

Displacement in the Era of Climate Change: A gender sensitive approach
to international environmental governance and disaster management in
Bangladesh

By

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Abstract

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Climate change impacts will increasingly threaten ecological environments and community livelihoods, inducing higher vulnerability for people who are already marginalized in the Global South. Notably, increasing sea level rise and the intensity of disasters have impacted countries particularly in South Asia where communities have already experienced displacement when areas become uninhabitable. To date, there are no international laws that protect vulnerable communities that bear the brunt of environmental violence as climate change intensifies. Moreover, the latter's agency and voices often go unaccounted for in international environmental decision-making processes. Particularly, groups that are more vulnerable to human rights violations and disaster risk are made up of women, due to structural gender inequality within political, economic, cultural and environmental processes. Coordinated responses from relevant policy actors, experts, organizations and practitioners are critical towards establishing comprehensive and cohesive approaches to address the protection concerns that arise from displacement, including migration concerns. However, enhancing capacity to effectively implement policies into operational practice, while proactively addressing the gendered implications of climate change, disaster and displacement may require further investigation.

This Major Paper aims to investigate the implementation of existing policy frameworks that mainstream disaster risk reduction strategies with a focus on gender; the idea is to assess how disaster management efforts at the national and global level are directly applied on the ground for affected-communities, particularly women, through humanitarian organizations. Among several devastating environmental disasters in Bangladesh's recent history, this Major Paper studies policy responses and disaster relief efforts during Cyclone Sidr (November 2007)

and Cyclone Roanu (May 2016). With a gendered lens, this Major Paper unpacks the effectiveness of disaster governance and how it can be strengthened for the displaced.

Foreword

Displacement in the Era of Climate Change: A gender sensitive approach to international environmental governance and disaster management in Bangladesh is a major research paper in partial fulfillment of the requirements for the degree of Masters in Environmental Studies. The Area of Concentration is 'disaster governance' and 'critical migration studies', with the various elements of climate change, environmental legal and policy processes, human rights, gender, and vulnerability. The interdisciplinary modes of study aimed to merge topics of study international law, environmental policy and disaster management with the discourses of disaster risk reduction, feminist political ecology and development, brought together in three components: disaster governance and human rights, international environmental governance and human migration studies. This research study has incorporated these components to investigate policy responses and disaster relief efforts during Cyclone Sidr and Cyclone Roanu in Bangladesh, using a gendered lens. The following learning objectives were fulfilled in the process:

1. To obtain a working knowledge of the inequalities embedded in disaster law by using human rights to measure the ways in which every individual can have equal rights that ensure protection from disaster harm.
2. To obtain a comprehensive knowledge of Canadian environmental law, a working knowledge of aspects of international environmental law and aspects of environmental law in other nations, through legal and environmental history and contemporary case studies.
3. To obtain an understanding of the relationship between environmental law and human migration, to draw connections and analysis.

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Dedication

This major research paper is dedicated to my Nani (maternal grandmother), Florence Gomes and the resilient women/warriors in my ancestry from previous generations. Most importantly, it is for the countless people that have migrated due to environmental displacement, including Nurul Islam, thank you for sharing your story with me in 2016.

Table of Contents

Abstract	1
Foreword	2
Acknowledgments	3
Dedication	4
Table of Contents	5
Chapter 1: Introduction	
A. Introduction	5
B. Research Question	10
C. Theoretical Framework and Literature Review	11
D. Research Design and Methodology	17
Chapter 2: Bangladesh Background	
A. Geophysical Characteristics	19
B. Geopolitical History	20
C. Socioeconomic Characteristics	22
D. Dhaka’s Urban Vulnerability and Rural to Urban Migration Patterns	24
E. Disproportionate Impacts on Women	27
Chapter 3: Gender Related Policy Responses and Relief Efforts for Cyclone Sidr and Roanu	
A. Findings: Cyclone Sidr	32
a. National and Regional Frameworks	34
b. International Frameworks	35
c. Operations	37
B. Findings: Cyclone Roanu	38
a. National Frameworks	39
b. International Frameworks	41
c. Operations	42
C. Discussion: Identifying Gaps Across Governance and Implementation	42
Chapter 4: Conclusion and Recommendations	
A. Final Reflections	46
B. Recommendations	47
 Bibliography	 49

