mensch*, Springer Fachmedien Wiesbaden GmbH, Heidelberg, pp. 237-265.

Malalgoda, C, Amaratunga, D & Haigh, R 2018, 'Empowering local governments in making cities resilient to disasters: research methodological perspectives', *Procedia Engineering*, vol. 212, pp. 902-909.

Mallick, B & Vogt, J 2012, 'Cyclone, coastal society and migration: empirical evidence from Bangladesh', *International Development Planning Review*, vol. 34, no. 3, pp. 217-240.

Mallick, B & Vogt, J 2014, 'Population displacement after cyclone and its consequences: empirical evidence from coastal Bangladesh', *Natural Hazards*, vol. 73, no. 2, pp. 191-212.

Massey, D 2015, 'A Missing Element in Migration Theories', *Migration Letters*, vol. 12, no. 3, pp. 279-299.

Masud, M, Akhatr, R, Nasrin, S & Adamu, I 2017, 'Impact of socio-demographic factors on the mitigating actions for climate change: a path analysis with mediating effects of attitudinal variables', *Environmental Science and Pollution Research*, vol. 24, no. 34, pp. 26462-26477.

- Mayunga, J 2007, *Understanding and Applying the Concept of Community Disaster Resilience: A Capital-based Approach.*, Summer Academy for Social Vulnerability and Resilience Building 2007.
- McAdam, J 2011, *Climate change displacement and international law: complementary protection standards*, UNHCR Division of International Protection, Geneva, pp.1-70.
- McKeown, R 2002, 'Progress has been made in education for sustainable development', *Applied Environmental Education & Communication*, vol. 1, no. 1, pp. 21-23.
- McLean, L, Myers, M, Smillie, C & Vaillancourt, D 1997, 'Qualitative research methods: an essay review', *Education Policy Analysis Archives*, vol. 5, p. 13.
- McLeman, R & Hunter, L 2010, 'Migration in the context of vulnerability and adaptation to climate change: insights from analogues', *Wiley Interdisciplinary Reviews: Climate Change*, vol. 1, no. 3, pp. 450-461.
- McNamara, K, Olson, L & Rahman, M 2016, 'Insecure hope: the challenges faced by urban slum dwellers in Bholra Slum, Bangladesh', *Migration and Development*, vol. 5, no. 1, pp. 1-15.
- Mehta, M 2007, *Gender matters: lessons for disaster risk reduction in south Asia*, ECHO, International Centre for Integrated Mountain Development (ICIMOD).
- Menon, N 2002, 'Universalism without foundations?', *Economy and Society*, vol. 31, no. 1, pp. 152-169.
- Merriam, S 2002, *Qualitative research in practice: Examples for discussion and analysis*, Jossey-Bass, San Francisco.
- Mies, M 1983, 'Towards a methodology for feminist research', in G Bowles & R Klein (ed), Routledge & Kegan Paul, Boston, pp. 117-140.
- Migheli, M 2011, 'Capabilities and functionings: the role of social capital for accessing new capabilities', *Review of Political Economy*, vol. 23, no. 1, pp. 133-142.
- Ministry of Planning 2015, *7th Five Year Planning of Bangladesh*. Ministry of Planning, Ministry of Planning, Government of the Bangladesh, Dhaka.
- Mirza, M & Paul, S 1992, *Natural Disaster and Environment in Bangladesh (in Bengali)*, Centre for Environmental Studies and Research, Dhaka.
- Misra, M 2016, 'Smallholder agriculture and climate change adaptation in Bangladesh: questioning the technological optimism', *Climate and Development*, vol. 9, no. 4, pp. 337-347.
- Mollah, T & Ferdaush, J 2015, 'Riverbank erosion, population migration and rural vulnerability in Bangladesh (A Case Study on Kazipur Upazila at Sirajgonj District)', *Environment and Ecology Research*, vol. 3, no. 5, pp. 125-131.
- Momtaz, S & Asaduzzaman, M 2019, *Climate change impacts and women's livelihood: vulnerability in developing countries*, Routledge, London.

- Mortuza, A 2018, 'Trends in Climate Change and Some of Its Determinants in Bangladesh.', *Research and Science Today*, vol. 1, no. 15, pp. 66-72.
- Mubangizi, B 2003, 'Drawing on social capital for community economic development: Insights from a South African rural community', *Community Development Journal*, vol. 38, no. 2, pp. 140-150.
- Murphy, C & Gardoni, P 2006, 'The role of society in engineering risk analysis: a capabilities-based approach', *Risk Analysis*, vol. 26, no. 4, pp. 1073-1083.
- Murphy, C & Gardoni, P 2010, 'Assessing capability instead of achieved functionings in risk analysis', *Journal of Risk Research*, vol. 13, no. 2, pp. 137-147.
- Mutton, D & Haque, C 2004, 'Human vulnerability, dislocation and resettlement: adaptation processes of river-bank erosion-induced displacees in Bangladesh', *Disasters*, vol. 28, no. 1, pp. 41-62.
- Myers, N 2002, 'Environmental refugees: a growing phenomenon of the 21st century', *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, vol. 357, no. 1420, pp. 609-613.
- Nahar, A, Luckstead, J, Wailes, E & Alam, M 2018, 'An assessment of the potential impact of climate change on rice farmers and markets in Bangladesh', *Climatic Change*, vol. 150, no. 3-4, pp. 289-304.
- Nakagawa, Y & Shaw, R 2004, 'Social capital: a missing link to disaster recovery', *International Journal of Mass Emergencies and Disasters*, vol. 22, no. 1, pp. 5-34.
- Nasreen, M 2012, *Women and girls, vulnerable or Resilient*, Dhaka Institute of Disaster Management and Vulnerability Studies, University of Dhaka, Dhaka.
- Naved, R & Persson, L 2010, 'Dowry and spousal physical violence against women in Bangladesh', *Journal of Family Issues*, vol. 31, no. 6, pp. 830-856.
- Nazneen, S, Hossain, N & Sultan, M 2011, 'National discourses on women's empowerment in Bangladesh: continuities and change', *IDS Working Papers*, vol. 2011, no. 368, pp. 1-41.
- Neumayer, E & Plumper, T 2007, 'The gendered nature of natural disasters: the impact of catastrophic events on the gender gap in life expectancy, 1981–2002', *Annals of the Association of American Geographers*, vol. 97, no. 3, pp. 551-566.
- Nikezić, S, Purić, S & Purić, J 2012, 'Transactional and transformational leadership: development through changes', *International Journal for Quality Research*, vol. 6, no. 3, pp. 285-296.
- Nishat, A, Mukherjee, N, Roberts, E & Hasemann, A 2013, *A range of approaches to address loss and damage from climate change impacts in Bangladesh*, Centre for climate change and environmental research, BRAC University, Dhaka.
- Nussbaum, M 1995, 'Human capabilities, female human beings', in M Nussbaum & J Glover (ed), *Women, culture, and development*, Clarendon Press, Oxford, London, pp. 61-104.

- Nussbaum, M 2000, *Women and human development*, Cambridge University Press, New York.
- Nussbaum, M 2002, 'Women and the law of peoples', *Politics, Philosophy & Economics*, vol. 1, no. 3, pp. 283-306.
- Nussbaum, M 2003, 'Capabilities as Fundamental Entitlements: Sen and Social Justice', *Feminist Economics*, vol. 9, no. 2-3, pp. 33-59.
- Nussbaum, M 2006, *Hiding from Humanity*, Princeton University Press, Princeton, N.J.
- Nussbaum, M 2011, *Creating capabilities: the human development approach*, Belknap Press of Harvard University Press, Cambridge, Mass.
- O'Brien, K, Sygna, L, Leichenko, R, Adger, W, Barnett, J & Mitchell, T et al. 2008, *Disaster risk reduction, climate change adaptation and human security*, University of Oslo, Oslo, viewed May 10 2019, <<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.569.6835&rep=rep1&type=pdf>>.
- Oakley, A 1997, *The gendering of methodology: an experiment in knowing*, Seminar to Swedish Collegium for Advanced Study in the Social Sciences, Uppsala.
- Oakley, A 1998, 'Science, gender, and women's liberation: an argument against postmodernism', *Women's Studies International Forum*, vol. 21, no. 2, pp. 133-146.
- O'Brien, S & Ó Fathaigh, M 2005, 'Bringing in bourdieu's theory of social capital: renewing learning partnership approaches to social inclusion', *Irish Educational Studies*, vol. 24, no. 1, pp. 65-76.
- Okin, S 2003, 'Poverty, Well-being, and gender: what counts, who's heard?', *Philosophy & Public Affairs*, vol. 31, no. 3, pp. 280-316.
- Okojie, C 1994, 'Gender inequalities of health in the third world', *Social Science & Medicine*, vol. 39, no. 9, pp. 1237-1247.
- Olesen, V 1994, 'Feminist qualitative research in the millennium's first decade: development, challenges, prospects', in N Denzin & Y Lincoln (ed), *Handbook of qualitative research*, Thousand Oaks: Sage, USA.
- Ono, Y & Schmidlin, T 2011, 'Design and adoption of household tornado shelters for Bangladesh', *Natural Hazards*, vol. 56, no. 1, pp. 321-330.
- Özden, C & Schiff, M 2006, *International Migration, Remittances, and the Brain Drain*, World Bank, Washington, DC.
- Palmer, T & Stevens, B 2019, 'The scientific challenge of understanding and estimating climate change', *Proceedings of the National Academy of Sciences*, vol. 116, no. 49, pp. 24390-24395.
- Panday, P 2015, *Women's political participation in Bangladesh*, Springer India, India.

- Patulny, R & Svendsen, G 2007, 'Exploring the social capital grid: bonding, bridging, qualitative, quantitative', *International Journal of Sociology and Social Policy*, vol. 27, no. 1/2, pp. 32-51.
- Paul, S & Routray, J 2011, 'Household response to cyclone and induced surge in coastal Bangladesh: coping strategies and explanatory variables', *Natural Hazards*, vol. 57, no. 2, pp. 477-499.
- Penning-Roswell, E, Sultana, P & Thompson, P 2013, 'The 'last resort'? Population movement in response to climate-related hazards in Bangladesh', *Environmental Science & Policy*, vol. 27, pp. S44-S59.
- Poncelet, A, Gemenne, F, Martiniello, M & Boussetta, H 2010, 'A country made for disasters: environmental vulnerability and forced migration in Bangladesh', in T Afifi & J Jäger (ed), *Environment, Forced Migration and Social Vulnerability*, Springer-Verlag, Berlin.
- Pouliotte, J, Smit, B & Westerhoff, L 2009, 'Adaptation and development: livelihoods and climate change in Subarnabad, Bangladesh', *Climate and Development*, vol. 1, no. 1, pp. 31-46.
- Preibisch, K, Dodd, W & Su, Y 2016, 'Pursuing the capabilities approach within the migration–development nexus', *Journal of Ethnic and Migration Studies*, vol. 42, no. 13, pp. 2111-2127.
- Pugh, A 1990, 'My statistics and feminism', in L Stanley (ed), *Feminist praxis*, Routledge, London, pp. 103-113.
- Putnam, R 1995, 'Bowling alone: America's declining social capital', *Journal of Democracy*, vol. 6, no. 1, pp. 65-78.
- Qizilbash, M 1996, 'Capabilities, wellbeing and human development: a survey', *Journal of Development Studies*, vol. 33, no. 2, pp. 143-162.
- Rahman, M 2018, 'Governance matters: climate change, corruption, and livelihoods in Bangladesh', *Climatic Change*, vol. 147, no. 1-2, pp. 313-326.
- Rahman, M & Tosun, J 2018, 'State bureaucracy and the management of climate change adaptation in Bangladesh', *Review of Policy Research*, vol. 35, no. 6, pp. 835-858.
- Rahman, M, Islam, S & Rahman, S 2015, 'Coping with flood and riverbank erosion caused by climate change using livelihood resources: a case study of Bangladesh', *Climate and Development*, vol. 7, no. 2, pp. 185-191.
- Rawal, N 2007, 'Social inclusion and exclusion: a Review', *Dhaulagiri Journal of Sociology and Anthropology*, vol. 2, pp. 161-180.
- Rawlani, A & Sovacool, B 2011, 'Building responsiveness to climate change through community based adaptation in Bangladesh', *Mitigation and Adaptation Strategies for Global Change*, vol. 16, no. 8, pp. 845-863.

- Rayhan, I & Grote, U 2007, 'Coping with floods: does rural-urban migration play any role for survival in rural Bangladesh?', *Journal of Identity and Migration Studies*, vol. 1, no. 2, pp. 82-98.
- Razzaque, A, Clair, K, Chin, B, Islam, M, Mia, M & Chowdhury, R et al. 2020, 'Correction to: association of time since migration from rural to urban slums and maternal and child outcomes: Dhaka (North and South) and Gazipur City Corporations', *Journal of Urban Health*, vol. 97, no. 1, pp. 171-172.
- Renaud, F, Bogardi, J, Dun, O & Warner, K 2007, *Control, adapt or flee: how to Face environmental migration?*, UNU Institute for Environment and Human Security, Bonn.
- Ritchie, L & Gill, D 2007, 'Social Capital Theory as an Integrating Theoretical Framework in Technological Disaster Research', *Sociological Spectrum*, vol. 27, no. 1, pp. 103-129.
- Robeyns, I 2005, 'The capability approach: a theoretical survey', *Journal of Human Development*, vol. 6, no. 1, pp. 93-117.
- Robeyns, I 2016, 'Capabilitarianism', *Journal of Human Development and Capabilities*, vol. 17, no. 3, pp. 397-414.
- Rowley, J 2002, 'Using case studies in research', *Management Research News*, vol. 25, no. 1, pp. 16-27.
- Roy, M & Venema, H 2002, 'Reducing risk and vulnerability to climate change in India: the capabilities approach', *Gender & Development*, vol. 10, no. 2, pp. 78-83.
- Saidin, K & Yaacob, A 2016, 'Insider researchers: challenges & opportunities', in *International Seminar on Generating Knowledge Through Research*, Proceeding of ICECRS, pp. 849-854, viewed June 9 2019, <<http://ojs.umsida.ac.id/index.php/icecrs>>.
- Sander, T 2002, 'Social capital and new urbanism: leading a civic horse to water?', *National Civic Review*, vol. 91, no. 3, pp. 213-234.
- Sanjek, R 1992, 'Fieldnotes: the makings of anthropology. Ithaca: Cornell university press, 1990. 432 pp. \$42.50 (cloth) \$12.95 (paper) (Reviewed by Benjamin Kilborne)', *Journal of the History of the Behavioral Sciences*, vol. 28, no. 3, pp. 274-276.
- Sanyal, S & Routray, J 2016, 'Social capital for disaster risk reduction and management with empirical evidences from Sundarbans of India', *International Journal of Disaster Risk Reduction*, vol. 19, pp. 101-111.
- Sarker, M, Wu, M, Alam, G & Shouse, R 2019, 'Livelihood vulnerability of riverine-island dwellers in the face of natural disasters in Bangladesh', *Sustainability*, vol. 11, no. 6, pp. 1-23.
- Satterthwaite, D 2013, 'The political underpinnings of cities' accumulated resilience to climate change', *Environment and Urbanization*, vol. 25, no. 2, pp. 381-391.
- Sayer, A 2000, *Realism and social science*, SAGE publications limited, London
- Schott, R 2008, 'Feminism and the history of philosophy', in L Alcoff & E Kittay (ed), *In the blackwell guide to feminist philosophy*, Blackwell Publishing, Oxford, pp. 43-63.

- Schuler, S, Hashemi, S, Riley, A & Akhter, S 1996, 'Credit programs, patriarchy and men's violence against women in rural Bangladesh', *Social Science & Medicine*, vol. 43, no. 12, pp. 1729-1742.
- Schuler, S, Islam, F & Rottach, E 2010, 'Women's empowerment revisited: a case study from Bangladesh', *Development in Practice*, vol. 20, no. 7, pp. 840-854.
- Sen, A 1984, 'The tanner lectures on human values. Edited by S. M. McMurrin. (Pp. 247; £25.00.) Cambridge University Press: Cambridge. 1983.', *Psychological Medicine*, vol. 14, no. 3, p. 721.
- Sen, A 1985, *Commodities and capabilities*, North-Holland, Amsterdam.
- Sen, A 1992, *Inequality reexamined*, Oxford University Press, Oxford.
- Sen, A 1999, *Development as freedom*, Alfred A. Knopf, New York.
- Sen, A 2001, *Development as freedom* 2nd edition, Oxford University Press, Oxford.
- Shetu, M, Islam, M, Rahman, K & Anisuzzaman, M 2017, 'Population displacement due to river erosion in Sirajganj district: impact on food security and socio-economic status', *Journal of the Bangladesh Agricultural University*, vol. 14, no. 2, pp. 191-199.
- Shirky, C 2008, *Here comes everybody*, Penguin, New York.
- Siddique, A 2017, 'Are we heading for another major flood?', *Dhaka Tribune*, viewed December 17 2017, <<https://www.dhakatribune.com/bangladesh/2017/08/14/heading-major-flood>>.
- Siddiqui, T 2003, 'Migration as a livelihood strategy of the poor: the Bangladesh case', in *Regional Conference on Migration, Development and Pro-Poor Policy Choices in Asia*, Regional Conference on Migration, Development and Pro-Poor Policy Choices in Asia, Dhaka, pp. 1-12.
- Siddiqui, T 2012, *South Asian Regional Collaboration on Protection of Migrant Rights*, Refugee and Migratory Movements Research Unit (RMMRU), Dhaka.
- Skeldon, R 1997, *Migration and development* 1st edition, Addison Wesley Longman Limited, London.
- Smith, A 2012, 'Debating environmental migration: society, nature and population displacement in climate change', *Journal of International Development*, vol. 24, no. 8, pp. 1058-1070.
- Smith, M & Seward, C 2009, 'The relational ontology of Amartya Sen's capability approach: incorporating social and individual causes', *Journal of Human Development and Capabilities*, vol. 10, no. 2, pp. 213-235.
- Sorensen, C, Murray, V, Lemery, J & Balbus, J 2018, 'Climate change and women's health: Impacts and policy directions', *PLOS Medicine*, vol. 15, no. 7.

Spence, A, Poortinga, W & Pidgeon, N 2012, 'The psychological distance of climate change', *Risk Analysis*, vol. 32, no. 6, pp. 957-972.

Spivak, G 1996, *The Spivak reader: selected works of Gayatri Chakravorty Spivak*, Routledge, New York.

Stewart, F 2001, 'Women and human development: the capabilities approach, by Martha Nussbaum (Cambridge University Press, Cambridge: 2000, pp. xxi +312, hbk £17.95)', *Journal of International Development*, vol. 13, no. 8, pp. 1191-1192.

Stiglitz, J, Sen, A & Fitoussi, J 2009, 'Commission on the measurement of economic and social progress', *Ec.europa.eu*, viewed October 15 2015, <<http://www.stiglitz-sen-fitoussi.fr/en/index.htm>>.

Stillman, S, Gibson, J, McKenzie, D & Rohorua, H 2012, *Miserable migrants? Natural experiment evidence on international migration and objective and subjective well-being*, The Institute for the Study of Labor (IZA).

Stojanov, R, Kelman, I, Ullah, A, Duží, B, Procházka, D & Blahútová, K 2016, 'Local expert perceptions of migration as a climate change adaptation in Bangladesh', *Sustainability*, vol. 8, no. 12, p. 1223.

Storr, V & Balch, S 2012, 'Post-disaster community recovery in heterogeneous, loosely connected communities', *Review of Social Economy*, vol. 70, no. 3, pp. 295-314.

Stuart, E & Woodroffe, J 2016, 'Leaving no-one behind: can the sustainable development goals succeed where the millennium development goals lacked?', *Gender & Development*, vol. 24, no. 1, pp. 69-81.