Chapter 1: Introduction

A. Introduction

“My Husband jumped from above into the flood water with my sons without informing me at all. I was not sure what I could do holding my baby. I was just calling my husband, my father, and my children, through citing their names. I shouted Bachao! (Help to live), Bachao! Finding no other way, I jumped from a space of a corrugated iron (tin) with my baby- holding her strongly with my chest. Unfortunately, my Saree got stuck on an iron rod. I was trying to escape but failed. In the meantime, floodwater started to flow with a rough current and turned into a furious sight. I lost my cloth in the flow and kept moving with the flowing flood water whilst holding and keeping my baby at my chest.” - Razia Begum, Cyclone Sidr Survivor (Voice of South Bangladesh and Gender and Water Alliance, 2016, p. 7).

At the current rate of greenhouse gas emissions and other human induced activities, the earth's climate will continue to experience higher than average air and sea surface temperatures, changes in precipitation patterns and rising sea levels (McLeman, 2006, p. 31). All of these changes are leading to an increase of extreme weather events and environmental disasters and stressors, including but not limited to floods, droughts, desertification, hurricanes, cyclones, and the destruction of natural resources. As a result, environmental landscapes are being drastically altered globally. For instance, rising sea levels are causing shoreline and riverbank erosions, saltwater intrusion, flooding, agricultural disruption, and natural disasters are detrimentally eradicating productive land and geophysical areas. Populations that live in areas that are vulnerable to climate change and environmental hazards, often depend on natural resources for their livelihoods and sustenance (Ayeb-Karlsson et al., 2016, p. 679). This, coupled with the fact that global economic inequality continues to prevail, has preserved developing nations' reliance on fossil fuels. However, climate change impacts such as flooding,

cyclones and sea level rise is seen as not the cause of human movement, but rather a driving force that may exacerbate existing vulnerable conditions of the social, economic, political, geographic and ecological fabric of a society.

Most inevitably, climate change impacts will increasingly threaten ecological environments and community livelihoods, inducing higher vulnerability for people who are already marginalized in the Global South. According to the Intergovernmental Panel on Climate Change (IPCC) reports, “low-income countries are the most severely affected by climatic stress” (Ayeb-Karlsson et al., 2016, p. 679). Notably, increasing sea level rise and intensity of ecological disasters have impacted countries particularly in South Asia where communities have already experienced displacement when areas become uninhabitable. According to the Internal Displacement Monitoring Centre’s, *Global Report on Internal Displacement 2019*, there were a total of 17.2 million new displacements related to disasters in 2018 (Internal Displacement Monitoring Centre, 2019). Displacement is not limited to being stripped of a place to live, but also decreases access to social and economic security among other adverse impacts to human life.

Existing governance and operational mechanisms to environmental displacement have begun to implement disaster risk reduction strategies such as planned-relocation and new infrastructure from aid resources. But ultimately, affected-communities have two options, the first being that disaster adaptive measures will provide support for the long-term or to migrate within or outside their home country, if able, especially where there are employment opportunities. However, this option is complex and often inaccessible. The concept of “climate refugees” still does not exist in international law. To date, there are no international laws that protect vulnerable communities that bear the brunt of environmental violence as climate change intensifies. Moreover, their agency and voices often go unaccounted for in international environmental decision-making processes. In fact, the absence of new legal frameworks will not prevent migration, rather marginalized communities may be forced to consider precarious and

irregulation migration opportunities (McAdam, 2019). Ultimately, as a result of geopolitical dynamics among other factors, international legal norms have failed to adequately address climate induced cross border movement.

Along with geopolitics, the international community is structured around the global political economy, where the Global North holds responsibility for establishing capitalist, resource-intensive driven industries, exacerbating the effects of climate change. While the Global North is encouraged to address legal, institutional and financial gaps around the impacts of climate change, alignment with national disaster risk reduction and climate change adaptation measures in disaster-prone regions is necessary. Communities in vulnerable regions that need resources to avoid a displacement crisis and need to decrease levels of vulnerability, continue to require policy makers to consider questions around: safe and legal freedom of movement whether short-term or long-term; protection during displacement and overall disaster resilience and sustainable rebuilding, unique to vulnerable groups with special needs.

Evidently, the complex dynamics of the relationship between climate change, disasters and displacement reveal the ways in which this area of study requires further research analysis to adequately address and unpack the multi-faceted challenges faced by disaster-affected communities. Particularly, groups that are more vulnerable to human rights violations and disaster risk are women due to structural gender inequality within political, economic, cultural and environmental processes. In the absence of legal frameworks and adequate policy implementation, women's health and security are compromised. Women that are disaster victims are disproportionately impacted by displacement and migration, in which they are subject to various risks that constitute gender inequality. These risks include, for instance, barriers to adequate health facilities, unequal access to food and supplies, gender-based violence in temporary shelters, limited employment opportunities, among other challenges to security and empowerment. Thus, disasters may reinforce or destabilize gender relations. In

addition, gender analysis of disasters is critical because vulnerability and adaptation strategies are largely shaped by gendered roles and power relations (Fletcher, 2018).

Coordinated responses from relevant policy actors, experts, organizations and practitioners are critical towards establishing comprehensive and cohesive approaches to address the protection concerns that arise from displacement, including migration concerns. In recent years, academic scholarship and international forums in this field have identified that climate change adaptation, development, land use planning and human rights frameworks, coupled with disaster risk reduction strategies at the regional, national and global level using local knowledge, values, beliefs and voices in decision-making processes are necessary to strengthen disaster resilience. However, enhancing capacity to effectively implement policies into operational practice, while proactively addressing the gendered implications of climate change, disaster and displacement may require further investigation. All of which are crucial to building upon existing mechanisms and identifying possibilities for positive change.

This Major Paper focuses on the South Asia region in the Global South, which experiences more natural disasters in comparison to many regions in the world. Thus, as climate change intensifies, this region will continue to be severely impacted by environmental risk in the future and may require academic research to further understand and improve disaster governance. Specifically, for the purposes of this Major Paper, I will use Bangladesh as a case study, in which insights from this research may inform other countries alike and broader global strategies in this field. Bangladesh is one of the most disaster prone and climate-vulnerable, yet resilient countries in the world. This year during monsoon season, which falls from June to September, a third of Bangladesh is underwater as a result of mass flooding from the heaviest rains the country has experienced in a decade. However, cyclones impose the most loss of lives among all environmental disasters that occur in Bangladesh. According to the IPCC, climate change will increase the intensity and frequency of cyclones in the Bay of Bengal, while transforming the depth and spatial extent of flooding in the Ganges-Brahmaputra-Meghna Basin

(Ayeb-Karlsson et al., 2016). Nonetheless, Bangladesh has improved and evolved its ability to manage disaster risks, especially since the 1991 cyclone which took the lives of 140, 000 people (Paul, 2009). However with the intensification of climate change impacts, capacity and resources to meet policies are essential to adequately address issues faced by vulnerable people, especially women.

Therefore, this Major Paper aims to investigate the implementation of existing policy frameworks that mainstream disaster risk reduction strategies with a focus on gender, the idea is to assess how disaster management efforts at the national and global level are directly applied on the ground for affected-communities, particularly women, through humanitarian organizations, Bangladesh Red Crescent Society (BDRCS) (which is part of the International Federation of Red Cross (IFRC)). The International Committee of the Red Cross (ICRC) has been working in Bangladesh since 2006 and established a delegation in 2011. It works to protect and assist people affected by tensions and violence, promotes awareness of the International Humanitarian Law and supports its implementation through action with authorities, academic institutions, law enforcement agencies, armed forces, and the public (International Committee of the Red Cross, 2012).

Among several devastating environmental disasters that have taken place in Bangladesh's recent history, this Major Paper studies policy responses and disaster relief efforts during Cyclone Sidr (November 2007) and Cyclone Roanu (May 2016). Cyclone Sidr was one of the most devastating cyclones since 1991. In contrast, Cyclone Roanu took place during a more recent time with stronger frameworks and measures available. During Cyclone Roanu, Bangladesh was praised for minimizing loss of life through its cyclone preparedness measures in comparison to previous disaster events (United Nations Office for Disaster Risk Reduction Press, 2016). Nonetheless, there continues to be challenges to good governance and many opportunities to better move forward. Also, while it is not the purpose of this Major Paper to

specifically explore the relationship between gender, labour, and migration, the latter informs an important context for this research.