Subhani, R & Ahmad, M 2019, 'Socio-economic impacts of cyclone Aila on migrant and non-migrant households in the southwestern coastal areas of Bangladesh', *Geosciences*, vol. 9, no. 11, p. 482.

Sultana, A & Zulkefli, N 2013, 'Discrimination against Women in the Developing Countries: A Comparative Study', *International Journal of Social Science and Humanity*, pp. 256-259.

Sultana, P, Thompson, P & Wesselink, A 2020, 'Coping and resilience in riverine Bangladesh', *Environmental Hazards*, vol. 19, no. 1, pp. 70-89.

Sward, J 2008, *Migration and Climate Change: How will Climate Shifts Affect Migration Trends?*, University of Sussex, Brighton.

Tacoli, C 2009, 'Crisis or adaptation? Migration and climate change in a context of high mobility', *Environment and Urbanization*, vol. 21, no. 2, pp. 513-525.

Tanjeela, M 2015, 'Women and climate change adaptation in Bangladesh: do women matter?', *The International Journal of Climate Change: Impacts and Responses*, vol. 7, no. 4, pp. 61-74.

Tanjeela, M & Rutherford, S 2018, 'The influence of gender relations on women's involvement and experience in climate change adaptation programs in Bangladesh', *SAGE Open*, vol. 8, no. 4, pp. 1-9.

Tanny, N & Rahman, M 2017, 'Climate change vulnerabilities of woman in Bangladesh', *The Agriculturists: A Scientific Journal of Krishi Foundation*, vol. 14, no. 2, pp. 113-123.

Tariq, M & Syed, J 2017, 'Intersectionality at work: south Asian muslim women's experiences of employment and leadership in the United Kingdom', *Sex Roles*, vol. 77, no. 7-8, pp. 510-522.

Taylor, E 1999, 'The new economics of labour migration and the role of remittances in the migration process', *International Migration*, vol. 37, no. 1, pp. 63-88.

Thomas, T, Mainuddin, K, Chiang, C, Rahman, A, Haque, A & Islam, N et al. 2013, *Agriculture and adaptation in Bangladesh: Current and projected impacts of climate change*, International Food Policy Research Institute (IFPRI), Washington, D.C.

Thomas, V, Albert, J & Hepburn, C 2014, 'Contributors to the frequency of intense climate disasters in Asia-Pacific countries', *Climatic Change*, vol. 126, no. 3-4, pp. 381-398.

Truong, T & Gasper, D 2008, 'Trans-local livelihoods and connections: embedding a gender perspective into migration studies', *Gender, Technology and Development*, vol. 12, no. 3, pp. 285-302.

Uddin, A & Basak, J 2012, *Effects of Riverbank Erosion on Livelihood*, Unnayan Onneshan-The Innovators, Dhaka, pp. 3-36.

UN Women Watch 2009, 'UN Women - United nations entity for gender equality and the empowerment of women', *UN Women*, viewed November 13 2016, <<http://womenwatch.unwomen.org/>>.

United Nations Development Programme(UNDP) 2013, 'Gender and disaster risk reduction', *Undp.org*, viewed December 31 2016, <<https://www.undp.org/content/dam/undp/library/gender/Gender%20and%20Environment/PB3-AP-Gender-and-disaster-risk-reduction.pdf>>.

United Nations Development Programme (UNDP) 2014, *Eradicate extreme poverty and hunger: Where do we stand?*, viewed March 5 2016, <<http://www.undp.org/content/undp/en/home/mdgoverview/mdg>>.

Unger, R 1983, 'Through the looking glass: no wonderland yet! (The reciprocal relationship between methodology and models of reality)', *Psychology of Women Quarterly*, vol. 8, no. 1, pp. 9-32.

United Nations 2015, *Transforming our world: the 2030 Agenda for Sustainable Development*, viewed October 25 2019, <https://www.mmv.org/newsroom/publications/transforming-our-world-2030-agenda-sustainable-development?gclid=EAIaIQobChMIv9ThqOG36AIVy6mWCh2gUQywEAAYASAAEgIEYPD_BwE>.

United Nations Development Programme (UNDP) 2011, *Human Development Report 2011. Sustainability and Equity: A Better Future for All*, Palgrave Macmillan, New York.

- Unluer, S 2012, 'Being an insider researcher while conducting case study research', *The Qualitative Report*, vol. 17, no. 29, pp. 1-14.
- US AID 1996, *Performance monitoring and evaluation TIPS*, Pdf.usaid.gov, viewed June 7 2016, <https://pdf.usaid.gov/pdf_docs/PNABS541.pdf>.
- Van Dijk, J 2012, *The network society* 3rd edition, Sage Publications, London.
- Van Marle, K 2003, 'The capabilities approach', 'The imaginary domain', and 'Asymmetrical reciprocity': feminist perspectives on equality and justice', *Feminist Legal Studies*, vol. 11, no. 3, pp. 255-278.
- Varda, D, Forgette, R, Banks, D & Contractor, N 2009, 'Social network methodology in the study of disasters: issues and insights prompted by post-Katrina research', *Population Research and Policy Review*, vol. 28, no. 1, pp. 11-29.
- Wahlström, M 2011, 'Chairperson's summary', in *The Nansen Conference: Climate Change and Displacement in the 21st Century*, Norwegian Refugee Council, Oslo, pp. 1-19.
- Walter, P 2015, *Floods and rural-urban migration in Bangladesh*, Labos.ulg.ac.be, viewed March 7 2017, <<http://labos.ulg.ac.be/hugo/wp-content/uploads/sites/38/2017/11/The-State-of-Environmental-Migration-2015-51-64.pdf>>.
- Warner, K & Geest, K 2013, 'Loss and damage from climate change: local-level evidence from nine vulnerable countries', *International Journal of Global Warming*, vol. 5, no. 4, pp. 367-386.
- Warner, K, Ehrhart, C, Sherbinin, A, Adamo, S & Onn, T 2009, *In search of shelter*, United Nations University, CARE, and CIESIN-Columbia University and in close collaboration with the European Commission 'Environmental Change and Forced Migration Scenarios Project', the UNHCR, and the World Bank.
- Wasta, R & Haque, R 2011, *Feminization of environment: Is the national water policy-1998, egnder sensitive?*, Lambert academic publishing.
- Whitehead, P, Jin, L, Macadam, I, Janes, T, Sarkar, S & Rodda, H et al. 2018, 'Modelling impacts of climate change and socio-economic change on the Ganga, Brahmaputra, Meghna, Hooghly and Mahanadi river systems in India and Bangladesh', *Science of The Total Environment*, vol. 636, pp. 1362-1372.
- Widmer, E 2011, 'Family Configurations: A Structural Approach to Family Diversity', *Journal of Comparative Family Studies*, vol. 42, no. 6, pp.928-929.
- Williams, L 2018, 'Climate change, colonialism, and women's well-being in Canada: what is to be done?', *Canadian Journal of Public Health*, vol. 109, no. 2, pp. 268-271.
- Wind, T & Komproe, I 2012, 'The mechanisms that associate community social capital with post-disaster mental health: A multilevel model', *Social Science & Medicine*, vol. 75, no. 9, pp. 1715-1720.

- Wood, G & Salway, S 2000, 'Introduction: securing livelihoods in Dhaka slums', *Journal of International Development*, vol. 12, no. 5, pp. 669-688.
- Woolcock, M & Narayan, D 2000, 'Social capital: implications for development theory, research, and policy', *The World Bank Research Observer*, vol. 15, no. 2, pp. 225-249.
- Woolgar, S 1983, 'Irony in the social study of science', in K Cetina & M Mulkay (ed), *Science Observed: Perspectives on the Social Study/Science*, Sage, London, pp. 239-266.
- World Bank 2005, *Siteresources.worldbank.org*, viewed January 19 2017, <https://siteresources.worldbank.org/EXTTOPPSISOU/Resources/1424002-1185304794278/4026035-1185375653056/4028835-1185375678936/1_Transsect_walk.pdf>.
- World Bank 2011, *Gender equality and development*, The International Bank for Reconstruction and Development / The World Bank, Washington DC.
- Wright, E & Storr, V 2011, 'Social capital as collective narratives and post-disaster community recovery', *The Sociological Review*, vol. 59, no. 2, pp. 266-282.
- Zaber, M, Nardi, B & Chen, J 2018, 'Responding to riverbank erosion in Bangladesh', in *COMPASS '18: ACM SIGCAS Conference on Computing and Sustainable Societies*, Association for Computing Machinery, New York, pp. 1-11.

APPENDIX A: Western Sydney University Human Research Ethics Approval Letter

Locked Bag 1797
Penrith NSW 2751 Australia
Office of Research Services

ORS Reference: H11302



HUMAN RESEARCH ETHICS COMMITTEE

27 October 2015

Professor Rosemary Leonard
School of Social Sciences and Psychology

Dear Rosemary,

I wish to formally advise you that the Human Research Ethics Committee has approved your research proposal H11302 "Climate Migrants in Bangladesh: Insights into Women's Vulnerabilities and Survival Strategies", until 31 December 2017 with the provision of a progress report annually if over 12 months and a final report on completion.

Conditions of Approval

1. A progress report will be due annually on the anniversary of the approval date.
2. A final report will be due at the expiration of the approval period.
3. Any amendments to the project must be approved by the Human Research Ethics Committee prior to being implemented. Amendments must be requested using the HREC Amendment Request Form: http://www.uws.edu.au/data/assets/pdf_file/0018/491130/HREC_Amendment_Request_Form.pdf
4. Any serious or unexpected adverse events on participants must be reported to the Human Ethics Committee via the Human Ethics Officer as a matter of priority.
5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the Committee as a matter of priority
6. Consent forms are to be retained within the archives of the School or Research Institute and made available to the Committee upon request.

Please quote the registration number and title as indicated above in the subject line on all future correspondence related to this project. All correspondence should be sent to the email address humanethics@uws.edu.au.

This protocol covers the following researchers:

Rosemary Leonard, Debra Keenahan, Anita Jahid

Yours sincerely



Professor Elizabeth Deane
Presiding Member,
Human Researcher Ethics Committee

**APPENDIX B: Climate-Migrant Women – Interview Checklists, Invitation Flyer,
Invitation Letter, Participant Information Sheet and Consent Form**

APPENDIX B-1: Interview Checklists for Climate Migrant Women

Topics of Interview with the Participants (Climate Migrant Women)

Group 1: Life Story Approach Interview with Climate Migrant Women

Climate migrant women will be asked about their experience and thoughts about migration by the principal researcher. This semi-structured interview allows scope to explore the issues raised by the women. Topics and prompt questions will include:

- **Everyday life:** Climate migrant women those who have migrated or planned to migrate will be asked to talk about their everyday life, e.g. *Let's start by talking about your daily routine on an average day? How does it change across the week or across the year? Are there aspects of your daily duties that cause you stress?* [Prompts to explore these difficulties – this could be quite an extensive list – if few problems are mentioned the researcher will specifically check on major aspects of life e.g. food, shelter, work, staying in contact, education for children, child care etc.]
- **Experiences related to climate migration:** Climate migrant women who have already migrated will be asked to talk on experiences related to climate migration, e.g. *Were there specific events that prompted you to leave your home and come to Dhaka?* In case of those climate migrant women who have planned to migrate will be asked - *Are there specific events that have prompted you to think about leaving your home and to go Dhaka?* [Prompts to explore their situation and thoughts on leaving].
- **Major life changes and events starting from the childhood:** Climate migrant women will be requested to talk on their major life changes and events, e.g. *What have been the other marked changes in your life before moving here?* For those who are thinking of migrating, *What have been the other marked changes in your life before now?* [Prompts to see if they grew up in the area they migrated from, changes when

they got married, loss of close family etc. This is to see where migration fits in their life stories. Will it be their first major disruption/ dislocation or have their lives been previously/ continuously disrupted?]

- **Key relationship and support from any family members/ relatives/ organizations:** Climate migrant women will be asked to talk on their key relationships and support mechanisms, e.g. *Before you moved to Dhaka, were there people who helped you out?* For the women who have planned to move - *Are there people here who help you out?* [Prompts to explore the nature of the help and people involved] *Now you are in Dhaka are there people who help you?* Or for those not yet moved *Are there people in Dhaka who will help you if you move there?* [Prompts to explore the nature of the help and people involved].
- **Any plans or concerns for future:** Climate migrant women will be asked to talk on their future plan or concerns, e.g. *What do you see happening in the future?* [prompts for plans or hopes for themselves or their children and major obstacles to those plans]

After interviewing the climate migrant women, the participant women will be asked which issues should be reported to the key informants (Group 2) who might further their cause. This will be one to one meeting with each climate migrant woman after their interview. This will ensure that the researcher presents the climate migrant women's position, as they would like to be presented.

Group 2: In depth Interview with Key Informants

Key Informants will be asked to provide their expert opinion on relevant information, ideas and insights on climate migrant women issues in Bangladesh. They will be asked about their experience with this group of women, the women's problems, and the support that is available. The specific questions will be compiled in detail after the principal researcher has spoken with the climate migrant women.

APPENDIX B-2: Invitation Flyer for Climate Migrant Women



In Bangladesh several natural disasters due to climate change upset people's lives in some part of the country. The major disasters are the occurrences of flood, cyclone and storm surge, flash flood, drought, tornado, riverbank erosion, and landslide. These disasters adversely affect the whole environment, including people, their homes, or their livelihoods. Women are particularly vulnerable when it comes to natural disasters and sometimes they have to leave their homes and others think about leaving. They become climate migrants.

In this context I (Anita Jahid) am doing a research project on 'Climate migrant women's survival strategies in Bangladesh' to contribute to PhD research at Western Sydney University, Australia. I will also make a report for the local NGOs and Government agencies, which may help to reduce the vulnerability of climate migrant women in Bangladesh.

In this study I want to hear ordinary women's own thoughts and experiences about climate migration.

If you have migrated or are thinking about migrating due to climate change impacts, you are cordially invited to take part in this study.

If you know of others who might be interested, please pass this information on to them so that they also have the opportunity to talk about their concerns.

Your responses and contact details will be strictly confidential. If you have any questions about the study, please contact.

Principal Researcher

Anita Jahid (PhD Candidate)

School of Social Sciences and Psychology, Western Sydney University, Australia

Mobile: +61452070252/ +8801732242102 Email: 17631192@uws.edu.au

Supervisors

Dr Debra Keenahan: Contact No.: (02) 4736 0045; Email: d.keenahan@uws.edu.au

Professor Rosemary Leonard: Contact Detail: (08) 9333 6663; Email: r.leonard@uws.edu.au



APPENDIX B-3: Invitation Flyer for Climate Migrant Women – Bengali

বাংলাদেশে জলবায়ু পরিবর্তনের ফলাফলস্বরূপ কিছু প্রাকৃতিক দুর্যোগ দেখা যায় এবং দেশের কিছু অংশের মানুষের জীবনকে দুর্বিসহ করে তোলে। প্রধান দুর্যোগগুলো হলো বন্যা, ঘূর্ণিঝড় এবং জলোচ্ছ্বাস, আকস্মিক বন্যা, খরা, টর্নেডো, নদীতীর ক্ষয় এবং ভূমিক্ষয়। এই দুর্যোগগুলোর প্রতিকূল প্রভাব পড়ে মানুষসহ তাদের ঘরবাড়িতে, তাদের জীবনে তথা সম্পূর্ণ পরিবেশে।

বিশেষত প্রাকৃতিক দুর্যোগ প্রসঙ্গে নারীরাই বেশি অরক্ষিত এবং মাঝে মাঝে তাদের নিজেদের বাসস্থানও ত্যাগ করতে হয় এবং বাকীরা গৃহ ত্যাগের বিষয়টা নিয়ে পরিকল্পনা করে। তারা হয়ে যায় দুর্যোগজনিত অভিবাসী।

এই প্রসঙ্গে আমি (অনিভা জাহিদ) ‘বাংলাদেশের জলবায়ুজনিত নারী অভিবাসীদের টিকে থাকার পদ্ধতি’ বিষয়ক গবেষণা প্রকল্প প্রণয়ন করছি যা কিনা অস্ট্রেলিয়ার ওয়েস্টার্ন সিডনি ইউনিভার্সিটিতে আমার পিএইচডিতে অবদান রাখবে। আমি আরও একটা রিপোর্ট তৈরী করবো স্থানীয় বেসরকারি ও সরকারি সংস্থার জন্য যা হয়তো সাহায্য করবে বাংলাদেশে জলবায়ুজনিত নারী অভিবাসীদের ঝুঁকি কমাতে।

এই অধ্যয়নে আমি জানতে চাই সাধারণ নারীদের নিজস্ব ভাবনা জলবায়ু বিষয়ক অভিবাসনের অভিজ্ঞতা।

আপনি যদি অভিবাসীত হন অথবা জলবায়ু পরিবর্তনের ফলে অভিবাসনের পরিকল্পনা করেন তবে এই অধ্যয়নে অংশগ্রহণ করতে আপনি সাদরে আমন্ত্রিত।

যদি আপনি আগ্রহী অন্য কাউকে চেনেন তবে দয়া করে তাদের কাছে তথ্যটি পৌঁছে দিবেন যাতে তারা তাদের উদ্বেগ প্রকাশের সুযোগ পায়।

আপনার প্রতিক্রিয়া ও বিস্তারিত যোগাযোগের ঠিকানা যথাযথভাবে গোপন রাখা হবে। যদি আপনার অধ্যয়ন প্রসঙ্গে কোনো প্রশ্ন থাকে তবে অনুগ্রহ করে যোগাযোগ করুন।

প্রধান গবেষক

অনিভা জাহিদ (পিএইচডি প্রার্থী)

স্কুল অব সোশ্যাল সায়েন্স এন্ড সাইকোলজি, ওয়েস্টার্ন সিডনি ইউনিভার্সিটি, অস্ট্রেলিয়া।

মোবাইল: +৬১৪৫২০৭০২৫২/ +৮৮০১৭৩২২৪২১০২ ই-মেইল: 17631192@uws.edu.au

সুপারভাইজর:

ডঃ ডেবরা কীনাহান: যোগাযোগের নম্বর: (০২) ৪৭৩৬ ০০৪৫; ই-মেইল: d.keenahan@uws.edu.au

প্রফেসর রোজম্যারী লিওনার্ড: যোগাযোগের ঠিকানা: (০৮) ৯৩৩৩৬৬৬৩ ই-মেইল: r.leonard@uws.edu.au

APPENDIX B-4: Invitation Letter for Climate Migrant Women



Dear Participant,

I would like to invite you to participate in a research project on '**Climate Migrants in Bangladesh: Insights into Women's Vulnerabilities and Survival Strategies**'. This study will be conducted by Anita Jahid and will contribute to her PhD research at Western Sydney University, Australia. This study will also make a report for the local NGOs and Government agencies, which may help to reduce the vulnerability of climate migrant women in Bangladesh. The Human Ethics Committee of the Western Sydney University, Australia has approved the research project.

If you decide to take part in this research, you will be asked to participate in interview of approximately ninety minutes in length. You will be asked about your experience on climate migration. After the interview you will also be asked for a one to one meeting approximately thirty minutes in length in a mutually agreed location and time. An Information Sheet about the project is attached to this letter.

If you would like to participate in the research, or would like any further information, please contact Anita Jahid at +8801732242102. Your cooperation will be greatly appreciated and valued.