B. Research Question

With this in mind, this research paper examines and answers the ways in which national and international frameworks incorporate gender-sensitive approaches in their disaster risk reduction strategies to address displacement during a disaster in Bangladesh. I also explore whether humanitarian organizations are able to implement and deliver these efforts effectively to support capacity building, in which effective collaboration between government actors and civil society is present to protect vulnerable people, particularly women, from disasters. Overall, with a gendered lens, this Major Paper unpacks the effectiveness of disaster governance by critically assessing its alignment with operational practices and how this process can be strengthened for the most vulnerable. In the first chapter, I will provide an overall context on displacement in the era of climate change and the complex ways in which global legal and policy frameworks have been implemented, in which several institutional mechanisms have failed to fully address environmental displacement and migration as a disaster response. Second, I will explore Bangladesh's disaster landscape by revealing the ways in which the nation is increasingly vulnerable to the impacts of climate change. In relation to climate change, I illustrate Bangladesh's political history, socioeconomic characteristics, geophysical characteristics, climate stressors specifically cyclones, increasing urbanization and how all of these factors induce vulnerability to marginalized populations. Coupled with this, I discuss unequal gender relations and the disproportionate impacts of disaster risk on women. Chapter three focuses on the case studies and findings, I study Cyclone Sidr and the ways in which frameworks such as the Draft National Plan for Disaster Management (NPDM, 2005-15), the Hyogo Framework for Action (HFA, 2005-15), the United Nations Framework Convention on Climate Change (UNFCCC), and the SAARC Framework for Action (SFA, 2006-15) addressed the gendered

implications of disaster displacement. Then, I assess how BDRCS with the support of IFRC and BRAC implemented this measure. Following this, I study Cyclone Roanu and the ways in which frameworks such as the National Disaster Management Policy (NDMP, 2015), the Disaster Management Act (DMA, 2012) and the Sendai Framework for Disaster Risk Reduction (SFDRR, 2015-2030) addressed the gendered implications of disaster displacement. With this, I assess how BDRCS with the support of IFRC and BRAC implemented these measures. In the final section, I share insights on gaps that were identified in the findings and present the overall ways in which this research may inform national and international policy frameworks on climate change, disaster, displacement and gender for future disasters in the Global South.

C. Theoretical Framework and Literature Review

To address the questions above, the Major Paper will draw from frameworks that address climate change related displacement, disaster risk reduction strategies, sustainable development practices in relation to disaster resilience (human and community adaptive capacity) and the gendered nature of vulnerabilities in the context of disasters in South Asia.

In the past decade, researchers from various disciplines have explored the nexus between climate change, disasters and displacement; however it has been challenging to agree upon policies, laws and solutions to address issues related to this relationship because of the myriad of ways this phenomenon is constructed. Firstly, the impact of disasters is shaped by human acts and decisions. Displacement is a consequence of disasters and it may be a form of migration, where human movement is forced. Notably, attention on the topic has concerned, defining and shaping what, “climate refugee or migrant, environmental refugee or migrant” would look like. The International Organization of Migration (IOM) developed a working definition of ‘environmental migrants’ as, “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” (Ahsan et al., 2011, p. 164). The primary challenge with defining one as an “environmental or climate refugee” is that the term “refugee” and “internally displaced persons (IDPs)” are deeply politicized as it implies a category of people that are affected directly by state conflicts, primarily conflicts that also affect Western states. According to Ahsan et al., (2011) the “Intergovernmental Panel on Climate Change (IPCC) argued in the Working Group II report to extend the definition of refugee in the 1951 UN Refugee Convention in order to include environment or climate migrants because they are seeking refuge from the government of that particular country where they migrate” (p. 164).

This focus is problematic for a number of reasons. The first being, climate change itself does not solely cause movement, but rather influences the likelihood of its occurrence (McAdam, 2019). Thus, people may become displaced and move when disasters occur, but social, economic, political landscape and available resources also determine migration. This phenomena can be called, mixed-migration or climate related migration, where climate change affects or mixed factors for human mobility and thus, migration decisions are multifaceted. Second, this nature of displacement does not qualify under the Refugee Convention or complement existing protection human rights frameworks. Under the Convention, a refugee is a person who is, “owing to well-founded fear of persecution for reasons of race, religion, nationality, membership of a particular social group or political opinions, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country, or who, not having a nationality and being outside of the country of his former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it” (Shamsuddoha et al. 2012). Thus, emerging scholarship often illuminates the challenges and complexities within international law for its lack of protection for people that are displaced by environmental harm. In outlining the challenges, the most common questions appears to be, what counts to be an environmental or climate refugee and migration? What are

the legal rights for environmental or climate refugees and migrants, if such a category were to exist? An answer to this question remains contentious as a result of various complexities around international legal norms and geopolitical pressure. The issue with this question is that communities that seek to migrate are confined within the technical lines of citizenship and border politics. In other words, any type of migration in most cases, including environmental migration, is much more complicated and the existing international and national refugee and migration policy system needs to evolve to address the changing patterns of migration.

The policy and research community has proposed frameworks that can be possible pathways for developing structure or supplement existing structures around this topic depending on the scenario. For instance, McAdam (2014) reveals that, the “the former UN Secretary-General’s Representative on the Human Rights of Internally Displaced Persons, Walter Kalin, developed a framework setting out the diversity of scenarios related to environmental displacement”. The framework includes four scenarios, as follows: 1) The increase of hydro-meteorological disasters leading to internal displacement; 2) Government-initiated planned evacuation of areas at high risk of disasters leading mostly to permanent internal displacement; 3) Environmental degradation and slow-onset disasters leading to the consideration of “voluntary” migration unless areas become uninhabitable; 4) Small island countries at risk of disappearing because of rising seas, leading to permanent relocation to other countries. Many frameworks that have been proposed are similar to this model.

However, McAdam contends that there cannot be a one-size-fits-all legal or policy response (economic migration for instance) to climate change-related movement because the nature of this phenomenon is not linear and involves different motivations depending on the circumstance. She also emphasizes that through effective disaster risk reduction management policies and sustainable development practices, permanent migration may not be necessary and that ultimately, the most effective responses to climate related movement should develop

within a human rights based framework and approach. According to Koko Warner (2010), governance structures have a direct impact on all aspects of migration, and thus, policy interventions and the timing of them, largely determine whether migration is a form of adaptation. Nonetheless, climate stressors have an increasingly prominent effect on human and environmental health, where temporary or permanent migration is being recognized as an effective climate change adaptation and disaster risk reduction strategy. In regards to the onset of disasters, McAdam suggests that responses should shift to framing these events as slow-onset impacts of climate change, rather than labeling these events as a sudden-onset “humanitarian disaster”.

Disaster Risk Reduction (DRR) and Vulnerability Reduction are common theoretical frameworks used for contemporary disaster management practices and scholarship to illustrate the ways in which disaster losses are minimized (Palliyaguru et al., 2014). Many scholars have proposed a holistic approach to DRR, that can be advantageous for policymakers and practitioners to enhance its applicability in practical settings and improve overall disaster risk governance. According to an United Nations Development Programme, Issue Brief on Disaster Risk Governance (2012), “disaster risk governance refers to the ways in which the public authorities, civil servants, media, private sector, and civil society coordinate at community, national and regional levels manage and reduce disaster and climate related risks. This means ensuring that sufficient levels of capacity and resources are made available to prevent, prepare for, manage and recover from disasters. It also entails mechanisms and processes for citizens to articulate their interests, and exercise their legal rights and obligations”. Therefore, it is important to ask how DRR can be better integrated or mainstreamed into infrastructure, planning, livelihoods, community capacity building and broader development strategies focussed on socioeconomic factors. Mainstreaming “is a governance process that helps ensure that development is protected from the impacts of disasters, and that development does not increase existing and future levels of natural hazard risk” (United Nations Development

Programme, 2012). The United Nations International Strategy for Disaster Reduction (UNISDR) defines Disaster Risk Reduction as, “the conceptual framework of elements considered with the possibilities to minimise vulnerabilities and disaster risks throughout society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development” (Palliyaguru et al., 2014). In addition, the UNISDR defines DRR as the “systematic development and application of policies, strategies and practices to minimise vulnerabilities and disaster risks throughout society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development” (Palliyaguru et al., 2014). DRR encompasses the merging of policy and planning strategies, physical/technical strategies, emergency preparedness strategies, natural protection strategies, and knowledge management strategies. These strategies occur at the international, national, institutional, project/programme, community and individual level.