Sincerely,

Anita Jahid (PhD Candidate)
School of Social Sciences and Psychology
Western Sydney University, Australia
Mobile: +61452070252/ +8801732242102
Email: 17631192@uws.edu.au

APPENDIX B-5: Invitation Letter for Climate Migrant Women – Bengali

প্রিয় অংশগ্রহণকারী,

আমি আপনাকে আমন্ত্রণ জানাতে চাই ‘বাংলাদেশে জলবায়ুজনিত অভিবাসী : নারীর দুর্বলতা ও টিকে থাকার পদ্ধতিতে অর্ন্তদৃষ্টি’ নামক শীর্ষক গবেষণা প্রকল্পে অংশগ্রহণের জন্য। এই অধ্যয়ন অনিতা জাহিদের দ্বারা পরিচালিত হবে এবং অস্ট্রেলিয়ার ওয়েস্টার্ন সিডনি ইউনিভার্সিটিতে তার পিএইচডি গবেষণায় অবদান রাখবে। এই অধ্যয়ন আরো একটা রিপোর্ট প্রস্তুত করবে স্থানীয় এনজিও ও সরকারি সংস্থার জন্য যা হয়তো সাহায্য করবে বাংলাদেশে জলবায়ুজনিত নারী অভিবাসীদের ঝুঁকি কমাতে। অস্ট্রেলিয়ার ওয়েস্টার্ন সিডনি ইউনিভার্সিটির জন নৈতিকতা বিষয়ক কমিটি এই গবেষণা প্রকল্পকে অনুমোদন করেছে।

আপনি যদি এই গবেষণায় অংশগ্রহণের সিদ্ধান্তে উপনীত হন তবে আপনাকে প্রায় ৯০ মিনিট দীর্ঘ একটি সাক্ষাৎকারে অংশগ্রহণ করতে বলা হবে। আপনার জলবায়ুজনিত নারী অভিবাসী ভিত্তিক অভিজ্ঞতা জানতে চাওয়া হবে। উভয়পক্ষের সম্মতিতে একটি নির্দিষ্ট স্থান ও সময়ে আপনাকে সাক্ষাৎকারের পর প্রায় ৩০ মিনিট দীর্ঘ একের পর এক আলোচনায় বসতে বলা হবে। প্রকল্প বিষয়ক একটি তথ্য সম্বলিত সীট এই পত্রের সাথে সংযুক্ত করা হলো।

যদি আপনি এই গবেষণায় অংশগ্রহণে আগ্রহী হন অথবা আরো তথ্যের প্রয়োজনীয়তা বোধ করেন তবে অনুগ্রহপূর্বক যোগাযোগ করুন অনিতা জাহিদের সাথে +৮৮০১৭৩২২৪২১০২ এই নম্বরে। আপনার সহযোগিতা বিশেষভাবে প্রশংসিত এবং মূল্যায়িত হবে।

বিনীতভাবে,

অনিতা জাহিদ (পিএইচডি প্রার্থী)
স্কুল অব সোশ্যাল সায়েন্স এন্ড সাইকোলজি
ওয়েস্টার্ন সিডনি ইউনিভার্সিটি, অস্ট্রেলিয়া।
মোবাইল: +৬১৪৫২০৭০২৫২/ +৮৮০১৭৩২২৪২১০২
ই-মেইল: 17631192@uws.edu.au

APPENDIX B-6: Participant Information Sheet for Climate Migrant Women

School of Social Sciences and Psychology
Western Sydney University
Locked Bag 1797
Penrith NSW 2751
Australia
Telephone: +61 2 9852 5222



Participant Information Sheet (General)

Project Title: Climate Migrants in Bangladesh: Insights into Women's Vulnerabilities and Survival Strategies.

Project Summary: Participant Information Sheet for Climate Migrant Women -

This study involves interviews with women who have migrated or planning to migrate due to the adverse effects of climate change. Information will be obtained from women and key informants from NGOs and government agencies but it is the women's voices that are foregrounded, as the purpose of this study is to have an insight of the causes and consequences of climate migration on women from the perspective of the women themselves.

This study will interview women on their experiences of climate migration or contemplation of migration. The major themes of interviews are:

Everyday life, Experiences related to climate migration, Major life changes and events starting from the childhood, Key relationship and support from any family members/relatives/organisations, any plans or concerns for future.

You are invited to participate in a study conducted by Anita Jahid, Ph.D. Candidate, School of Social Sciences and Psychology, Western Sydney University, Australia under the supervision of Dr. Debra Keenahan and Professor Rosemary Leonard of the School of Social Sciences and Psychology, Western Sydney University, Australia.

How is this study being paid for?

This study is being sponsored by Western Sydney University, Australia.

What will I be asked to do?

If you contact the principal researcher she will arrange an appointment for an interview at a mutually agreed location and time.

In the beginning of interview, you will be asked to sign a consent form. You will be asked about your experiences or thoughts about migration by the principal researcher. If you agree, the interview will be audio-taped. Otherwise, notes will be taken. You will not be obliged to answer all the questions and will be able to discontinue at any time during the interview.

After the interview you will be asked for a one to one meeting with the principal researcher at a mutually agreed location and time. This meeting will be conducted to discuss the findings of the interview and to agree together the issues that will be reported to key informants. In this meeting the researcher will also offer and read out (if necessary) to you a Bengali version of the interview transcript to verify all the information for necessary corrections.

Your responses and contact details will be strictly confidential.

How much of my time will I need to give?

Interview may take approximately ninety minutes and one to one meeting may take thirty minutes.

What specific benefits will I receive for participating?

There is no direct benefit to you by participating in this research. A report for the local NGOs and Government agencies will be made by the findings of the research, which may help to reduce the vulnerability of climate migrant women in Bangladesh. Climate migrant women will be able to access this report through the NGOs.

A short version of the major findings of the report will be made and read out to the Climate migrant women by the local NGO workers and stakeholders in the groups where the project was promoted.

Will the study involve any discomfort for me? If so, what will you do to rectify it.

I will be trying to make the interview process as pleasant and relaxed as possible. The questions will be quite general so you can decide how much detail you would like to provide and you can decide not to answer specific questions. Indeed you can stop the interview at any time without giving a reason.

Also participation in this study is totally confidential so you need not worry about damaging your relationships with other participants or service providers.

However if the conversation should cause you discomfort we can have a break or stop the interview altogether. If you feel the need of further help I can put you in touch with nearest voluntary counselling service centres, which are listed below -

1. PSYCHOSOCIAL COUNSELLING CENTRE

Address: House-17, Road-1, Block-B, Niketan Housing Society

Gulshan-1, Dhaka 1212, Bangladesh

Phone: 9890513, 9851511 ext.162, 163,164

Mobile: 01942657236, 01720908383, 01979930006

Working hours: 10 AM -5 PM (Friday weekly holiday)

2. TMSS Medical College & Rafatullah Community Hospital

Address: TMSS, Thengamara, Rangpur Road, Bogra, Bangladesh

Phone: (+88051) 78569, 78975

Mobile: +8801733-713790

Working hours: 10 AM -5 PM (Friday weekly holiday)

How do you intend on publishing the results.

The principal researcher Anita Jahid will only have the access to the raw data to use for her Ph.D thesis, in journal articles and in conference presentations. Data will be stored for five years after completion of the project.

Can I withdraw from the study?

Participation is entirely voluntary. You are not obliged to be involved and if you do participate, you can withdraw at any time without giving any reason and without any consequences. If you do choose to withdraw, any information that have supplied will be excluded from the synthesis.

Can I tell other people about the study?

Yes, you can tell other people about the study by providing them with the chief investigator's contact details. They can contact the chief investigator to discuss their participation in the research project and obtain an information sheet.

What if I require further information?

When you have read this information, Anita Jahid will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact Anita Jahid. Details contacts are below:

Mobile: +88 0173 2242 102 or +61 452 070 252

Email: 17631192@uws.edu.au

You may also contact with the following local person who will help you to get in contact with the Principal Researcher or the Ethics Committee through the Office of Research Services.

Ms. Shammi Akhter, Executive Officer, Psychosocial Counselling Centre

Mobile: +88 01777773090

What if I have a complaint?

This study has been approved by the University of Western Sydney Human Research Ethics Committee. The Approval number is [enter approval number]

If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Office of Research Services on Tel +61 2 4736 0229 Fax +61 2 4736 0013 or email humanethics@uws.edu.au.

Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

If you agree to participate in this study, you may be asked to sign the Participant Consent Form.

APPENDIX B-7: Participant Information Sheet for Climate Migrant Women – Bengali

স্কুল অব সোশ্যাল সায়েন্স এন্ড সাইকোলজি
ওয়েস্টার্ন সিডনি ইউনিভার্সিটি
লকড ব্যাগ ১৭৯৭
পেনরিক্থ এন এস ডাব্লিউ ২৭৫১
অস্ট্রেলিয়া
টেলিফোন: +৬১ ২ ৯৮৫২ ৫২২২

অংশগ্রহণকারীর তথ্য সংবলিত পত্র (সাধারণ)

প্রকল্পের নাম: বাংলাদেশে জলবায়ুজনিত অভিবাসী: নারীর দুর্বলতা ও টিকে থাকার পদ্ধতিতে অর্ন্তদৃষ্টি।

প্রকল্পের সারসংক্ষেপ: জলবায়ুজনিত নারী উদ্বাস্তু প্রকল্পে অংশগ্রহণকারীর তথ্য সংবলিত পত্র-

এই অধ্যয়ন অভিবাসী অথবা জলবায়ুর প্রতিকূল প্রভাবে অভিবাসী হবার সিদ্ধান্তে উপনীত হওয়া নারীদের সাক্ষাৎকার সম্পৃক্ত করে। নারীদের কাছ থেকে এবং বেসরকারি ও সরকারি সংস্থাগুলোর মূল সংবাদদাতাদের কাছ থেকে তথ্য গৃহীত হবে কিন্তু নারীদের ব্যয়নই এখানে মূল গুরুত্ব বহন করবে কারণ অধ্যয়নের উদ্দেশ্যই হলো নারীদের পরিপ্রেক্ষিতে জলবায়ুর কারণে নারীর অভিবাসন বিষয়ক কারণ ও ফলাফলের উপর অর্ন্তদৃষ্টি প্রদান।

এই অধ্যয়ন সাক্ষাৎকার গ্রহন করবে নারীর জলবায়ুজনিত অভিবাসনের অভিজ্ঞতা অথবা অভিবাসনের পরিকল্পনার উপর। গবেষণার মূল বিষয়াবলী হলো:

দৈনন্দিন জীবন, জলবায়ুজনিত অভিবাসনের অভিজ্ঞতা, জীবনের আমূল পরিবর্তন এবং শৈশব থেকে শুরু করে ঘটনাপ্রবাহ, যেকোন পরিবারের সদস্য/আত্মীয়-স্বজন/সংস্থা, কোন পরিকল্পনা বা ভবিষ্যতে জড়িতদের সাথে মূল সম্পর্ক ও সহায়তা প্রাপ্তি।

আপনি অস্ট্রেলিয়ার ওয়েস্টার্ন সিডনি ইউনিভার্সিটির স্কুল অব সোশ্যাল সায়েন্স এন্ড সাইকোলজির ড. ডেবরা কীনাহান ও প্রফেসর রোজম্যারী লিওনার্ড এর রক্ষণাবেক্ষণে এবং অস্ট্রেলিয়ার ওয়েস্টার্ন সিডনি ইউনিভার্সিটির স্কুল অব সোশ্যাল সায়েন্স এন্ড সাইকোলজির পি এইচ ডি প্রার্থী অনিতা জাহিদের দ্বারা পরিচালিত অধ্যয়নে অংশগ্রহণের জন্য আমন্ত্রিত।

কিভাবে এই অধ্যয়নের খরচ মেটানো হবে?

এই অধ্যয়ন অর্থনৈতিকভাবে পৃষ্ঠপোষকতা পাবে অস্ট্রেলিয়ার ওয়েস্টার্ন সিডনি ইউনিভার্সিটি থেকে।

আমাকে কি করতে বলা হবে?

যদি আপনি প্রধান গবেষকের সাথে যোগাযোগ করেন তবে সে উভয়পক্ষের সম্মতিতে একটি নির্দিষ্ট স্থান ও সময়ে একটি সাক্ষাৎকারের ব্যবস্থা করবে।

সাক্ষাৎকারের শুরুতেই আপনাকে একটি সম্মতিপত্রে স্বাক্ষর করতে বলা হবে। প্রধান গবেষকের মাধ্যমে আপনাকে আপনার অভিজ্ঞতা ও নির্বাসন বিষয়ক ভাবনা জিজ্ঞাসা করা হবে। যদি আপনি সম্মত হন তবে সাক্ষাৎকারটির অডিও সংরক্ষণ করা হবে। অন্যথায় নোট রাখা হবে। সকল প্রশ্নের উত্তর দিতে আপনাকে বাধ্য করা হবে না এবং আপনি সাক্ষাৎকার চলাকালীন যে কোনো সময়ে তা থামাতে পারেন।

সাফাংকারের পর আপনাকে প্রধান গবেষকের সাথে দ্বিপাক্ষিক সম্মতিক্রমে নির্দিষ্ট স্থান ও সময়ে একের পর এক আলোচনায় বসতে বলা হবে। এই আলোচনা পরিচালিত হবে সাফাংকারের অনুসন্ধান আলোচনা করতে এবং মূল সংবাদদাতাকে কি জানানো হবে সে বিষয়ে একসাথে সম্মত হতে। যাবতীয় তথ্য যাচাই ও প্রয়োজনীয় সংশোধন করার জন্য এই আলোচনায় গবেষকরা আপনাকে সাফাংকারের একটি বাংলা পাণ্ডুলিপি দিবে এবং পড়ে শোনাবে(যদি দরকার হয়)।

আপনার প্রতিক্রিয়া এবং যোগাযোগের বিস্তারিত ঠিকানা যথাযথভাবেই গোপনীয় রাখা হবে।

আমার কতটুকু সময় দেয়ার দরকার হবে?

সাফাংকার গ্রহণে প্রায় ১০ মিনিট সময় লাগতে পারে এবং পরবর্তী আলোচনায় প্রায় ৩০ মিনিট সময় লাগতে পারে।

অংশগ্রহণ করে আমি নির্দিষ্ট কি সুবিধাদি পাবো?

এই গবেষণায় অংশগ্রহণের জন্য আপনার জন্য সরাসরি কোন সুবিধা নেই। স্থানীয় বেসরকারি এবং সরকারি সংস্থাগুলোর জন্য গবেষণার অনুসন্ধান দ্বারা প্রস্তুতকৃত একটি রিপোর্ট তৈরি করা হবে যা সাহায্য করতে পারে বাংলাদেশে জলবায়ুজনিত নারী অভিবাসনের ঝুঁকি কমাতে। জলবায়ুজনিত নারী অভিবাসীরা এই রিপোর্ট পাবে এনজিওর মাধ্যমে।

রিপোর্টের মূল অনুসন্ধানের ক্ষুদ্র সংস্করণ প্রস্তুত এবং জলবায়ুজনিত নারী অভিবাসীদের পড়ে শোনানো হবে স্থানীয় এনজিও কর্মী ও সংশ্লিষ্ট ব্যক্তিবর্গের মাধ্যমে যেখানে প্রকল্পটি প্রচার করা হয়েছে।

অধ্যয়নটি কি আমার জন্য কোনোভাবে অস্বস্তিকর? যদি হয় তবে তার প্রতিকারের জন্য কি ব্যবস্থা নেয়া হবে।

সাফাংকার প্রক্রিয়াটি আমি যতদূর সম্ভব ঝামেলাহীন ও আরামদায়ক করার চেষ্টা করবো। প্রশ্নগুলো এতোটাই সাধারণ হবে যে আপনি সিদ্ধান্ত নিতে পারবেন যে আপনি কতটুকু বিস্তারিত জানাতে আগ্রহী এবং সিদ্ধান্ত নিতে পারবেন যে কোন নির্দিষ্ট প্রশ্নগুলোর উত্তর আপনি দিবেন না।

প্রকৃতপক্ষে, আপনি কোন কারণ দর্শানো ছাড়াই যেকোন সময় সাফাংকার বন্ধ করতে পারেন।

এছাড়াও এই অধ্যয়নে অংশগ্রহণের বিষয়টি সম্পূর্ণই গোপনীয় অর্থাৎ অন্যান্য অংশগ্রহণকারী অথবা সেবাদাতাদের সাথে আপনার সম্পর্কের ক্ষতি নিয়ে দুশ্চিন্তা করার প্রয়োজন নেই।

যাই হোক, যদি আলোচনা অস্বস্তির সৃষ্টি করে তবে আমরা বিরতি নিতে পারি কিংবা আলোচনা বন্ধ করতে পারি। যদি আপনি মনে করেন আপনার আরো সাহায্যের দরকার তবে আমি আপনাকে নিকটস্থ স্বৈচ্ছাসেবী পরামর্শদান কেন্দ্রের সংস্পর্শে আনবো যেগুলো নিচে তালিকাভুক্ত করা হলো-

১. সাইকোলজিক্যাল কাউন্সিলিং সেন্টার

ঠিকানা: বাড়ি-১৭, সড়ক-১, ব্লক-বি, নিকেতন হাউজিং সোসাইটি
গুলশান-১, ঢাকা-১২১২, বাংলাদেশ।

ফোন: ৯৮৯০৫১৩, ৯৮৫১৫১১ বর্ধিত ১৬২, ১৬৩, ১৬৪

মোবাইল: ০১৯৪২৬৫৭২৩৬, ০১৭২০৯০৮৩৮৩, ০১৯৭৯৯৩০০০৬

কার্যঘন্টা: সকাল ১০টা থেকে বিকাল ৫টা (শুক্রবার সাপ্তাহিক ছুটি)

২. টিএমএসএস মেডিকেল কলেজ এন্ড রাসফাতুল্লাহ কমিউনিটি হসপিট্যাল

ঠিকানা: টিএমএসএস, ঠেঙ্গামারা, রংপুর রোড, বগুড়া, বাংলাদেশ।

ফোন: (+৮৮০৫১) ৭৮৫৬৯, ৭৮৯৭৫

মোবাইল: +৮৮০১৭৩৩-৭১৩৭৯০

কার্যঘন্টা: সকাল ১০টা থেকে বিকাল ৫টা (শুক্রবার সাপ্তাহিক ছুটি)

কিভাবে আপনি ফলাফল প্রকাশে উদ্যত হবেন?

শুধুমাত্র প্রধান গবেষক অনিতা জাহিদ এরই অনুমোদন আছে তার পিএইচডি'র গবেষণামূলক প্রবন্ধের জন্য, জার্নাল নিবন্ধের জন্য বা সম্মেলনে উপস্থাপনার জন্য মূল তথ্য ব্যবহার করার। তথ্যসমূহ প্রকল্প শেষ হবার পরও ৫ বছর সংরক্ষণ করা হবে।

আমি কি অধ্যয়ন থেকে নিজেকে প্রত্যাহার করতে পারি?

অংশগ্রহণ সম্পূর্ণরূপেই স্বেচ্ছাকৃত। আপনি সম্পূর্ণ হতে বাধ্য নন যদি আপনি অংশগ্রহণ করেন তবে আপনি যেকোনো সময় নিজেকে প্রকল্প থেকে প্রত্যাহার করতে পারেন কোনো রকম কারণ দর্শানো এবং কোন প্রভাব ছাড়াই। যদি আপনি প্রত্যাহারের সিদ্ধান্ত নেন তবে সরবরাহকৃত সকল তথ্যই নিষ্কাশন করা হবে তথ্যের সমাহার থেকে।

আমি কি অন্য কাউকে অধ্যয়নের বিষয়টা জানাতে পারি?

হ্যাঁ, আপনি প্রধান অনুসন্ধানকারীর যোগাযোগের বিস্তারিত ঠিকানা প্রদানের মাধ্যমে অন্যদের এই অধ্যয়ন এর বিষয় জানাতে পারেন। তারা গবেষণা প্রকল্পে তাদের অংশগ্রহণের বিষয়টি আলোচনা করতে প্রধান অনুসন্ধানকারীর সাথে যোগাযোগ করতে পারেন এবং তথ্য সংবলিত পত্র সংগ্রহ করতে পারেন।

যদি আমার আরো তথ্যের দরকার হয় তখন কি হবে?