Vulnerability to disasters has been examined in the research community. A vulnerability reduction framework approaches disaster losses by proposing effective ways to mitigate risk by decreasing the vulnerability of affected communities. Scholars that propose a holistic approach to DRR suggest the integration of vulnerability reduction with DRR by assessing, “the influence of DRR strategies on variables that produce vulnerability” (Palliyaguru et al., 2014). In addition, frameworks are being proposed to integrate indigenous and scientific knowledge for disaster risk reduction, which has gained traction as a result of the growing advocacy of valuing indigenous knowledge to decrease community vulnerability (Mercer et al., 2010). Although there are challenges presented in integrating this knowledge, the use of a participatory approach (consultation with indigenous peoples) with DRR at the community level, in the area of natural resource management for example, holds potential for being an effective strategy. Through a shift in disaster scholarship, from hazard assessment to vulnerability analysis, scholars currently illustrate building disaster or community resilience as a core component to disaster risk

reduction and a step towards sustainability. Since the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, in 1992, international policy discourses have pinned disaster reduction as a key component of sustainable development (Shaw and Oikawa, 2014). Central to the disaster resilience paradigm is the ways in which people and communities confront disasters through adaptation, change, transformation. Recently, the concept of resilience plays a key role in international policy discourses, particularly, the UN's Sendai Framework for Disaster Risk Reduction, the Paris Agreement on Climate Change and the UN Sustainable Development Goals (Parker, 2020).

Gender dimensions in the context of climate change, disaster and displacement is not isolated from political, economic, cultural and environmental processes. In disaster research, gender has been used as an analytical category informed by existing feminist theories and applied in intersectional frameworks where gender is combined with other systems of power and privilege (Fletcher, 2018). However, various contemporary debates on appropriate theoretical approaches to gender and environment face the challenge of “recognizing and addressing widespread gendered inequalities and distributions of power over time and space, without reifying these differences as somehow natural or inevitable” (O’Shaughnessy and Krogman 2011, p. 136). Based on previous academic insights and current debates within the context of assessing gender, climate change and disaster governance, I draw on feminist political ecology (FPE). FPE utilizes a gendered perspective to explore the ways in which political, economic and social systems interact with the environment (Fletcher, 2018). Gender does not play a role by itself, it must be shared with other social categories. Feminist political ecology scholarship informs gender as “a critical variable in shaping resource access and control interacting with class, caste, race, culture, and ethnicity to shape processes of ecological change” (Mollett and Faria, 2013, p.117). Emphasis is put upon the power of race and patriarchy more than human difference and how it informs the oppression and privilege of women in social hierarchies. Coupled with FPE, it is beneficial to draw upon the concept of agency and women’s

empowerment from the lens of scholar Naila Kabeer, specifically in context to Bangladeshi women and their decision-making power. Kabeer (2002) explains agency through the understanding of women's empowerment and the notions of choice through the conditions of content and consequences. She argues that, "the ability to exercise choice incorporates three interrelated dimensions: resources (defined broadly to include not only access, but also future claims, to both material and human and social resources); agency (including processes of decision making, as well as less measurable manifestations of agency such as negotiation, deception and manipulation); and achievements (well-being outcomes)" (p. 435). Moreover, the measurement and quantification of empowerment should not be conceptualized as a final destination, rather as a multidimensional process of change in which mutual interactions will lead to broader struggles for gender justice and social transformation (p. 499). Most importantly, Kabeer illuminates that empowerment is a process that occurs within specific contexts and are shaped by them and should not assume that women were disempowered in the first place. In the context of Bangladeshi women, I do not suggest that the women do not have power, but that empowerment as a concept is complex and varies depending on specific narratives. However, in a larger sense, the expansion of choices to challenge structures of inequality in specific contexts means that empowerment should not end at the ability to participate in decision-making processes, but should extend beyond this agency to have the power of choice in disaster related capacity building.

D. Research Design and Methodology

The method adopted to present research findings, assesses the representation of gender and migration (if present) in national and international disaster management policy frameworks, including the representation of gender in operational practices of humanitarian disaster management relief plans using a text mining approach. This approach is used to extract and synthesize relevant information. From assessments of case studies, I examine the extent of

alignment with one another and identify gaps. To do so, I use government documents, organization assessment reports and reports created in collaboration with the Government of Bangladesh and humanitarian organizations. These reports illustrate the joint response plans and operational summaries during Cyclone Sidr and Cyclone Roanu. To support the discussion, this paper relies upon existing literature and studies conducted by various scholars that examine climate change related to displacement, migration, disaster risk reduction, gender and environment, including research from Bangladesh. The literature and publications contribute to the existing body of knowledge and understanding about people's experiences, particularly with a gendered lens, in study sites that are impacted by disasters in relation to global climate change concerns.