যখন আপনি এই তথ্য পড়ছেন তখন অনিতা জাহিদ আপনার সাথে আরো আলোচনা করবে এবং সকল প্রশ্নের উত্তর দিবে যদি কোন প্রশ্ন থেকে থাকে। যে কোন পর্যায়ে যদি আপনি আরো কিছু জানতে চান তবে নির্দিষ্টায় অনিতা জাহিদের সাথে যোগাযোগ করুন। বিস্তারিত যোগাযোগের ঠিকানা নিচে দেয়া হলো:
মোবাইল: +৮৮ ০১৭৩ ২২৪২ ১০২ অথবা +৬১ ৪৫২ ০৭০ ২৫২

ই-মেইল: 17631192@uws.edu.au

আপনি আরো যোগাযোগ করতে পারেন নিম্নলিখিত স্থানীয় ব্যক্তির সাথে যে কিনা আপনাকে সহায়তা করবে প্রধান গবেষক অথবা গবেষণা সেবার কার্যালয়ের মাধ্যমে নৈতিকতা বিষয়ক কমিটির সাথে যোগাযোগ করতে।

মিস শাম্মী আখতার, নির্বাহী কর্মকর্তা, সাকোলজি কাউন্সিলিং সেন্টার

মোবাইল: +৮৮ ০১৭৭৭৭৩০৯০

যদি আমার কোন অভিযোগ থাকে তখন কি হবে?

এই অধ্যয়নটি ইউনিভার্সিটি অব অয়েস্টার্ন সিডনি'র হিউম্যান রিসোর্স ইথিক্স কমিটির দ্বারা অনুমোদিত। অনুমোদন নম্বর হলো [অনুমোদন নম্বর প্রদান]

আপনার যদি নৈতিকতা বিষয়ক কর্মকান্ডভিত্তিক কোন অভিযোগ বা পরামর্শ থাকে তবে গবেষণা সেবার কার্যালয়ের মাধ্যমে নৈতিকতা বিষয়ক কমিটির সাথে যোগাযোগ করতে পারেন। টেলিফোন: +৬১ ২ ৪৭৩৬ ০২২৯ ফ্যাক্স: +৬১ ২ ৪৭৩৬ ০০১৩

ই-মেইল: humanethics@uws.edu.au

আবেদনকৃত যেকোন ইস্যুই গোপনীয়তার সাথে সম্পাদন ও তদন্ত করা হবে এবং আপনাকে অবশ্যই ফলাফল জানান হবে।

আপনি যদি এই অধ্যয়নে অংশগ্রহণে সম্মত হন তবে আপনাকে অংশগ্রহণকারীর সম্মতিপত্রে স্বাক্ষর করতে হতে পারে।

APPENDIX B-8: Participant Consent Form for Climate Migrant Women

Human Research Ethics Committee
Office of Research Services



Participant Consent Form

Project Title: Climate Migrants in Bangladesh : Insights into Women's Vulnerabilities and Survival Strategies

I,....., consent to participate in the research project titled 'Climate Migrants in Bangladesh : Insights into Women's Vulnerabilities and Survival Strategies'.

I acknowledge that:

I have read the participant information sheet / have had it read to me and have been given the opportunity to discuss the information and my involvement in the project with the principal researcher.

The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

I agree / do not agree* to the audio-recording of the interviews.

I understand that my involvement is confidential and that the information gained during the study may be published but no information about me will be used in any way that reveals my identity.

I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher/s now or in the future.

I agree to participate in interview and one to one meeting after the interview.

*(Please delete accordingly)

Signed: (or Fingerprinted) _____

Name: _____

Date: _____

Return Address: Anita Jahid, 19 Seford Circuit, Kellyville Ridge, NSW 2155. Mob. no. +61 0452 070 252.

This study has been approved by the University of Western Sydney Human Research Ethics Committee.

The Approval number is: _____

If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Office of Research Services on Tel +61 2 4736 0229 Fax +61 2 4736 0013 or email humanethics@uws.edu.au. Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

APPENDIX B-9: Participant Consent Form for Climate Migrant Women – Bengali

মানবজীবন গবেষণা ও নৈতিকতা বিষয়ক কমিটি
গবেষণা সেবার কার্যালয়

অংশগ্রহণকারীর সম্মতিপত্র

প্রজেক্টের নাম: বাংলাদেশে জলবায়ুজনিত অভিবাসী: নারীর দুর্বলতা ও টিকে থাকার পদ্ধতিতে অর্ন্তদৃষ্টি।
,....., ‘বাংলাদেশে জলবায়ুজনিত অভিবাসী: নারীর দুর্বলতা ও টিকে থাকার পদ্ধতিতে অর্ন্তদৃষ্টি’ নামক গবেষণা প্রকল্পে অংশগ্রহণে সম্মতি প্রদান করছি।

আমি স্বীকার করছি যে:

আমি অংশগ্রহণকারীর তথ্য সংবলিত পত্র পড়েছি/ নিজে পড়েছি এবং তথ্যসমূহ ও প্রকল্পে আমার সংশ্লিষ্টতা প্রধান গবেষকদের সাথে আলোচনা করার সুযোগ গ্রহণ করেছি।

প্রকল্পে প্রয়োজনীয় কার্যপ্রণালী ও নির্ধারিত সময় আমাকে ব্যাখ্যা করা হয়েছে এবং প্রকল্প বিষয়ক সকল প্রশ্নের সদুত্তর আমার চাহিদা অনুসারে প্রদান করে হয়েছে।

আমি সাক্ষাৎকার অডিও রেকর্ড করার সম্মতি প্রদান করি/সম্মতি প্রদান করিনা*।

আমি জানি যে আমার সম্পূর্ণতা গোপনীয় এবং অধ্যয়নকালীন সময়ে প্রাপ্ত তথ্যসমূহ প্রকাশিত হতে পারে কিন্তু কোনোভাবেই আমার বিষয়ে এমন কোনো তথ্য ব্যবহার করা যাবে না যা আমার পরিচয় প্রকাশ করে।

আমি জানি যে গবেষক/গবেষকদের সাথে বর্তমানে কিংবা ভবিষ্যতে সম্পর্কের অবনতি না ঘটিয়ে আমি যেকোনো সময়ে অধ্যয়ন থেকে বিরত হতে পারি।

আমি সাক্ষাৎকার ও সাক্ষাৎকার পরবর্তী একের পর এক আলোচনায় অংশগ্রহণে সম্মতি প্রদান করছি।

* (দয়া করে তদানুসারে মুছে ফেলুন)

স্বাক্ষর: (অথবা আঙ্গুলের ছাপ) _____

নাম: _____

তারিখ: _____

ফিরতি ঠিকানা: অনিতা জাহিদ, ১৯ সীফোর্ড সার্কিট, কেলিভিলা রিড্জ, এন এস ডাব্লিউ ২১৫৫।
মোবাইল নম্বর: +৬১ ০৪৫২ ০৭০ ২৫২।

এই গবেষণা ইউনিভার্সিটি অফ অয়েস্টার্ন সিডনি হিউম্যান রিসার্চ ইথিক্স কমিটি দ্বারা অনুমোদিত।

অনুমোদন নম্বর: _____

এই গবেষণার নৈতিক আচরণ প্রসঙ্গে আপনার যদি কোনো অভিযোগ বা পরামর্শ থাকে তবে আপনি অফিস সেবার মাধ্যমে নৈতিকতা বিষয়ক কমিটির সাথে যোগাযোগ করতে পারেন। ফোন: +৬১ ২ ৪৭৩৬ ০২২৯ ফ্যাক্স: +৬১ ২ ৪৭৩৬ ০০১৩ ই-মেইল: humanethics@uws.edu.au। আবেদনকৃত যেকোনো ইস্যুই গোপনীয়তার সাথে সম্পাদন ও তদন্ত করা হবে এবং আপনাকে অবশ্যই ফলাফল জানান হবে।

APPENDIX C: Key Informant – Interview Checklists, Invitation Flyer, Invitation Letter, Participant Information Sheet and Consent Form

APPENDIX C-1: Interview Checklists for Key Informant

Topics of Interview with the Participants (Key Informants)

Key Informants will be asked to provide their expert opinion on relevant information, ideas and insights on climate migrant women issues in Bangladesh. They will be asked about their experience with this group of women, the women's problems, and the support that is available. The specific questions will be compiled in detail after the principal researcher has spoken with the climate migrant women.

- Any experiences/issues related to climate migrant women in Bangladesh.
- Any activities related to climate migrant women in Bangladesh.
- Any concerns/ solutions for some specific problems mentioned by the Climate migrant women in Bangladesh. Such as – Shelter, livelihood, health, food, education, safety and security, association, infrastructure (dam, river digression).
- Any future concerns/plans for climate migrant women.

APPENDIX C-2: Invitation Flyer for Key Informant



PROJECT TITLE: Climate Migrants in Bangladesh: Insights into Women's Vulnerabilities and Survival Strategies

You are invited to take part in a research project on 'Climate migrant women's survival strategies in Bangladesh'. The study is being conducted by Anita Jahid and will contribute to PhD research at Western Sydney University, Australia. This study will also make a report for the local NGOs and Government agencies, which may help to reduce the vulnerability of climate migrant women in Bangladesh. The Human Ethics Committee of the Western Sydney University, Australia has approved the research project. The objectives of the study are:

1. Identify the vulnerabilities of climate migrant women in Bangladesh
2. Identify and analyse the survival strategies and support mechanisms
3. Assess Nussbaum's Capability Approach in the context of women climate migrants in Bangladesh
4. Prepare recommendations for the climate migrant women in Bangladesh

If you agree to be involved in the study, you will be invited to take part in the interviews. Interviews should only take approximately ninety minutes of your time and this will be conducted at a venue of your choice.

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation. If you know of others might be interested in this study, please pass this information sheet to them so that they may contact us to volunteer this study.

Your responses and contact details will be strictly confidential. The data from the study will be used in research publications and reports. You will not be identified in any way in these publications.

If you have any questions about the study, please contact.

Principal Researcher

Anita Jahid (PhD Candidate)
School of Social Sciences and Psychology, Western Sydney University, Australia
Mobile: +61452070252/ +8801732242102 Email: 17631192@uws.edu.au

Supervisors

Dr Debra Keenahan: Contact No.: (02) 4736 0045; Email: d.keenahan@uws.edu.au

Professor Rosemary Leonard: Contact Detail: (08) 9333 6663; Email: r.leonard@uws.edu.au

APPENDIX C-3: Invitation Letter for Key Informant



Dear Participant,

I would like to invite you to participate in a research project on ‘**Climate Migrants in Bangladesh: Insights into Women's Vulnerabilities and Survival Strategies**’ This study will be conducted by Anita Jahid and will contribute to her PhD research at Western Sydney University, Australia. This study will also make a report for the local NGOs and Government agencies, which may help to reduce the vulnerability of climate migrant women in Bangladesh. The Human Ethics Committee of the Western Sydney University, Australia has approved the research project.

If you decide to take part in this research, you will be asked to participate in interview of approximately ninety minutes in length. The interview will be conducted in Bengali and/or in English based on your convenience. You will be asked about women’s climate migration in Bangladesh. An Information Sheet about the project is attached to this letter.

If you would like to participate in the research, or would like any further information, please contact Anita Jahid at +8801732242102. Your cooperation will be greatly appreciated and valued.

Sincerely,

Anita Jahid (PhD Candidate)
School of Social Sciences and Psychology
Western Sydney University, Australia
Mobile: +61452070252/ +8801732242102
Email: 17631192@uws.edu.au

APPENDIX C-4: Participant Information Sheet for Key Informant

School of Social Sciences and Psychology
Western Sydney University
Locked Bag 1797
Penrith NSW 2751
Australia
Telephone: +61 2 9852 5222



Participant Information Sheet (General)

Project Title: Climate Migrants in Bangladesh: Insights into Women's Vulnerabilities and Survival Strategies.

Project Summary: Participant Information Sheet for Key Informants -

At present, issues leading to global warming and climate change have arguably become a global priority. Impacts of climate change are not spread equally in terms of location, economic status, gender or age. Several studies on the impact of climate change have identified Bangladesh, as one of the most vulnerable countries of the world. Bangladesh experiences various environmental disasters almost every year due to the adverse effects of climate change. Frequent exposure to natural hazards combined with widespread poverty results in the loss of life, damage to infrastructure and economic assets, and adversely impacts lives and livelihoods, especially those of the extreme poor. Although the poverty is prevalent amongst men as well as women, far more women suffer from poverty due to their low socio-economic status in Bangladesh. Hence, poor women's sufferings due to natural disasters are greater than men. In Bangladesh, like everywhere of the world, the worst victims of the environmental degradation are women. Some of these vulnerable women migrate to new places as an adaptation strategy. This study focuses on the quality of life and wellbeing of climate migrant women in Bangladesh and reveals their strategies for survival.

Through the application of Nussbaum's capability approach and 'push-pull' factors of migration, this study aims to gain insights into the vulnerabilities and survival strategies of climate migrant women in Bangladesh. It will also make some recommendations to the effect that there is an urgent need to identify climate migrant women's concerns and incorporate their voice into the formulation of future policy and the issues that need to be addressed.

This study will use feminist research methodology as a tool for conducting qualitative research by adopting the life story approach interview for the climate migrant women and in depth interview for key informants.

You are invited to participate in a study conducted by Anita Jahid, Ph.D. Candidate, School of Social Sciences and Psychology, Western Sydney University, Australia under the supervision of Dr. Debra Keenahan and Professor Rosemary Leonard of the School of Social Sciences and Psychology, Western Sydney University, Australia.

How is this study being paid for?

This study is being sponsored by Western Sydney University, Australia.

What will I be asked to do?

Principal researcher will arrange appointments to recruit you in an interview. If you agree to participate in the interview, you will be asked to sign a consent form. You will be asked to provide relevant information, ideas and insights on climate migrant women issues in Bangladesh. (Please Note - this section of the form with the specific questions for the key informants will be compiled in detail after the principal researcher has spoken with the climate migrant women. The interview schedule will be reported to the ethics committee accordingly at that time)

After interviewing the climate migrant women and reviewing the existing related reports this study will determine what information is needed to be discussed with you. If you agree, the interview will be audio taped. Otherwise, field notes will be taken. You will also be offered to verify the interview transcripts for necessary corrections. You will not be obliged to answer all questions and will be able to discontinue at any time during the interview. The interview will take place at a mutually agreed location and time.

Your responses and contact details will be strictly confidential.

How much of my time will I need to give?

Interview may take approximately ninety minutes.

What specific benefits will I receive for participating?

There is no direct benefit to you by participating in this research. A report for the local NGOs and Government agencies will be made by the findings of the research, which may help to reduce the vulnerability of climate migrant women in Bangladesh. The principal researcher will provide you a copy of this report.

Will the study involve any discomfort for me? If so, what will you do to rectify it.

I will be trying to make the interview process as pleasant and relaxed as possible. The questions will be quite general so you can decide how much detail you would like to provide and you can decide not to answer specific questions. Indeed you can stop the interview at any time without giving a reason.

Also participation in this study is totally confidential so you need not worry about damaging your relationships with other participants or service providers.

However if the conversation should cause you discomfort we can have a break or stop the interview altogether. If you feel the need of further help I can put you in touch with nearest voluntary counselling service centres, which are listed below -

1. PSYCHOSOCIAL COUNSELLING CENTRE

Address: House-17, Road-1, Block-B, Niketan Housing Society

Gulshan-1, Dhaka 1212, Bangladesh

Phone: 9890513, 9851511 ext.162, 163,164

Mobile: 01942657236, 01720908383, 01979930006

Working hours: 10 AM -5 PM (Friday weekly holiday)

2. TMSS Medical College & Rafatullah Community Hospital

Address: TMSS, Thengamara, Rangpur Road, Bogra, Bangladesh

Phone: (+88051) 78569, 78975

Mobile: +8801733-713790

Working hours: 10 AM -5 PM (Friday weekly holiday)

How do you intend on publishing the results.

The principal researcher Anita Jahid will only have access to the raw data to use for her PhD thesis, in journal articles and in conference presentations. Data will be stored for five years after completion of the projects.

Can I withdraw from the study?

Participation is entirely voluntary. You are not obliged to be involved and if you do participate, you can withdraw at any time without giving any reason and without any consequences. If you do choose to withdraw, any information that you have supplied will be excluded from the synthesis.

Can I tell other people about the study?

Yes, you can tell other people about the study by providing them with the chief investigator's contact details. They can contact the chief investigator to discuss their participation in the research project and obtain an information sheet.

What if I require further information?

When you have read this information, Anita Jahid will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact Anita Jahid. Details contacts are below:

Mobile: +88 0173 2242 102 or +61 452 070 252

Email: 17631192@uws.edu.au

You may also contact with the following local person who will help you to get in contact with the Principal Researcher or the Ethics Committee through the Office of Research Services.

Ms. Shammi Akhter, Executive Officer

Psychosocial Counselling Centre

Mobile: +88 01777773090

What if I have a complaint?

This study has been approved by the University of Western Sydney Human Research Ethics Committee. The Approval number is [enter approval number]

If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Office of Research Services on Tel +61 2 4736 0229 Fax +61 2 4736 0013 or email humanethics@uws.edu.au.

Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

If you agree to participate in this study, you may be asked to sign the Participant Consent Form.

APPENDIX C-5: Participant Consent Form for Key Informant

Human Research Ethics Committee
Office of Research Services



Participant Consent Form

Project Title: Climate Migrants in Bangladesh: Insights into Women's Vulnerabilities and Survival Strategies

I,....., consent to participate in the research project titled 'Climate Migrants in Bangladesh: Insights into Women's Vulnerabilities and Survival Strategies'.

I acknowledge that:

I have read the participant information sheet / have had it read to me and have been given the opportunity to discuss the information and my involvement in the project with the principal researcher.

The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

I agree / do not agree* to the audio-recording of the interviews.

I understand that my involvement is confidential, and that the information gained during the study may be published but no information about me will be used in any way that reveals my identity.

I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher/s now or in the future.

I agree to participate in interview and one to one meeting after the interview.

*(Please delete accordingly)

Signed: _____

Name: _____

Date: _____

Return Address:

Anita Jahid, 19 Seford Circuit, Kellyville Ridge, NSW 2155. Mob. no. +61 0452 070 252.

This study has been approved by the University of Western Sydney Human Research Ethics Committee.

The Approval number is:

If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Office of Research Services on Tel +61 2 4736 0229 Fax +61 2 4736 0013 or email humanethics@uws.edu.au. Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

APPENDIX D: NGO Support – Consent Letters

APPENDIX D-1: Consent Letter from MMS



মানব মুক্তি সংস্থা (এম এম এস)
Manab Mukti Sangstha (M M S)



Integrated Approach for Sustainable Development

23 August 2015

Anita Jahid
PhD candidate
School of Social Sciences & Psychology
University of Western Sydney, Kingswood Campus
Australia.


Subject: Consent letter.

Dear Anita Jahid,

In response to your email on 23 August 2015, I confirm you that I would be happy to assist you to identify and recruit the research participants for your PhD study entitled **Climate Migrants in Bangladesh: Insights into Women's Vulnerabilities and Survival Strategies** during your fieldwork in Bangladesh. Your research topic seems to be interested, and it is a crucial area to research in the current climate change context of Bangladesh.

Please let me know your fieldwork schedule. For further information, please feel free to email me.

Thank you.


(S.M. Amir Hossain)
Deputy Director
Manab Mukti Sangstha (MMS)
Sirajgonj, Bangladesh.

Head Office & Training Center : Village- Khash Bara Shimul, Post : Banga Bandhu Bridge West Sub. Post Code # 6703, Dist : Sirajgonj,
Courier Address : Manab Mukti Sangstha (MMS) C/O The City Bank Ltd, S.S. Road, Sirajgonj
E-mail : hb_mms@yahoo.com
Mobile : Admin Manager # 01714-081048, Training Center : Mobile # 01711-352185, Director # 01713-002850

APPENDIX D-2: Consent Letter from TMSS



TMSS

Head Office : TMSS Bhaban, 631/5 West Kazipara, Mirpur-10, Dhaka-1216
Phone & Fax: 88-02-9009089, E-mail: tmseshq@gmail.com, URL://www.tmss-bd.org

23 August 2015

Anita Jahid
PhD candidate
School of Social Sciences & Psychology
University of Western Sydney, Kingswood Campus
Australia.


Subject: Consent letter.

Dear Anita Jahid,

In response to your email on 23 August 2015, I confirm you that I would be happy to assist you to identify and recruit the research participants for your PhD study entitled **Climate Migrants in Bangladesh: Insights into Women's Vulnerabilities and Survival Strategies** during your fieldwork in Bangladesh. Your research topic seems to be interested, and it is a crucial area to research in the current climate change context of Bangladesh.

Please let me know your fieldwork schedule. For further information, please feel free to email me.

Thank you.


(Alamgir Hossain)
Executive Officer
TMC & RCH
Thengamara Mohila Sabuj Sangha (TMSS)
Bogra, Bangladesh.

Foundation Office
Rangpur Road, Thengamara
Post: Gokul, Post Box No. 66
Bogra-5800, Bangladesh.

TMSS Liaison Complex (TLC)
177 Shahid Sayed Nazrul Islam Sarani
Bijoy Nagar, Dhaka-1000
Telephone: 02-9349644

TMSS Health Sector (THS)
Rafatullah Community Hospital(RCH)
Rangpur Road, Thengamara, Post: Gokul,
Post Box No: 66, Bogra-5800.

APPENDIX D-3: Consent Letter from Counselling office in Bogra



TMSS Medical College & Rafatullah Community Hospital

TMSS, Thengamara, Rangpur Road, Bogra, Bangladesh.

23 August 2015

Anita Jahid
PhD candidate
School of Social Sciences & Psychology
University of Western Sydney, Kingswood Campus
Australia.

Subject: Consent letter.

Dear Anita Jahid,

In response to your email on 23 August 2015, I confirm you that I would be happy to assist you to identify and recruit the research participants for your PhD study entitled **Climate Migrants in Bangladesh: Insights into Women's Vulnerabilities and Survival Strategies** during your fieldwork in Bangladesh. Your research topic seems to be interested, and it is a crucial area to research in the current climate change context of Bangladesh.

Please let me know your fieldwork schedule. For further information, please feel free to email me.

Thank you.



(Alamgir Hossain)
Executive Officer
TMC & RCH
Thengamara Mohila Sabuj Sangha (TMSS)
Bogra, Bangladesh.

APPENDIX E: Map of Bangladesh



Source: Anon, (2020). [online] Available at: <http://www.worldatlas.com> [Accessed 25 Jan. 2020].

APPENDIX F: Field Journal

12/12/2015 (Saturday – Weekend) - Preparation for Field Trips for Bogra and Sirajganj - Gift Purchase

As a preparation for the field trip, one of the pending tasks was buying gift items for women participants. Selecting a gift item was not an easy task, and initially, I was confused about the gift item for women participants. There were a few options. I could give cash, food, clothes or even I could give some household stuff. \$20 is quite a reasonable amount for villagers. My preference was giving cash. Then they could use it according to their need. Then I realized based on their poverty and nature that they would spend the cash for their family, not for themselves. It is widespread in Bangladesh that female members are always the first person in the family to sacrifice their necessities and dreams for the sake of the family. The same principle goes to other items like food, household stuff. So, I decided to buy something that only they can enjoy and use during their special occasion. They usually wear ‘saree’, a local women’s traditional dress in Bangladesh. So, I decided to buy saree for each of them.

13/12/2015 (Sunday) - Preparation for Field Trips - Arrangement of Rental Car

There were different options to rent a car for my trip to Bogra and Sirajganj. After discussing with my local guardians, I choose to hire a car with a driver for the whole trip in Bogra and Sirajganj instead of hiring them day-to-day basis. If I would hire the car daily or weekly basis, there would be no guarantee that every time I would get the same car or driver. In that case, the quality of the vehicle and skill of the driver could be a concern for me.

14/12/2015 (Monday) - Bogra Day Trip - Meeting with the NGO staff and Local People

I was pleased to see my driver's punctuality. He came just in time. Yesterday I had a conversation with him about me and my work and the purpose of having him. He was looking excited too, for the work. In highways, I warned him, again and again, to control the speed limit, knowing the truth that there is no speed controlling system, and everyone tends to overtake. He listened, though he was not looking pleased to see every car was overtaking him. It took almost two and half-hours to reach Bogra. We first went to TMSS (Thengamara Mohila Shabuj Sangha), a local NGO in Bangladesh, office. I contacted them earlier. My uncle works there.

He welcomed and introduced me with others. I talked with one of their project manager about my work. He assured me about their support. He also described me about the two villages where I was intended to go. I met with a few other field officers who have the experience to work with the villagers. From their conversation, I found an intricate relationship between water and people. They also said how these villagers are dependent on the river for their livelihood. One of their staff said an exciting thing – he said that we all know Bangladesh is a country of many rivers, but a river is not just water. He stated that now a day's water is a composition of H2OP4 which means hydrogen plus oxygen plus power, profit, politics and pollution. I was keen to know more, but he said that I would realize it when I will talk with the villagers.

I also went to the local police station to meet with OC (Officer in Charge). I thought it is good to inform them that I will be working for the next few days here.

15/12/2015 (Tuesday) - Bogra Day Trip - Visiting Two Villages, Communicating Local People

Today was my first day in the research area. I visited two `sub-districts today. One of them was Sonatala, and another one was Sariakandi. Sonatala is ~40 km, and Sariakandi is ~25 km away from Bogra district. Sonatala has a literacy rate of ~42%, and Sariakandi has a literacy rate of ~35%, compared to the national average of 52%. Between these two sub-districts, I found that Sariakandi is more vulnerable to river erosion.



Picture: Local road on the way to one of the research area

I was a bit nervous and excited too. My confidence was my local knowledge and language to communicate with the villagers. I choose to wear a very simple traditional dress (salwar kameez) so that I can look familiar to them. Though I was ready to find hundreds of curious eyes when I had to face it, the experience was bit different. I stopped my car far away from the first village. Then I started walking. My confidence was my local knowledge and language to communicate with the villagers, and I choose to wear a very simple traditional dress (salwar kameez) so that I can look familiar to them. My husband and one of my cousins who live in Bogra accompanied me. We entered into the village market place.



Picture: Village market

We sat in one small teashop intentionally to talk with the villagers. I started our conversations with the tea stall owner and other people in the stall. At first, I was a bit shy to use my local accent, as it is not that good, but when I found them talking more easily in the local accent, I started using it, no matter how correct it was. Soon we found a small circle around us to listen who we are and why we are here. Supportively I used my grandparents and father's identity - which they belong to this area. Suddenly they were giving me the response that I belong to them too. Even in a few of their eyes, I saw pride to introduce me with others saying that - 'see she belongs to our land and still she did not forget that'. Though they were not very clear about my purpose of coming here, I managed their trust that I am not going to do any harm to them. Many of them were thinking I went there from an NGO/donor agency/ Govt. agency to give them something or to make a list of them for relief. I answered their questions and

repeatedly described my intention of this visit, so, they would not have unrealistic expectation from me. Here I got mobile numbers of some interested villagers that helped me to have more conversation with them.

People are mostly farmers and fishermen in this area. Most of them said they had inherited this livelihood from their ancestral. The villagers said that they are emotionally attached to this land. They don't want to leave the area unless they left with no other choice but to leave their kin and kith. The villagers want to stay close to villages because lack of economic affordability to move to the urban areas; to advantages of being part of a larger social network in the rural areas; to avoid uncertainty in an unfamiliar urban environment and the hope of regaining char land in the future.



Picture: Low lying farmland

The re-emergence of such land, however, is quite uncertain in terms of time and location. The dynamics of establishing control over the newly emerged char land in most cases results in violent fights between groups and further augmentation of power by large owners.

When there are no livelihood villagers move to somewhere else, where they can find work for a living. But interestingly, they said that most of them move with the hope that they will come back as soon as they can save some money. Once they have savings, they can buy a small piece of land to live and start something for their livelihood in the village



Picture: A Local Tea Stall in Bogra

16/12/2015 (Wednesday) - Public Holiday - Victory Day of Bangladesh

17/12/2015 (Thursday) - Homework - Communicating with the Local People and Participants in Villages

After talking with the NGO staffs and few local people over the phone, I selected a few spots to visit several times the next few days to build trust. I also selected a place to arrange my sitting place so that if anyone wants to contact me, then they can come there.



Picture: Local communication in the village

I had some conversations with the local people, according to the - people between 20-35 years of age move to different districts of Bangladesh for work. While the age group of 26-35 was found as the highest long-distant migrants mostly to Dhaka and sometimes to Chittagong. Those who are more than 35 years of age, try to maintain their livelihood by migrating within their district living through different occupation like rickshaw/ van puller, day labourer etc. This short distance migration makes them return to their locality after a minimum of seven to a maximum of 15 days staying. It was also appearing that people who are more than 50 years tried to stay in their household as they are less capable of doing hard work. However, when they lose their land, household and belongings again and again then they have no choice rather than to leave.

All the villagers who came to talk to me mentioned that flood, riverbank erosion, lack of drinking water, scarcity of food during the flood time, the spread of diarrheal diseases and poor sanitary conditions and most importantly lack of land and livelihood options due to repeated erosions are the significant issues they have.

It is evident that when a household displaced by the erosion, they face many effects. They lose not only their homestead but also their agricultural land. They also lose social links and relations with kinfolds. Sometimes they depend on rural elite for settlements. The poor usually survive by selling off land, livestock, housing material and personal belongings.

Loss of livelihood due to the erosion of land often forces males to go far away for weeks at a time. In their absence, females are easy victims of social depravities. Women are teased and sexually abused by other males in the neighbourhood. While women are forced to go out in search of fuel or work, they often keep their children unattended or tie them inside the dwelling with ropes etc. Such behaviour, according to these women, is believed to be inhuman. However, they have mentioned supports of other women, (their neighbours and friends) to accept the responsibility to look after the children in their absence. Lack of privacy and security also remain similar for those climate migrant women who move to flood shelter even.

18/12/2015 (Friday – Weekend)

19/12/2015 (Saturday – Weekend)

20/12/2015 (Sunday) - Bogra - Participated in a Local NGO Meeting, Meeting Local People

Today I sat beside one shop which was owned and run by a local woman. She was very cordial, after every few minutes she was asking me if I need something. I was trying to talk to her when there was no customer in her shop. She was telling me her struggle time and how she set up this shop. I came to know that she would leave the village if she loses this shop in river erosion. I requested her if she wants to be one of my participants. I ensured her confidentiality. The only problem is to get the time for the interview, as she is in the shop from morning to evening every day. She also does her household works in the meantime. So, I decided to talk to her while she is in her shop and there is no customer. She agreed. The success of the day!

There was a regular credit program meeting of TMSS in nearby place in that village; they informed me if I am interested in visiting that place. I took the chance to meet with the women there. I meet with 20 women there who came for credit program. I talked to them for my work, and two of them showed interest in the interview. I took their mobile no. Thanks to telecom companies in Bangladesh, I saw most of them have a mobile phone at home. I found that women are less curious than men. The first day I was facing more questions than today. Three of them said that they have heard about me from their male family members, so it could be a reason for having fewer questions than other days.

21/12/2015 (Monday) - Bogra - Observing and Communicating Villagers, Selecting Participants

Today I roam around inside the villages. I talk with the villagers, including men, women and children. I heard their every year's distress for natural disasters.

Most of them shift here and there inside the village every six months. I heard from the villagers that approximately within 3-5 years the river takes away everything from them. When the floodwater comes and river approaches and erodes the land, they help each other to

move their belongings. Some of them said with the help of others, and they were able to save their home. They were able to cut all the trees on their homestead and brought them; they also brought their cattle.



Picture: House building materials are piled after losing land in river erosion

With rising water levels in the adjacent river(s), women tend to prepare for relocation. Preparation before relocation means an extra load of activities on the part of the woman in the household, where her male counterpart hardly assumes any responsibility. Fulfilment of Women's traditional gender-based roles on the customary "sexual division of labour" becomes increasingly difficult under flooding condition. Preparing dry food for an emergency, collecting banana stems and preparing a raft, collecting and safeguarding biomass for cooking, safeguarding poultry and livestock, improving storage condition of seeds for the post-flood season, making a new portable earthen cooking stove – all these are additional to daily household activities. Usual activities such as cooking, cleaning, fetching of drinking water, homestead production, etc. cannot be easily performed in flood-affected areas. However, a woman must not give up; she must prepare herself to face the worse!

Today I was standing in front of one lady's house to meet her. I saw two children who were playing at the front door of her house. I asked them about that lady, and they answered me, she is their mother and went outside. While I was talking with the children, another lady came out from the next house and asked me about my identity and purpose of coming here. I explained my purpose of coming. Perhaps she was satisfied with my answer. As a result, she told me that the lady I wanted to meet with went for washing her clothes in the nearby pond and will be back very soon. She offered me to sit.

Soon I found two other ladies came close to the house and were staring at me. While I was standing, I started talking with the ladies. They were asking many questions about my work and identity. They sounded curious at the same time cordial as well. I felt relaxed and started looking around to find a place to sit. I found that the next-door lady suddenly unlocked the door of the house, which was looked like locked. She brought out a chair from this lady's room and offered me to sit. Seeing my eager face, she asked me if need something to drink. I was so thirsty that could not say no, I answered her by saying the water would be good. She quickly went back to her house and came out with a glass of water in a clean glass. By that time, some other ladies from other houses also came out, they all were sitting around me and chatting by asking about my work and myself. While that lady was giving me the glass of water, the other lady spoke out loudly by saying if she can bring any biscuits for me to eat.

22/12/2015 (Tuesday) - Bogra - Conducted Two Initial Interviews

Today I conducted two formal interviews with my two participants. I went inside of both of their houses for the interview. I met with their family members. When I went to my first participant's house, I was thinking instead of saying the house; it should be called room. Room size was hardly 10 feet by 10 feet. She has a family of 7 members along with one cow and two goats. They all live in that small room.



Picture: Accommodation provided by Government for families who lost their home

They received this room from the government as a lease when they lost their house in the river due to erosion and flood. All these small rooms are free from government and suppose to distribute by the local government free to victims. However, they had to pay money to the head of the local government to get this small room. They knew that the chairman took the money illegally, but they had no other choice. Due to lack of supply against demand and corruption, who pays money, he or she gets the allotment. This illegal practice is well established, and these poor women are helpless.



Picture: Accommodation provided by government for families who lost their homes

Instead of all these odds, those participants who received these helps think that now at least they have a place to stay. However, they were worried about what would happen if the river washes this place away again as no proper protection was taken to avoid further erosion of the river. They are worry because if it happens again, they have no choice except leaving the village. They stated their concern that they have already given or lost all their savings — no money or assets left to purchase any land or house further. Insecurity was very prominent in their faces. I talked with the kids. They were smiling and very curious about me. Though they were smiling, it was evident from their health and dress that how much they are deprived of their daily nutrition and care. They said they do not like to go to school because going to school is a very random thing for them. Due to flood, rain and erosion; the school remains significant-close time during monsoon season. On top of that, they have to help their family for daily household work like feeding the castles, take care of the younger siblings, bringing drinking water from remote etc. which do not allow them to be regular in their school. Very

interestingly, when I asked them about their play area or park facilities, they laughed at me and said “you know nothing, parks are only in the city, and you need to buy tickets to play there”. I understood that they are talking about amusement parks. There are very few public parks available maintained by local governments which are not well maintained and most of the cases used by other purposes. They enthusiastically showed me some of their hand made play kinds of stuff, like cricket bats, dolls, and local games.



Picture: Children playing in the village

When I was talking with one of the interviewees, she requested me not to record or write everything that she was telling, because her answers may change or differ the next day. Her simple statement gave me an idea to talk with them more than once to get their overall opinion and views. It is also noticeable that when I sat with them formally, they were not spontaneous as they were during informal talking. I realized that my equipment (camera, recorder, mobile) were caused them feeling to be formal and smart in front of that equipment. In my second interview, at the end, when I took everything back in my bag, I found her more relaxed and spontaneous.

23/12/2015 (Wednesday) - Bogra Day Trip - Visited Another Village to Attend Another NGO Meeting

Today I went to a 'char land' village. I went there with the NGO staffs who had their regular meeting for the microcredit scheme. We went there by boat because the boat is the only option for transport with the mainland for 'char lands'. Around 30 minutes took to reach the village. The NGO staff said that in the rainy season when the river gets full of water, it takes more than one hour to reach the village and sometimes it is dangerous due to heavy current in the river. The char goes under the water then. Only a few houses have electricity. They took me to their meeting area. The NGO staffs introduced me to the members of the meeting group of 30 people. Among them, I found only 12 women. After their session, I took the chance to talk with the women members personally.



Picture: Local transport for char land people

Few of them said they just have come to this area; they have lost their land in erosion a few years back. This char area was part of the mainland a few years back. They disclosed their past. I was amazed at how they lost all their property and assets within a few hours. Few of them were very well off before they lost their land. Now they are struggling with their livelihood. It is pathetic and emotional.

After they lost their land, they were floating for a few years. They moved to this charred land recently knowing the reality that there is no electricity, no schools, no doctors, and no income. However, they moved here due to two reasons. If they do not move when the char land

aroused, they may not get back their land again. There are many battles to get ownership of their lands. Local influential and muscle men used to capture other lands for their benefit. Another reason was their afraid and fear from urban life. They said ‘we have heard that urban life is hard, we want to try here.’

24/12/2015 (Thursday) Homework - Communication with Participants –Transcription

Climate migrant women’s houses are mostly built from earthen walls and tin. The villagers also showed that during flood periods, the water level submerges their houses. Therefore, in disaster time, it is not safe to stay in these houses as it can collapse or wash away. They also mentioned that therefore due to increasing level of water and river erosions they need to leave their houses and go to friends or relatives houses, shelter houses or on river embankments, nearby highway or embarkments during or after disaster time.

25/12/2015 (Friday –Weekend)

26/12/2015 (Saturday – Weekend)

27/12/2015 (Sunday) - Bogra - Communicating and Observing Villagers, Places, Follow up Interview

While I was observing the riverbank sides, I had some conversations with the villagers. I also had the chance to talk with one of my participants. From their conversation, it appears that poverty drives many villagers to live at increasingly eroded riverbanks, and they are forced to migrate again and again internally. Impacts of riverbank erosion are miscellaneous: social, economic, health, education and sometimes political.



Picture: Beside a river bank



Picture: Unsafe riverbank

Like other days, the shop keeper woman asked me if I had have my lunch or not. Today I asked her to have lunch with me. She refused my proposal as her husband and children did not lunch yet. I realized that it was quite impossible thinking for her to take lunch before the family members. Every day she prepares lunch, serves to their family, and she is always the last member to eat the lunch. I was aware of this practice. However, while I was sitting with the women in the village, during the lunchtime, I asked the shop woman along with other

women in the surroundings regarding taking the meal before family members or with family members. As expected, all are not used to do this even for a single day. During the time of food and water scarcity, female members normally scarify for the other family members. Women continuously try to improvise and feed their families, whatever little food they can collect or manage to cook. To ensure food security for other family members, they usually eat as the last person and the least amount. Even sometimes they pass their days without having food. Consequently, they become more vulnerable to malnutrition.