Chapter 2: Bangladesh Background

A. Geophysical Characteristics

As a low-lying, densely populated delta nation, with a significant proportion of its population living in coastal or flood-prone areas, Bangladesh is one of the most vulnerable to climate change and disasters (McAdam and Saul, 2010). The geophysical characteristics position Bangladesh as a subtropical humid climate in the world's largest delta, the Ganges-Brahmaputra. This delta, which is a few feet above sea level and covers 6000 square kilometers of the country, is susceptible to environmental hazards, as numerous rivers flow through (Ayeb-Karlsson et al., 2016, p. 679; Stojanov, 2016, p. 2). The Bay of Bengal's large continental shelf is adjacent to Bangladesh's coastline and is one of the world's most active areas for the development of tropical low-pressure systems (Paul, 2009, p. 290). The primary physical features of the Bay of Bengal can be summarized as follows: overall concave shape, large tidal range, connection to a number of inlets from land to the Bay and the convergence of the northern point of the Bay toward the Meghna River estuary (Paul, 2009, p. 290). Consequently, the physical features of the Bay of Bengal causes abnormal surges at the onset of southwest monsoons, which then produces cyclones (Paul, 2009). In addition, cyclones that form in the Bay of Bengal are known to be one of the deadliest cyclones in the world accounting for almost 80-90% of global loss which include lives and land (p. 290). In addition to the loss of lives, cyclones primarily account for coastal embankment and displacement. Unfortunately, every three years, Bangladesh is hit with a cyclone and this number is likely to increase from the impacts of global climate change (McAdam and Saul, 2010, p. 239). Another harmful climate change impact that Bangladesh must contend with is increased volume of rainfall, which produces landslides and inland flooding problems. While Bangladesh has been experiencing floods for several years, the intensity and duration of floods continue to be exacerbated by climate change. Similar to floods, river bank erosion is rising and causes loss at a household

level. The Jamuna- Brahmaputra, is an example of one of the largest rivers that erodes 160m per year and is shifting westward at the rate of 50m per year (Ishtiaque, 2017, p. 319; Khan and Islam, 2003). Furthermore, the southwestern part of Bangladesh where the Ganges floodplain (two meters above sea level) is exposed to the sea, which experiences constant inundation and salinity intrusion (Khanom, 2016, p. 205). Salinity intrusion into soil and groundwater is due to climate change factors such as sea level rise and human activities such as the construction of dams and usage of pesticides. According to a World Bank prediction, climate change induced sea level rise will cause salinity intrusion to be more severe and will submerge many low lying lands by 2050 (Khanom, 2016).

B. Geopolitical History

Bangladesh has experienced a number of environmental catastrophes in its history. During British colonialism, this region was known as Bengal and after partition, became East Pakistan. The colonial regime left these lands with poorly made borders ensuing mass violence and mass migration, where a portion of Bengal went to India and the rest went to Pakistan. However, the Bhola cyclone of 1970 is a crucial example of the politicization of natural disasters and became the tipping point for nationalistic politics. The cyclone devastated the entire coast of Bangladesh (East Pakistan at the time) on November 12, 1970 (Ahmed, 2013). It was considered one of the deadliest tropical cyclones ever recorded, in which 300, 000 to 500, 000 lives were lost, many of which unfortunately drowned in their sleep (Ahmed, 2013, p. 46). With growing ethnic and linguistic discrimination against Bengali people in the East, the government of Pakistan at the time did little to provide relief to East Pakistan. Infuriated with this response among other issues, political activists began to organize, which led to the 1971 Bangladesh Liberation War and independence from Pakistan with the support of India (Muktijuddho). However, Bangladesh as a new state struggled to maintain political and economic stability, leading to the famine of 1974 which starved masses, at a time when global commodity prices

soared and the oil industry boomed. In need of dire humanitarian aid and loans, Bangladesh sought assistance from the international community, which would later cripple its economy down the road. Nevertheless, this was an ideal time for the United States to offer foreign aid to countries like Bangladesh, to promote free-market standards for development and prevent the spread of communism during the Cold War. It was also a golden opportunity for the Gulf States, who required mass cheap labour during the oil boom in 1973. With bloodshed from the war, agricultural devastation, regular monsoon floods, political and economic instability, migration seemed like the only option for the survival of the most vulnerable. One of the options at the time was for males to leave their families and migrate to the Gulf States for labour opportunities through Bangladeshi recruitment agencies, who would also benefit from remittances. To exacerbate conditions, the help rendered by India during Bangladesh's liberation struggle kept Bangladesh's hands tied and prevented a negotiated settlement to the dispute related to the construction of the Farakka Barrage, a large-scale surface water development to increase agricultural production (Swain, 1996, p. 190).