I saw some women in the villages were working in the vegetable garden, paddy field. In most of the household, they have cow, goat, and chicken. Here women play a significant role in agriculture that typically includes horticulture, threshing and husking and livestock rearing. Women dry fishes if there is a surplus, they also preserve few food items when there is availability. They also preserve different seeds. They compost kitchen waste to produce organic fertilizer. Unfortunately, a flood destroys all of these homestead vegetable gardens and livestock/poultry, which are the primary sources of income for rural women.



Picture: Poultry by doing 'Macha' (Raised platform)



Picture: Livestock in a house

28/12/2015 (Monday) - Bogra - Conducted Third Interview and Follow up Previous Two Interviews

I was fascinated by one of my participant's skill in making cakes. I quietly sat next to her and watched her doing it so quickly. She described her life, but at some points, she sounded very courageous, her eyes were gleaming, she said I do not want to give up. However, she sounded very helpless when she uttered the destructive nature of river erosion.

During natural disasters, women know that abandoning her homestead might mean losing valuables to thieves. Therefore, she refrains herself as long as possible to relocate in safer places. Sometimes women are found to take shelter at the rooftop along with their children and livestock. By doing so, she can perhaps avoid floodwater; however, fall victim to snake bites and occasional drowning of the kids.

Poorly constructed and insecure housing systems also may increase the mortality rate of women as they can collapse during the flood. Moreover, being the primary career of the family, they try to remove their family members and their household assets to the safer place first during the time of river erosion. This situation may also put their life at risk.

These women find it extremely difficult to ensure food and drinking water security when they struggle to live in a flooded condition. During the flood, people confront acute shortages of potable water and edible foodstuff. Moreover, women mainly face all these. During disasters

period young girls are reportedly scrounging for good reeds and roots. These women travel long distances by boat or raft to fetch drinking water. Sometimes water sources become contaminated with pathogens, which causes the immense spread of water-borne diseases such as diarrhea, cholera, and hepatitis. Not only women take care of themselves, but they also help other sick patients of the family and provide comfort to the younger ones by counselling them.

29/12/2015 (Tuesday) - Bogra - Observing Local People and Places

Today I went to see the nearest Upazila (sub-district) Health Complex. Unfortunately, There was no doctor in the Upazila (sub-district) Health Complex in Bogra. Health complex has 50 beds capacity, which is not enough for local demand. On top of that, doctors do not come regularly. In fact, they do not want to stay here long. As soon as they get the posting here, they start trying to get the transfer in a city area.

I also visited one College, School and Madrasa today. The college staff said this is two times within the last eight years they had to move the college. When the river gets wild, it kind of washes away underneath and then the whole bank collapses in. Their school and their market all just collapsed into the river within a few hours. School's principal said during the flood time the school remains closed. Due to the irregularity, they do not get enough students; it becomes hard for them to finish the syllabus in due time. They also complained that they do not get a book in due time.



Picture: A temporary primary school

I met with the ward's commissioner. The local commissioner mentioned few problems that riparian buffers are not maintained, and human settlements are situated too close to eroding banks, deforestation, instability of the river behaviour and lack of livelihood. He was urging for more Govt. and non-Govt.'s support for this area. I asked them if they have thought of how to maintain riparian buffers and quantify the loss of the villagers due to this erosion for compensation. However, I did not receive any satisfactory answer.

30/12/2015 (Wednesday) - Bogra Day Trip - Follow up Interviews and Conducted Fourth Interview

I met with an amazing woman today. Even after so many ups and downs in her life, she refused to give up and got herself involved in the business as a small entrepreneur. She told me that apart from the credit loan, several wholesalers from urban areas come and give loans to people here for raising calves and ones they are grown up, the wholesalers return during Eid-ul-Azha (a religious event for Muslims) season and repurchase them after bargaining. Besides their daily household work, they manage the hay and grass, bathing them in the river. Sometimes their children help them too. She also does some woollen blanket knitting and sells them to the local market. Her room was noticeable because of cleanliness and tidiness. She told me about her surviving story and her future dream. I hope the river erosion will not wash her hopes forever away.



Picture: Women are washing their cloths



Picture: Villagers are taking bath

During the flood, women's privacy seems to be challenged entirely, which renders to enormous social sufferings for them. There are many cases that women could not timely respond to the call of nature because of lack of privacy. Consequently, they wait till night for excretion. In flooded condition women often go outside by rafts for excretion in open water, in the middle of the night. This situation becomes worse in the case of pregnant women, children, disabled and elderly persons. On top of these, there are other biological conditions such as pregnancy and menstruation etc. with which women cope with extreme difficulties. Social taboos around menstruation and norms about appropriate behaviour for women and girls are reported to contribute to health problems in young women in disaster situations. During floods, adolescent girls report perineal rashes and urinary tract infections because they are not able to wash out menstrual cloths to dry, or access to clean water. Many of them reported wearing the still damp cloths, as they do not have a place to dry them.

31/12/2015 (Thursday) - Homework – Transcriptions – Communicating with Participants

Women's work continued from early morning to late at night. They wake up in the early morning and prepare the morning meal for the family, keeping aside some food for the family lunch. Then they leave home around 8.00 a.m. to work in the fields together with their husbands. After working all day, they come back home and start the second round of

household chores, i.e. sweeping, preparing the evening meal, tidying up the house, and feeding the livestock and getting them back in their shed. In contrast, after coming back from fieldwork, men take a rest or go to the local market, or wander here and there, passing time talking.

01/01/2016 (Friday - Weekend)

02/01/2016 (Saturday – Weekend)

03/01/2016 (Sunday) Bogra - Conducted Fifth Interview, Follow up Interview

Poorly constructed and insecure housing systems also may increase the mortality rate of women as they can collapse during the flood. Moreover, being the primary career of the family, they try to remove their family members and their household assets to the safer place first during the time of river erosion. This situation may also put their life at risk.

These women are very attached to all their household assets. All these assets are related to their memories and with their savings. These are important for them because, in any scarcity of resources, they can sell these and can save themselves from their deprived situations. They consider, all the household assets are valuable for their life, and they are the primary protectors of these assets. Therefore they need to confront the challenges during the disasters to save these assets. Talking about the household assets these women include houses building materials, furniture, radios, televisions, sewing machines, a small number of ornaments, bicycles, fishing boats or agricultural machinery. They also included include their poultry and livestock such as cow, goats, chickens or ducks.

Poor women depend on relief if anything is in the offer by the Govt./NGOs in the neighborhood. However, they need to face difficulties by standing in a queue for hours. Sometimes they find it socially dishonored to receive relief items. Therefore, they feel inadequate to receive relief items. The amount is also not adequate they find.

The outbreak of diseases is typical during floods. Flood often submerges the latrines and leads to sufferings, especially for women. Women of the household mostly take a bath in floodwater, often at night to avoid the sight of looking males around them. Not only they become victims of snakebites, but they also frequently suffer from skin diseases.

04/01/2016 (Monday) - Bogra - Follow up interview, Communication with Villagers

Most of the local people, including men and women, are not familiar with the term ‘climate change’, but they mentioned that some of the changes in weather and seasons in recent years. Although river erosion is not new after talking with local people, it is evident that the pace and scale of changes are more intense. Most of the women said this erosion has started from our birth period. Their parents also said the same. Before the river was intense, but now rivers are more silted.

Whenever erosion occurs, they move from one place to another. People, especially women, face terrible sufferings during those times. If they can’t find any place to live, they need to either live on someone else’s property or in the fields or beside the highway that causes more sufferings, hazards and insecurity for them.

After visiting all my participant’s houses and a few other village women’s houses, I found that all the village women are lack of any modern household day-to-day stuff. Which causes more effort and more time. They cook food over an open fire using wood, agricultural residue, and animal dung, known together as “biomass.” This traditional cookstove causes lots of smoke that is harmful. The supervisory responsibility for household tasks continues to be assigned to women and girls and limits their time and opportunities to be actively involved in educational, social and political activities. Discriminatory and orthodox attitudes, lack of education, security concerns and freedom of movement may also limit opportunities for women to participate.



Picture: Cooking arrangement on ‘Macha’ of villagers

05/01/2016 (Tuesday) - Bogra Day Trip - Follow-up Interview

During disasters, these women live in temporary shelters on the embankments or nearby highway road under open skies which they also find insecure for them, especially for their children. These temporary shelters are far below the minimum standard; they are mostly tents made of cloths or plastics without any space for privacy and are extremely vulnerable to the monsoon. Some of the climate migrants stated even if their homestead land and shelter exists, they cannot return to their houses without repairing the damaged houses due to natural disasters. This situation also prolonged their stay at the temporary shelters and increased their vulnerability overall.

06/01/2016 (Wednesday) - Bogra Day Trip - Follow-up Interview

Flooding and river erosion in these villages always generates socio-economic and health-related hazards and environmental and infrastructural damage. In some 'char' areas, livestock rearing is one of the primary income-generating activities where women take a crucial role to manage most of the herds. During the flood, it seems to be very difficult either to keep this livestock safe or to feed them with proper fodder. Collecting fodder during high flood appears to be another significant hurdle.

When women are utterly helpless without any source of income and shelter, they usually move out to non-affected areas. However, this migration does not necessarily make their lives easier. In their new shelters as migrants, they lose the physical and social security they once enjoyed at their native villages. This, in turn, put them in other kinds of adverse social circumstances. Young girls taking shelters on embankments are also in constant dangers of sexual harassment and assault. Often young women are persuaded into prostitution by professional groups, with the promise of giving jobs elsewhere. Their mothers are always alert to protect them from any insecurity. All this insecurity causes the early marriage in villages. They got married at the age of 12/13.

The schooling of the children is particularly affected during floods because it becomes impossible to hold and attend classes during submerged conditions. Furthermore, wherever the school building is not submerged, these tend to become the 'front-line' flood shelters for uprooted families. The loss of the academic year for an adolescent girl student is often translated into an early-arranged marriage, without having to get consent from the girl child.

During the post-flood rehabilitation phase, especially amongst the poorest of the society, such early forced marriages are prevalent.

07/01/2016 (Thursday) - Homework – Transcription- Communicating Local Participants

08/01/2016 (Friday – Weekend)

09/01/2016 (Saturday – Weekend)

10/01/2016 (Sunday) - Bogra Day Trip - Feedback to the Participants

These women are attached to their religious norms and practices. They do their five times of prayers according to the Muslim rituals. Men go to the mosque for their prayers. Women do their prayers at home. Once a week, women also do a group prayer at home. They consider these group prayers satisfying and useful. Sometimes after prayers, they talk on their problems, issues and try to find out the solutions from their religious point of view. They want to direct their lives according to the rules of their religion. They love to celebrate religious occasions, for example, Eid, Ramadan. The entire year they wait and try to save for celebrating these special occasions with their loved ones. They consider these occasions as their happiest time.

11/01/2016 (Monday) - Bogra Day Trip - Feedback to the Participants

12/01/2016 (Tuesday) - Bogra Day Trip - Feedback to the Participants

13/01/2016 (Wednesday) - Homework - Transcription

14/01/2016 (Thursday) - Homework - Transcription

15/01/2016 (Friday – Weekend)

16/01/2016 (Saturday – Weekend)

17/01/2016 (Sunday) - Bogra Day Trip - Feedback to the Participants

18/01/2016 (Monday) - Bogra Day Trip - Feedback to the Participants

19/01/2016 (Tuesday) - Homework - Sum up Bogra's Work, Communication with the Local People

I can sum up my last few days' observations and conversations with villagers and participants that –

These women are attached with their religious norms and practices. They do their five times of prayers according to the Muslim rituals. Men goes to the mosque for their prayers. Women do their prayers at home. Once a week, women also do a group prayer. They want to direct their lives according to the rules of their religion They love to celebrate the religious occasions, (for example, Eid, Ramadan) with their loved ones. Whole year they try to save for celebrating these special occasions with their loved ones. They consider these occasions as their happiest time.

However, their life is terribly affected by the repetitive natural disasters. Some of the significant socio-economic consequences of riverbank erosion are loss of livelihood, loss of land and property, impact on health, education, security and human displacement. For all the cases, women became more sufferers because of her role in the family and society. The necessary infrastructure like health centre, school, market, water supply system, sanitation system in the villages are inferior. It becomes worse during flood time. Some of the participants mentioned that sometimes NGOs and local Government help them to rebuild their sanitation systems. However, when they lose their homestead due to erosions, they find it less effective for them. The relief and benefit received by the victims of flood and erosion are, most of the time, improper and insufficient. According to them they need more work opportunities and secured land in villages.

20/01/2016 (Wednesday) - Homework - Preparation for Sirajganj Trip, Communicating Local NGO

Luckily, I managed to have the same driver and car for my Sirajganj Trip. I talked to MMS (a local NGO in Sirajganj). MMS is working as a local partner with some International NGOs in Bangladesh, one of them is Concern Universal, a UK based international donor organization. They were more willing to help me when they came to know that I used to work with Concern Universal and other similar organizations. They helped me to identify two villages where I can visit.

21/01/2016 (Thursdays) - Sirajganj Day Trip - Meeting with the NGO Staffs, Villagers

First, I went to MMS's office. Then I started my journey again to my selected villages in Sirajganj. MMS provided me two of their local staffs to accompany me for the first-day visit in the villages.

No wonder I experienced the overwhelming curiosity of the local people. I felt like hundred staring eyes surrounded me. However, this time, I am not that much nervous as I faced the same in my last research area in Bogra. I started talking to them slowly. One after another person was coming to hear what I am saying. I repeated my identification and purpose of coming here to each of them. I found some of them were happy to hear my story but some of them were looking at me suspiciously. Understanding their questionable attention, I confessed that I am not a reporter, governmental or non- governmental officer. The stories which I will collect will go to be used for academic research. However, I will also make a report for the government and non-government officials in the hope that they will do something better for all of you. I will use only that information that you will allow me to inform others.

I noticed that male members of the family are roaming here and there in the market; they said they are looking for day labourer work as many of them have lost their livelihood due to river erosions. Male members went there early in the morning and came back till evening. Female members are taking care of the household works. I had to say goodbye to the MMS staffs. Then I started roaming around the villages on my own.

I kept walking around the area. A gang of small kids was playing with a dog. Then they took a bath in the pond. I managed to capture their attention as soon as I reached there. I had simple chitchats with them. One of their mothers came there to take her son; she was polite and soft-spoken. I told her my reason to come here. I told her that I did the same thing in Bogra and looking for five participants here too. She was glad to help me and took me in a couple of houses. I met with few families who have lost their lands due to river erosion have not got anything back yet. Some of the victims have compelled to relocate as they become destitute and some of them are still living here and there in the village but planning to migrate in urban areas. Destitute people who are victims of 5-10 times' river erosion are compelled to displace.

They all said that flood and riverbank erosion is almost natural phenomena here. According to their statements and my observation, it is apparent that displaced people face economic insecurity due to loss of agricultural land and become unemployed. The victims also suffer from social insecurity due to deprivation of civil rights, health insecurity due to lack of necessary infrastructure, especially during disaster time when they need to move in emergency shelter places.



Picture: Accommodation in Sirajganj



Picture: Accommodation in Sirajganj

22/01/2016 (Friday – Weekend)

23/01/2016 (Saturday – Weekend)

24/01/2016 (Sunday) – Sirajganj Day Trip - Visiting Two Villages, Observing and Communicating Local People

I have chosen two villages for my interviews. Both villages are situated in the bank of Jamuna River, which is part of Brahmaputra River originated from India. I observed that farmers and fishers were the most prominent figures in this area. I talked with some of the villagers. They said that they born and brought up in these villages. Facing and struggling with natural disasters are in their blood. Generation after generation they are coping with this. However, frequency and desolation of erosion have increased so much that now they are in a situation that they cannot stay their villages anymore. Riverbank erosion is one of the natural disasters that cause displacement of inhabitants who previously lived near riverbanks. Many of those erosion-distressed people lose their homes, means of livelihood and assets but also their previous identity.

I went to a char village. The char villagers are accessible by country boat. There is no roads or railway. According to them, the communication system becomes worse during monsoon season.



Picture: Transportation of char people

I found that sweet potatoes and banana are grown widely. I also came to know that banana trees are beneficial in the Char context for its multifaceted uses. It provides food, the leaves are used for fuel, and the stem is used for fencing the house as well as a building material. Banana trees are also used for making rafts during floods. Catkin grass is also cultivated as it

can accelerate silt deposition on Chars, and its decomposition adds humus to the soil. Catkin grass is used to thatch houses. The stem is often used for making fences in homesteads, particularly in betel leaf enclosures. When women collect the grass, they are careful to cut it at a certain height and leave the root intact.

Char lands, houses are built quite low in height. Trees act as protection against storms and winds. For housing materials, People rely on locally available sources such as catkin grass and ‘dhoincha’, which is a long-stemmed plant which grows in water. When dried, the stem can be used as a building material as well as for fuel. The leaves are used as fodder.

25/01/2016 (Monday) - Sirajganj Day Trip – Communication with Villagers, Selection of Participants

Most of the villagers said they had moved 6-7 times on an average further inland, away from the river, to escape the problem. They are scared because they can feel that they have to move further in the coming years if the bank erosion process continues.

Another impact of bank erosion they mentioned that are lack of medical and education facilities. Medical care facilities that were on the eroded land are all lost. As building infrastructure for medical units is expensive and takes time, medical services are lacking in the new settlement area. So, climate migrant women need to travel longer distances than before and bear extra cost for medical treatment. Furthermore, due to loss of livelihood, climate migrant women find it challenging to spend money for other purposes than essential items like food and shelter, even if the medical and education facilities exist in their new occupied places. Results are apparent in their poor health, sickness, malnutrition, low weight birth, miscarriages, and perinatal mortality — a similar situation for education and very obviously illiteracy of their children decreases significantly. Bank erosion has caused a decrease in agricultural lands that in turn has reduced the agricultural production as well.

26/01/2016 (Tuesday) - Sirajganj Day trip – Initial 3 Interviews

Riverbank erosion is one of the most important natural hazards, which causes widespread damage to man and its habitants. The char people experience both normal and severe bank erosion, a hazardous phenomenon quite common in the riverine environment. Riverbank erosion is so intense and devastating that its impacts on human habitation, more especially the extent, nature the scale of devastating in the erosion risk area need proper evaluation

Out-migration is the only coping when riverbank erosion takes place. This is a phenomenon, which takes away almost everything from the affected dwellers. People affected by riverbank erosion have reported that they do not even have the incentive to plant trees for future security as they know their fate. The whole of the affected community that leaves nothing but popular waterbed. The destitute people take shelters on the nearby embankments or adjacent Khas lands, owned by the government. As a result, the families, especially young women, face enormous harassment and insecurity. Often the male members of the family go to big cities for employees leaving their families almost in an unbearable situation. It is also characteristic here that many male members leave their families forever. In the areas where riverbank erosion is acute and common, women-headed households are prevalent as husbands go outside the area for employment and never come back and take the responsibility of the low-income family.

The majority of respondents in two char villages use groundwater from shallow hand tube-wells and to access clear drinking water during and after flood women try to purify water. However, most of the time, they failed to purify the water and drink unsafe water. It is not possible to boil water frequently as traditional fuel resources (such as bamboo, cow dung cakes and fuelwood) become wet during the flood. The most common methods of water purification in villages are boiling of water. Most of them use leaves, woods and cow dung as fuel for their cooking purpose. No respondents use kerosene oil due to their poverty. Sanitation in the study area tends to be unhygienic with existing latrines poorly maintained. Many of them use the open place for sanitation.



Picture: Local source for drinking water



Picture: Local sanitation in the village



Picture: Local sanitation

Ironically, an erosion event can bring a wealthy and miserable family on the same level. However, the wealthy family, owing to their better economic organization and much improved social resilience compared to that for the low-income family, can bounce back. However, at a particular stage, they also think about migration when they continuously become victims of erosion. However, the social and economic vulnerability of erosion is disproportionate on the part of the low-income family.

Erosion occurs quickly, and results are often devastating. Again, the poorest are the worst hit, since they do not have enough cash to relocate themselves following such an event. Erosion takes away croplands, the primary source of survival for the poor and marginal farmers. Moreover, erosion makes people rootless, and forces affected people to migrate out. Unless

one is adequately rehabilitated, which a poor has to face in any case, one cannot escape economic hardship, physical and emotional pains, social injustice.

27/01/2016 (Wednesday) – Homework – Transcriptions – Communicating with

Participants

Natural disasters not only destroy their homestead only but also their agricultural land, which is their main livelihood options in the rural area. They have limited income generation opportunities like - crafting, homestead gardening, livestock rearing, poultry etc. These income generation opportunities are also nature-based that are also become affected by the regular flood and river erosion. Each time they lose their land, they try to downsize their land and other resources. They sell off the land, livestock, housing material and personal belongings.

28/01/2016 (Thursday) - Homework – Transcriptions - Communicating with

Participants

29/01/2016 (Friday - Weekend)

30/01/2016 (Saturday - Weekend)

31/01/2016 (Sunday) - Sirajganj Day Trip - Follow up Interview

Climate migrant women and their family members mentioned that the food situation becomes severely dire for in the study area. One of the main reasons is decreased crop production due to loss of land and natural disasters. Natural disasters destroy their crops, vegetable gardens and livestock and poultry which they consider as a significant source for their daily food intake.

01/02/2016 (Monday) Sirajganj Day Trip - Follow up Interview and One New Interview

In the dry season, latrines work well as the sandy soils in the study area provide good drainage. However, sanitation becomes extremely difficult during peak flooding season when water covers all the homestead land.

River erosion seriously affects the livelihood of the riparian population. Due to riverbank erosion, many farmers become poor overnight. They lose homestead, houses, cultivable land, trees and other properties. Still, people continuously try to cope with adversities. They build

the houses in a manner that they can comparably pack it into parts and shift it to the safer place.

According to the stories of climate migrant women even after losing their land and resources, first few times, they try to resettle them in rural areas. Climate migrant women's life stories depict that because of the lack of money; they cannot migrate with their family to a place where erosion does not take place. Therefore, they relocate their homestead in a nearby area immediately after the disaster strikes and the people who can do the laborious job, migrate to distant places to cope up with losses incurred from riverbank erosion. However, they have to migrate in different districts of Bangladesh to get jobs to perform their livelihood.

Even after all the sufferings, Bengali women dream of hazard-free days. She provides comfort to her children and hums a melodious song or two to keep a bored and hyperactive child quiet. Barely have they done anything for their comfort or entertainment. Sometimes few of them get the chances to indulge themselves in a long boat ride to see their parents.

02/02/2016 (Tuesday) - Sirajganj Day Trip - Follow up Interview and Another New Interview

Different types of materials are used to protect riverbank erosion - piled sandbag, zeo-soil bag and brick pieces to protect flood and river erosion.

Riverbank erosion has a significant impact on agriculture. The cropping pattern has changed as a result of bank erosion. It also affects crop diversity. Fertile cultivable land is becoming unsuitable for rice cultivation due to sand deposition. The fertility of the land is reduced as a result of erosion and sand deposition; the yield of the land has declined. Where rice was the main crop before, now people produce maize, dal, groundnut, etc. on the newly formed char lands. According to their statement, crop diversity is changing. Not all the emerged lands are suitable for crop production. Therefore, crop intensity is also changing.



Picture: Char area in Sirajganj



Picture: Char land in Sirajganj



Picture: Drinking water in Char area in Sirajganj

Floodwaters often limit their movement. They move with extreme discomfort when in need; however, they show evident reluctance to leave their children with the fear that they might get drowned if slip into the water. They keep close surveillance to avoid occasional snakebite. Many poor women collect wetland based food items, often on the way to fetch drinking water. When they socialize with neighbors, they keep on stitching local quilt called ‘Nakshee Kantha’ – a very popular handicraft. They use every single moment for household work, caring work, home economic work and livelihood work. They do not have weekends or leisure time for themselves. However, when I was talking about the valuing and appreciating of their jobs – I found tears in most of their eyes but a small fake smile in their face. From their eyes, I felt as if I was talking about fairy tales to the people who are living in a torment where they are deprived of their essential needs such as food, shelter, health and education.

03/02/2016 (Wednesday) - Homework – Transcriptions - Communicating with Participants

04/02/2016 (Thursday) - Homework – Transcriptions - Communicating with Participants

05/02/2016 (Friday - Weekend)

06/02/2016 (Saturday - Weekend)

07/02/2016 (Sunday) - Sirajganj Day Trip - Feedback to Participants and Communication with the Villagers

Capacity to face the disasters becomes low because they lose their economic capability due to destruction of livelihood. As a result, food insecurity occurs, and most of the time, women have to face the harsh effect of intra-household food insecurity. Women become socially insecure as they lose their houses. Young girls and women become more vulnerable when they are forced to live under an open sky. Sanitation becomes a significant problem, and also tube wells are often damaged due to floods. As a result, fetching water from a long distance and defecating in the nearby forest etc. lead women towards an unsafe living condition.

Floodwaters bring great difficulty when it comes to defecation. When flood creates an unsanitary condition, the male members of the family often go to the nearby forest or upper land for defecation. However, a respectable woman cannot defecate under open sky due to prevailing social and religious norms. Either she waits with an extreme physical difficulty till the nightfall, or she defecates inside the house and throws the excreta in open water.

Unfortunately, she has to bath in that water too and therefore; she accepts health-related consequences.

Maintaining poultry and livestock becomes extremely hazardous for women since it is expected that they would take care of the 'valuable assets'. Bringing in fodder for the animals, collecting biomass for cooking, and even daily cooking for the entire family – all the usual gender-biased activities become so much troublesome in disaster conditions.



Picture: Cooking arrangement

08/02/2016 (Monday) – Sirajganj – Feedback to Participants

09/02/2016 (Tuesday) - Homework - Sum up Sirajganj's work, Communicating with the Local Chairman and Commissioner

Due to lack of time, I had to talk with the local chairman and commissioner over the phone. According to the awareness program should be taken for char livelihood about flood and river erosion, sustainable embankment construction and its maintenance, immediate relief program should have to be undertaken by the government and other non-governmental organization during the period of flood and erosion, government should take initiatives to provide the alternative employment opportunities for the affected people, and training on disaster preparedness involving local institution/ local government.

10/02/2016 (Wednesday) - Homework - Communicating Local People and Participants to Give Feedback, Transcription

11/02/2016 (Thursday) - Homework - Communicating Bogra and Sirajganj's Participants and Local People to Get Help to Find Participants in Dhaka, Transcription
12/02/2016 (Friday – Weekend) Preparation for Dhaka Trip

13/02/2016 (Saturday – Weekend) Rajshahi to Dhaka

Dhaka is the capital and largest city of Bangladesh. It is a hub for trade and culture, with a long history as a seat of government. It is one of the world's most populated cities, with a population of 17 million people. The city has the most significant number of cycle rickshaws and is known as the Rickshaw Capital of the World. It is said that it is a megacity with a mega traffic jam. Which causes massive loss of time to move from one place to another place. Due to the lack of traffic rules, road accidents are a natural phenomena in Dhaka.

The most challenging part in Dhaka field trip is to find out the interviewees and to get their available time. In Dhaka, the scenario is different from Bogra and Sirajganj, in villages women mostly stay at home, but when they come in Dhaka most of them get involved with some work to maintain their living cost. Due to lack of any stable shelter, they live an unsettled life and move here and there frequently. From Bogra and Sirajganj villagers I collected some women's mobile phone numbers who came in Dhaka After uprooted by river erosion. I tried to call them, but many of the mobile numbers are switched off. I was able to talk with only four of them via mobile phone, and three of them said that they are located in Korail slum and one in Kamlapur railway station.

14/02/2016 (Sunday) - Dhaka - Meeting with Concern Universal (an NGO) and BRAC (an NGO) in Dhaka

When I was in living in Bangladesh, I used to work in International NGOs. I went to one of their offices as they have different projects in Dhaka and other cities in Bangladesh. I shared my purpose of the work and they also appreciated my work. I also had a conversation regarding my safety and security. I requested their support for my field trip in Dhaka, and they agreed. Their Human resources and Program support Manager assured me that I could contact them regularly. I informed that I would update them daily about the places I would visit so that if there is any emergency occurs, they can take necessary steps. They helped me to hire a rent a car for my travel inside Dhaka.



Picture: View of Korail slum

I also went to the BRAC Office (an international development organization based in Bangladesh). Some of their staff members who are working in different projects in Dhaka city suggested that I might find some of my participants in Korail Slum. Different NGOs in Bangladesh have different programs on health, sanitation etc. in different slums but as they do not work mainly on climate migrant people yet so they do not have any specific database for climate migrant people. They also stated that migration towards urban areas is a historical phenomenon, but unfortunately, there is a lack of migration data from secondary sources; this hinders the analysis of migration. The census data of Bangladesh is not sufficient to analysis migration, as these possess only a little information about the place of birth.

According to the conversation with the staff members of BRAC and Concern Universal, it is evident that most of the migrants who come to Dhaka from rural areas end up in the slums. These slums are home to an estimated 3.5 million people that is 40 per cent of the city's total population, and that is why Dhaka is now considered as 'city of the urban poor'. They also mentioned that 70 per cent of slum dwellers in Dhaka moved here after facing some environmental adversity. Due to climate change impacts, the rural-urban migration pattern has also changed in Bangladesh. In the past, poor people would come to Dhaka lived in the slums, earned some money, and returned home to their villages. However, now a day, as the effects of climate change have increased, more people are staying in Dhaka's slums permanently. Therefore Dhaka is struggling with acute infrastructure shortages in many areas.

15/02/2016 (Monday) - Dhaka - Visited Slum in Dhaka and Communication with Slum Dwellers

Today I went to 'Korail' slum that has a high concentration of rural-urban migrants. One of my ex-colleagues accompanied me. The Korail slum lies at the edge of the Gulshan and Banani areas (adjacent to Gulshan-Banani Lake), where some of the country's rich families live. The slum sits on government land. It is inhabited by at least 40,000 people crammed into rental shanties made of mud, bamboo and corrugated iron sheets.

After roaming around here and there inside the slum, I was able to talk with some of the inhabitants there. They all looked reluctant, which is opposite to my experience in villages. Only some unattended children were following us, trying to understand what we are looking for. I talked to them. They didn't look healthy, clean or nicely dressed obviously but they were looking very curious at the same time courageous. After a few minutes chitchat, I pretended to be serious and asked them I need your help. 2/3 of them came forward and asked seriously 'what can we do'. I loved their courage and eagerness to help. In some conversations with them, I asked them what they want to be in life; the children said that they want to do some critical job when they grow up, especially the girls have more dreams for their life. At one stage of our conversation, I explain if I can talk to the women here who have come from Bogra/ Sirajganj. One of them suddenly came forward and said 'I know one family they just have come from Sirajganj. However, they are not at home now, went for work. Saying thanks and bye to them, I went to another side of the slum.

According to my today's observation, Slum areas have predominately poor housing such as jhupris, shacks, kutcha, semi-pucca houses. Slums have high housing density, cheap and low-quality housing materials, poor sewerage and drainage, inadequate and unhealthy drinking water supply, insufficient and most of the time absence of street lighting, no paved streets and inhabited by poor, uneducated and below poverty level people. Most of the inhabitants whom I talked with said urban life is comparatively much more expensive than the rural life. They cannot afford the expense to live in urban residential areas. That is why they go to slums, where the living expense is comparatively lower even after knowing all the predicaments.

16/02/2016 (Tuesday) - Dhaka - Revisited the Slum and Communicated with the Slum Dwellers and Interview Participants

I managed to meet with two participants today. I managed their mobile number from my field visit in Bogra and Sirajganj. They introduced me to some other families who also came from those two areas. To meet them I had to stay there till evening. I took the chance to talk one to one with five women of those families. However, the problem is matching the time with them. I took their phone number and decided to do part by part according to their convenient time and place. While talking with the families who are from Bogra or Sirajganj, there was a situation arose that few of the neighbours around them who are from other region came and told why I am not choosing another region. I explained that – I wish I could, but according to my study area limit, I would like to include only those two regions.

While I was talking with the families, I entered in one of their room and found that a lady was crying, and other ladies surrounded her. I heard that her husband beat her and she was beaten till she lay flat on the ground. I sat beside her but did not find any words to tell her. I just offered my drinking bottle to her. One of them asked me, “are you going to inform it to police government officials. I do not want any police to come and harass my family”. Even in this situation, she was thinking about her family members. I understood their level of care. I told her I am not going to do anything like that. When I put my hand on her shoulder, she cried out and said, ‘can you do something so that they (husband) love us, not beat us.’ I wiped her face and said that to take care of her. I left the place with a sorrowing heart. One of the women there told me it happens often; it is nothing new to them.

I noticed their drainage systems. The overall drainage system in Dhaka is not that good, but it seemed to me that these slum dwellers are the worst victims of urban drainage congestion. While talking with the participant, it is understood that here women make their living by finding self-employment as temporary housemaids, day labourers, cook in the restaurant. Some of them also work in garment factories. Sometimes if they find no other options, they become street beggars. During the time of the rainy season or waterlogged time when the shanty dwelling is inundated, it becomes difficult for them to join in daily activities in employers’ households while trying to safeguard their own belongings. Creating an alternate temporary safe shelter for the kids also becomes a necessity. This is also mentioned that they hardly get any chance to get sick leave. Delay or absence in the job often is translated into the loss of employment, which impacts their food security and living cost.

Women also are self-employed as food producers and/or food vendors, especially targeting rickshaw (a three-wheeled vehicle) pullers as their customers. Finding a suitable place for the micro-scale business is a hazard, which often requires giving cash or in-kind bribes to local gangsters (in Bengali they are called ‘mastans’). If they absence for a long from the vending spot they might lose it as the gangsters allocate it to other women/vendors.

17/02/2016 (Wednesday) - Dhaka - Visited Another Part of the Slum in Dhaka

In a situation of urban flooding, the poor suffer the most as they usually live in the low-lying areas of the city. Quick relocation to higher areas, often school buildings, acts as the primary shelters. The outbreak of diseases is a typical result of a flood in the slum area. Often diarrhea and dysentery take an epidemic. The spread of diarrheal disease, cholera and dengue as an aftereffect of a flood event often leads to loss of employment, which appears to be vital for the survival of a poor woman. Sometimes different volunteer medical teams come to intervene and monitor the situation.

According to most of the respondents and participants, the worst adversity is to find a suitable source of safe drinking water in the neighbourhood. Women generally collect drinking water. Women need to maintain excellent social contact to be able to find a source, as most of the slums are barred from getting water supply connection from Dhaka Water Supply & Sewerage Authority (DWASA). Under the flood/waterlogged condition, available sources often become contaminated with pathogens. Women often fall victim to water-borne diseases.

18/02/2016 (Thursday) – Dhaka - Revisited the Slum

Some of the slum dwellers are temporary migrants, and some are permanent. Most of the permanent migrants had plans to buy a piece of land at the suburb and reside there permanently. Many of them said, as they would not get their land, any job or financial opportunity in the village anyway, there was nothing that will attract them to return to it. Although they had no intention to cut off their relationship with the village altogether, they would instead treat revisiting it as an outing. Temporary migrants, on the other hand, have a plan to make some money in Dhaka and thus develop their rural belongings and finally after a certain period, in most cases, they do not know when returning to their origins.

In search of livelihood, climate migrant women come in Dhaka with the hope of better living condition, but they face various problems like housing, food, water, and lack of jobs. Apart from these problems, they also mentioned other issues related to water sanitation, treatment for illnesses, harassments from law enforcing and other agencies, social securities.

19/02/2016 (Friday – Weekend) - Dhaka

20/02/2016 (Saturday – Weekend) - Dhaka - Visited Two Garments Factory in Search for Participants

Readymade Garment (RMG) sector is the foremost source of earning foreign currencies in the economy of Bangladesh. It is generating employment opportunities for the rural illiterate migrated women.

One of my participants works in a garments factory. She starts her day at 7 am and comes back home at around 8 pm. So I was not able to contact her at her living place. She told me I could talk to her during her lunchtime. She also told me that I could find some other participants there too.

I decided to visit two garments factories in Savar where these kinds of migrated women could be found. However, I could not make a schedule for interviews today. The garments workers have a lunch break for 1 hour. Only one break they get during their working hours in a day; so it is hard to spend enough time to take part in the interview. Another problem was that they were afraid of several policy regulations. They thought that if any higher official found them giving interviews, they would cut off their salaries. So, I chose to sit in a nearby place where they usually come for lunches. I decided that I would talk to them while they are taking their lunch or doing their regular things.

I met with many women who came from different rural areas because of different reasons; some of them mentioned natural calamities too. Most of them are not happy to part with their family and friends. I found a few of them also came here after losing everything in river erosion. They said that they were happy together and no matter they had less money, life went on. However, after the river erosion, they lost everything. People were flocking to work in the garments industry of Dhaka at the time. So they came to Dhaka with them. They come to Dhaka in the hope of employment opportunity, educational, health and other basic civic facilities, but they face different realities. However, they said in a firm voice ‘We have

learned to live with this uncertainty since we have no other way; we cannot go back in our village because we have no land, livelihood there.’ I saw a strong unity in those women.

They told me that the next day some foreign people are coming to visit their garments so that they will have a lesser lunch period. I collected some of their mobile numbers so that I can make appointments with them according to their convenience.

21/02/2016 (Sunday) - Dhaka - Visited ‘Komlapur’ Railway Station in search for Participants

Today I went to Komplapur Railway station as I heard that this is another prominent place where many migrants come. One of the Korail slum’s respondents provided me with an address which used to live in Korail slum before but currently came here. I saw some people temporally leaving on the station platform, stairs. Some of them also live beside the station in a slum. When I went to that slum firstly, they thought I came as an agent or spy from as a Police authority and I will evacuate them. Like other places, I had to spend time to make them understand who I am and what I am trying to do here. I traced that address, and she was with me.

22/02/2016 (Monday) - Dhaka – Conducted Three Interviews

Their stories are different, but sufferings are more or less much same. In reality, there is a considerable number of migrants comes to Dhaka each year but the megacity’s urban infrastructure has not the capacity to absorb this huge. That is why more than one-third of the megacity’s population lives in slums and squatters. In Bangladesh, everything is very much centralized in Dhaka. Any better social services-health, education, employment opportunities everything is Dhaka based. The rural areas of Bangladesh lack both economic and social opportunities, and the existing condition of migration suggests that the government should introduce more employment opportunities in rural areas and adopts a balanced development strategy to encourage settlements and other functions in small and intermediate cities. More livelihood opportunities in the rural areas through establishing the small scale factories and RMG industries as well as the social investment would be an effective measure to lessen the enormous migration flow towards Dhaka. Even the migrants say if they had options (land and livelihood), they would go back and live with their relatives; many of their comments depict this – ‘Please advocate for us so that we can get access to the land, work. We want open spaces, more air, and more light. We don’t want to stay here.’

‘Can you do something for us?’ was the most frequently asked questions in my field visit up to now. That made me feel my limit all the time, I had to answer all the time - ‘at this moment I can only share your information and shed light on your distresses and suffer’, and this answer always creates a silence for a while in both sides (participants and me), and I feel deserted.

23/02/2016 (Tuesday) - Dhaka – Conducted Another Interview and Communicated Local People

Slum-dwellers works mostly as day labour, begging, scavenging, domestic helper, transport worker, street vending, small business, commercial sex worker, vegetable scavenging. According to the migrants' lack of a job is the prime factor to have the reluctance to return village. Their slum houses are overcrowded; in most of the households, there are more than 5 to 6 members. Rent for slum houses ranges from Tk 500 to 1700. Typically, a slum house is just 75-100 square feet in size and consists of a single room.



Picture: Single room accommodation in slum (Photo source: <http://www.urb.im/ca1407dhe>)

Faced a different experience today - a cycle van with an attached microphone passed through Korail slum announcing the demolition of a particular area. There were mixed responses from those who heard the announcement: some did not react believing this was another warning that would not follow through, some sought more clarification from announcers as to know whether the warning was real. Announcers repeated the warning only, saying that they did not know anything more. It seemed like they are used to with this type of announcements. Some

of them said sometimes it becomes true sometimes not. Participants mentioned that they are living in a slum with a threat of eviction. Sometimes for different due to Government's urban projects, they are forced to evacuate the place without offering any alternative accommodation. However, sometimes the local authority or hoodlum (mastan) do it to scare them to receive bribery from them. However, sometimes, it becomes real. Many dwellers claimed not to have heard the announcement as they were at work. Some shop- owners in Korail stated receiving a piece of paper that stated that an area 10 feet either side of the road would be evicted and demolished.

The warning encouraged shop owners to remove their possessions. But the warning bore no signature or indication of who might have ordered the eviction. Regardless, all the shop owners that received warning obliged and removed assets and valuables from their shops to their homes — living with uncertainty all the time. After demolition temporarily they live in the footpath, stadium, bazaar, railway station, launch terminal, bus terminal or somewhere where they have any friends or relatives. Thinking about my safety, I had to leave the place with an anxious mind. Before going to bed, I could not stop myself to call them to know the situation. It was so much a relief to know that that announcement was just false propaganda by the local Hoodlum (mastan). They had to give some money to them.

24/02/2016 (Wednesday) - Dhaka – Follow up Interviews and Conducted Another Two Interviews

One of my participants also told me the stories of evictions. Their tenure rights are highly insecure. Evictions are a continual threat. On several times, dwellers have faced evictions by various departments and law enforcement agencies. As a direct result of the evictions, almost all of the beneficiaries were forced to sleep outside, as they had nowhere to go for immediate shelter. Most of them stayed on the ruined sites of their homes or slept in nearby playing fields. Unfortunately, the eviction was followed by many days of rain. The evicted beneficiaries, having nowhere to go, resorted to taking shelter under pieces of plastic or paper they gathered. In the aftermath of the eviction broken down, homes and businesses remained central to resilience. Within a few days, many respondents attempted to rebuild what was lost. Due to lack of resources and shelters, they hastily construct temporary shacks made from bamboo and tin or sheets of tarpaulin.

During the eviction time sometimes they also send their younger children to live with their relatives in the family's village of origin. As the post-eviction time makes the living condition

worst and less secure, the security of younger children becomes a factor, especially for girls. They also think it in this way that young children are the consumers of resources (money, food, water) but are not easily able to economically contribute to the family income. During periods of the acute financial strain, it may, therefore, be preferable to dispatch younger children to live with relatives elsewhere temporarily.

However, following the eviction event, older children frequently remained with their parents on site. The destruction of assets, livelihoods and a corresponding drop in income meant that older (capable) children became an essential economic asset able to contribute to the family income. As a consequence, older children leave school to seek work. Sometimes the eviction events demolish the child's school too. It takes time to reestablish the school and sometimes the kids miss their sessions or years.

25/02/2016 (Thursday) - Dhaka – Conducted Another Interview, Visited slums

During my visits to Dhaka slums, I did not bring my camera for two reasons – the first reason is trust and the second is security or vice versa. From my last visits in Bogra and Sirajganj, I found that unless being familiar with them if I start using the camera, they consider me as a formal person who came here just for some specific issues. Which affects my intention to go in-depth of their life-by-life story approach interview. So, I want to make sure that my purpose to come here to know their life story, not capturing them and selling them somewhere to fulfil my accomplishment. Another reason is security – I had a bitter experience this time in Dhaka. My husband's bag was hijacked in Dhaka a few days ago while he was travelling by Rickshaw in front of the National Parliament House. We felt so helpless. He went to report it in the police station, but they were reluctant to file it. Instead of showing any hope or querying further information, they were saying us to go back home and forget about the incident. We opened a case ignoring their unwillingness. From our previous experiences and friend's information, we were familiar with that kind of attitude. It is said that police are also involved with this kind of hijacking; they take commissions from the hijackers. There are lots of other stories of unethical activities of the police force in Bangladesh. Exceptions are there also. With some of our influential (regarding their authority in Bangladesh) relatives, we requested for further investigation, but nothing worked. This experience made me think again that if it is our situation (here, by saying 'our' I meant whom we belong to comparatively privileged society) then how the floating people/slum dwellers/ migrants especially the

distressed women are surviving in this country where the law enforcement sector is full of corruption and misconduct.

So, Thinking about to ensure my security, I came here empty-handed. However, after the last few days visit when I became able to make some rapport with the slum dwellers which helped to feel secure of course !!.

26/02/2016 (Friday – Weekend) – Dhaka

27/02/2016 (Saturday – Weekend) – Dhaka - Follow up Interviews

28/02/2016 (Sunday) - Dhaka - Conducted Another Interview and Communicated Local People

Mostly the climate migrated male people work as a rickshaw puller, day labourer, run a small business, garments worker etc. The migrated females work as a part-time maidservant, day labourer, garments worker or sweeper and the young girls generally work in the garments.

Sometimes young couple migrants move in search of works, leaving their children in the care of their grandparents in a village. They hardly get to see their children as they live a four-five hours drive away. They think if they go, that will cost money so, instead of going they send money by some way like sending it through someone else who is going or by money transferring system (B-kash popular mobile money transferring system in Bangladesh now). Both husband and wife need to work whole day long to spend money on their living cost in Dhaka and to send some money for their children. They cannot bring their children because there is no one to take care of them and even if they come, they will not be able to afford the living cost.

29/02/2016 (Monday) - Dhaka – Follow up Interviews

In her first interview, she told me some stories of physical abasement both inside the house and outside of the house. Inside the house, it is by the male members of the family and outside by the police or by some hoodlum (mastan). Sometimes it is because of the extortion of money, stay in the footpath, sexual activity or sometimes because of no particular reason. Today when I wanted to know more from her, she refused to talk on that anymore because her husband forbade her to say anything on this. Instead of forcing her, I reassured her secrecy and started talking on another topic. I felt that just for enriching my information, I should not

tempt her to break her words that she gave to her husband. Because I can sense the level of physical abasement very quickly, but if her reason of not sharing this information to me makes her feel loyal to her husband and brings a tiny piece in her life then I should not destroy that. They have very little meaning of happiness already. Unless I can provide any permanent solution or protection, I want to see them happy no matter its fake or for a little moment.

01/03/2016 (Tuesday) - Dhaka – Conducted Another Interview

It is noticeable that in every conversation with my participants, I heard some common health issues of gastric pain, breathing problems, body pain, heart diseases, sexual disease, and hypertension. They go to local doctors, kobiraz for treatment. They barely go to any medical centre or hospital; they go to the nearby medicine shop and buy medicine according to the seller's prescription. I visited one nearby medicine shop and heard that slum dwellers come to his shop and he provides them medicine according to their description. My conversation with him, I came to know that he had to leave school in the primary stage and struggle a lot due to his father's sudden death. After marriage with the dowry money, he started this medicine shop. It is doing good business here as the slum dwellers buy medicines very often. Before he had to ask by phone one of his relatives who is a doctor, which medicine to give, but now he is experienced enough to prescribe without consulting anyone else. Shockingly, while I was talking with him, I was flipping some medicines and saw some expired dated medicine in his shop. I know there is no one to monitor all these, at least not in the slum area.

02/03/2016 (Wednesday) - Dhaka – Conducted Another Two Interviews

Robbery becomes a common practice in the slum area during the time of eviction, flood or waterlogged situation. During the time of the flood, sicknesses due to water-borne diseases cause extreme misery to their life. They have very little and sometimes no access to modern treatment facilities, especially it becomes a tough situation for pregnant women, children and older adults.

In the slum area, dwellers share kitchen and latrines. These kitchens and latrines are situated outside the primary dwelling unit, and in a waterlogged situation, it becomes difficult for them to reach to the kitchens and in cases even to the latrines. All family members, especially women, cross the waterlogged courtyard several times a day in chest-high water for cooking

purposes. If one wants to avoid such hopeless cooking condition, she accepts cooking inside the house and shares unhygienic smoky exhaust with the children.

The waterlogged situation often increases diarrhea, dysentery and skin diseases. Pregnant women cannot stroll in marooned condition. They stay inside the house and ultimately fall victim to unhygienic reproductive health conditions.

03/03/2016 (Thursday) - Dhaka – Follow up Interviews

No matter in a rural area or urban area, this is women who receive the least amount of food, and obviously, there is deprivation for women when it comes to intra-household food allocation. As a consequence, women are generally mal-nourished and suffers from many health-related issues. On top of this, when such a malnourished girl is forced to have kids within her teen years, her reproductive health suffers terribly.

The participant remembered her days in a rural area when they had land, house, livelihood and cattle of their own. She was saying that they used to give an injection to their cow to get pregnant every year so that they can have more milk and more cow. To me, it sounded the same how our women get pregnant here in Bangladesh. No matter a woman is physically capable or not, she is forced to have kids. When nobody cares for her physical ability, it is very easily understandable; there are no questions about her mental preparation or acceptance to have kids.

04/03/2016 (Friday – Weekend) - Dhaka – Follow up Interviews

People are very busy to talk, as they need to move here and there for their livelihood. Most of the people start their day early morning and come back to their place at night. Women wake up around 4 am to finish their daily cleaning – washing clothes, cleaning the house, taking showers, cooking food etc. Whole the kids play around here and there unattended. At night when people come back from work, they become busy again for the preparation for the next day. It was hardly found that women are sitting somewhere and talking with each other in a day, which is quite a common scenario in rural areas.

05/03/2016 (Saturday – Weekend) - Dhaka – Feedback to Participants

06/03/2016 (Sunday) - Dhaka – Follow up Interviews

Most of the time, women and adolescent girls are required to collect drinking water from distant sources. Usually, it takes longer to collect water it is worst during the time of flood or waterlogged situation, as they need to collect it from more distant sources and this may take three to four hours a day. Some women, who do not feel safe to keep their children alone at home, bring their children with them while travelling for drinking water. It affects the health of the accompanying children as well. Consequently, they do not get enough time or energy to complete their other household chores like cooking, bathing, washing clothes, taking care of elders, etc. It is also stated that boys and men sometimes harass women and adolescent girls. Therefore, women and girls feel uneasy and threatened while collecting water from distant sources. Theirs stories expressed this that the whole day they work hard. At night they cannot sleep properly for the stress and uncertainty of their life. That is why they suffer from various diseases in the long run for taking extra hurdle of work in their daily life.



Picture: Water collection in slum (Photo source: <https://www.daily-sun.com/magazine/details/211042/Challenges-Of-Women-In-Slum-Livelihoods/2017-03-10>)

When a low-income family cannot afford to collect water due to sickness or because it does not have any member in the family to do the job, they have to buy water from water vendors at Taka 10 per pitcher. It is challenging for them to spend Taka 300 per month for drinking purposes, as their monthly income is typically Taka 800 - Taka 1800. Therefore, they find no choice but to drink unsafe water.

The participant explained their unpleasant experiences about menstrual hygiene management. They use clothes, and it becomes hard to dry them outside in the sun for the next use. They often suffer from various genital issues. Further use of the same damp clothes can create genital injury, including bleeding, infection and other complications.

07/03/2016 (Monday) - Dhaka – Follow up Interviews

According to the participant, their family relation and social bondage have been broken down, and the social status has been degraded.

In my observation, the overall environmental conditions in slum areas are disgraceful. The slum dwellers are living in subhuman conditions due to the lack of necessary infrastructure facilities. Many of them are suffering from diseases due to unsafe water and the unhygienic disposal of sewage. Additionally, the degradation of environmental conditions within the slums also has a significant impact outside the settlement. By providing the necessary infrastructure facilities to the slum dwellers, we can not only improve the environmental situations in the slums and outer areas but also can contribute comprehensively to the reduction of poverty.



Picture: Women cooking in slum's communal kitchen (Photo source: <https://bangladeshislums.weebly.com/korial-slum.html>)



Picture: Washing clothes (Photo source: <https://bangladeshislums.weebly.com/korial-slum.html>)

08/03/2016 (Tuesday) - Dhaka – Transcriptions, Feedback to Participants

09/03/2016 (Wednesday) - Dhaka – Transcriptions, Feedback to Participants

10/03/2016 (Thursday) - Dhaka – Feedback to Participants

11/03/2016 (Friday – Weekend) – Dhaka

12/03/2016 (Saturday – Weekend) – Dhaka

13/03/2016 (Sunday) - Dhaka – Feedback to Participants

14/03/2016 (Monday) - Dhaka – Feedback to Participants

15/03/2016 (Tuesday) - Dhaka – Transcription and Follow up Interviews

Participants mentioned that they are facing enormous hurdles to maintain their daily life in Dhaka. Though they come in Dhaka with the hope of having a good education for their children, the reality is education for their children becomes issues of less priority for them. They mentioned that due to lack of educational institutions and economic distress, education had got the least priority. It has been observed in the slum area that children and even youths have hardly been to a school and are illiterate. Most of the children suffer from malnutrition, and there are several reports of child death due to malnutrition. Immunization of children cannot be imagined in most of the resettlements. They do not have any playground. They get recreation through watching television, playing chess, ludu, cards etc. Due to their family's financial situation and lack of proper educational institutions, many children start working in

early childhood in different shops or construction & transport sites as a child labourer. One of my participants said that ironically the children get involved to violence, theft, robbery, mugging, trafficking, drug addicting, drug dealing, sexual harassment etc. sometimes they are also used by outsiders drug dealing, mugging, robbery etc.



Picture: Children in slum (Photo source: <http://theconversation.com/what-programme-actions-are-needed-to-promote-childrens-growth-in-poor-urban-areas-117938>)



Picture: Children in slum area (Photo source: <https://www.pinterest.com.au/pin/273875221065556350/>)

16/03/2016 (Wednesday) - Dhaka – Follow up Interviews

All the participants who are working in garments section mentioned that they face many difficulties at work along with the day today's sufferings of their personal life.

Every day to come in their workplace, they fight to get in any public buses, as it is always overcrowded. Sometimes they also face physical harassment, purse-snatching etc. One of the participants said with a sad voice 'We are staying in an unhealthy environment, working in a place where nobody shows any respect to our work; even we are not paid properly for our work. Every day we risk our life.' At this moment saying 'risks', she meant the risk of a road accident and used heavy machinery at work. Road accidents are a day-to-day issue in Dhaka. It is reported that most of the road accidents occur due to the unfit and overcrowded public vehicle, unskilled drivers and unsafe road situation.



Picture: Public vehicle in Dhaka

(Photo Source: <https://bdnews24.com/bangladesh/2015/10/11/number-of-buses-decreases-in-dhaka-even-as-population-doubles-in-10-years>)

Most of the time, when any new women join first time in any factory, and if the factory owners found that employees are new and not aware of their rights then they try to exploit the new employees. Sometimes they work 14 to 15 hours days, they are not given any leave, and they receive less payment, late payment even a month late. The employers favour younger women and girls because they are less likely to take leave to take care of children or sick relatives. Because of this, women are having a short employment life cycle.

17/03/2016 (Thursday) - Dhaka – Follow up Interviews

Remarkably I found lots of private clinics near the area of the garment. I went to visit two of those clinics. One of my colleagues who work in Concern Universal accompanied me. My colleague has his friend who works as a doctor in one clinic. He said that these are jam-packed clinics as they have lots of patients to come every day. Most of the patients are garment workers who come for different health issues such as headache, malnutrition, musculoskeletal pain, eye strain, less appetite, chest pain, fainting, diarrhea, hepatitis (jaundice), food poisoning, asthma, fungal infection, helminthiasis, dermatitis.

I was stunned to know that apart from their regular patients, they have a number of women patients who come for abortion or miscarriage issues and maximum of these women are female garments workers. Participants also mentioned to me in one interview that their paid work is undervalued, they can't think of increasing their family members. They are always in fear of losing work, so they cannot take sick leave or pregnancy leave. The owners do not want to give a job or reluctant to continue the work of female workers when they become pregnant or come to know of having their baby. As a result, a female worker does abortion to retain a job.

The doctor also explained that the garment workers are living from hand to mouth. They are can not maintain their basic needs. They cannot afford to maintain health care, medical services, and clean accommodation. So they suffer from different types of physical complexity. In addition, the working environment of the garment factories is not pleasant to ensure good health. Moreover, garment workers are frustrated about their future due to less earning, which also effect on their mental and social stability.

These women work hard from dawn to dusk in a confined environment where proper ventilation of air is absent. For this, the disease-bearing virus and bacteria that cause various types of diseases in their bodies affect them. They mainly stitch up the fabrics. Hence, they need to inhale the dust of fabric, causing a health hazard and ultimately suffer from diseases like asthma, respiratory problem, breathing problem, conjunctivitis and visual discomfort. In addition to this, they need to work for a long period without movement from their desk. Back pain is a common phenomenon to the majority of female workers due to the nature of the job,. They also suffer from neck pain, joint pain, musculoskeletal pain, neural problem and problem in body muscles, joints, tendons, ligaments and bones.



Picture: Female workers in a garments factory

(Photo source: <https://pulitzercenter.org/reporting/bangladesh-women-find-liberty-hard-labor>)



Picture: Female workers in a garments factory (Photo source: <https://www.voanews.com/east-asia/thriving-bangladesh-garment-industry-under-scrutiny>)

18/03/2016 (Friday – Weekend) - Dhaka

19/03/2016 (Saturday – Weekend) – Dhaka

20/03/2016 (Sunday) - Dhaka – Follow up Interviews

One of my participants who work in a garment factory stated some facts about their unsafe working condition. According to her female workers in the garment factories sometimes need to work overnight at the time of shipment or when the factory receives an excessive work

order. Like her factory, many of the other factories do not have a separate restroom for the female workers. As female and male workers work together at the same place causes unwanted physical contact. This is also evident that the supervisors or male workers in the garment factory sexually harass female workers. With frustration, she said ‘we have saved our life after coming to Dhaka, but every day we are losing our dignity here’.

21/03/2016 (Monday) - Dhaka - Meeting with Key Informants - Rapport Building

22/03/2016 (Tuesday) - Dhaka - Meeting with Key Informants - Rapport Building

23/03/2016 (Wednesday) - Dhaka - Feedback to Participants

Today I formally finished my interviews with climate migrant women. After hearing all their survival stories, I can say that obviously, I will leave Bangladesh with a heavy heart, saddened.

I know I cannot make any significant changes in their life, but I wished that when the new dawn will come to these women would find a new meaning of life that will give them more strength to survive, live and fight for life. I salute all the silent fighters who are always fighting for their life and their family’s life without having any appreciation from others not even from their family members whom they are fighting for.

24/03/2016 (Thursday) - Meeting with Key Informants – Rapport Building

25/03/2016 (Friday – Weekend) – Dhaka

26/03/2016 (Saturday – Weekend) – Dhaka

27/03/2016 (Sunday) - Dhaka - Meeting with Key Informants - Rapport Building

28/03/2016 (Monday) - Dhaka - Preparation for Travel

29/03/2016 (Tuesday) - Dhaka – Travel from Dhaka to Singapore

30/03/2016 (Wednesday) - Singapore - Travel from Singapore to Sydney