Post-partition from British colonialism caused struggles and disputes over water borders, particularly, over the sharing of the waters of the River Ganges (Swain, 1996). The Indian government went ahead with the construction of the Farakka Barrage in 1975, without consulting its neighbour and as result, the south-western part of Bangladesh has suffered from environmental problems since the commissioning of the dam. According to Swain (1996), "Since 1975, India has been diverting most of the dry-season flow of the river to one of her internal rivers, before it reaches Bangladesh. At Farakka, this has affected agricultural and industrial production, disrupted domestic water supply, fishing and navigation, and changed the hydraulic character of the rivers and the ecology of the Delta in the downstream areas" (p. 189). Specifically, the Farakka barrage, built upstream in 1975 is located in Murshidabad district of West Bengal (10 kilometers from the Bangladesh-India border) diverts Ganga waters to Bhagirathi-Hoogly river for the maintenance of the Kolkata Port, and unevenly distributes water,

that impacts freshwater flowing into Bangladesh and cuts of water supply (Siddique, 2015; Khanom, 2016). As a result, droughts and rivers such as the Padma and Mahanadi dry up, in which the lack of water does not allow Boro rice paddy crop to cultivate for Bangladeshi farmers, particularly in the Rajshahi and Naogaon districts of northern Bangladesh, which is a geographically dry region. This forces farmers to rely on groundwater; however, the increase of usage has caused the level of groundwater to plummet to 160 feet, which was 40 feet 15 years ago (Siddique, 2015). It also threatens the preservations of the Sundarban wetlands and mangrove forests at the delta of the river (Siddique, 2015). Overall, the damming of rivers increases the risks of ecological disasters and effects of climate stressors such as salinity intrusion and sea-level rise (Khanom, 2016). These changes have produced detrimental livelihood losses for populations in the south-western part of Bangladesh. Consequently, countless displaced inhabitants from the affected region have migrated to India, only to confront militarization of the border. This leads to a host of different political issues related to illegal migration, discrimination, criminalization and refugee protection.

C. Socioeconomic Characteristics

As a “developing” country, Bangladesh’s defining socioeconomic characteristics include high population density and poverty, ranking as the eighth largest populated country in the world. As of 2020, the total population is 171, 047, 328 within 143,998 square kilometers and people living in extreme poverty is 10, 351, 609, of which 8% is female and 5% is male (World Data Lab, 2020). Despite positive social and economic progression, Bangladesh faces serious levels of poverty in both rural and urban areas, in which poorly constructed houses are unable to withstand natural disasters (Paul, 2009, p.290). Coastal areas account for 32% of Bangladesh’s geographical area and are home to 50 million inhabitants, 35 million of which reside along the south coast of Bangladesh at a density of 738 persons/km squared (Paul, p. 291; Ahsan et al., 2011, 166). Coastal inhabitants primarily rely on subsistence agriculture and

fishing on fertile plains along rivers and the coast for their livelihood and survival (Ahsan, Karuppannan & Kellett, 2011, 166). In addition, floodplains in Bangladesh sustain a predominantly poor rural population, of which approximately 75% of the total population of 132 million people (in 2001) earn an average of US\$325 per capita per year (Brouwer et al., 2007, p. 313). In 1988, 1998, and 2004, over 60% of the country was inundated (an area of approximately 100,000 km²) for a period of nearly 3 months (Brouwer et al., 2007, p. 313). Consequently, floods cause social disruptions such as severe damages to crops, loss of property, loss of household assets, and loss of resources for income. Particularly for rural farmers, floods create sand carpeting which directly prevent agricultural crop growth for several years. In addition, a Soil Resources Development Institute (SRDI) study indicated that an average increase of salinity is about 0.74% per year (Khanom, 2016). Ultimately, this increases siltation and reduces soil fertility. With its dense population, Bangladesh only has 12.5 decimals arable lands per capita (Khanom, 2016). Thus, to prevent the increase of salinity in the arable land, farmers rely on fertilizers because they have access to subsidies for chemical fertilizers, pesticides and irrigation equipment, which further gives them the capacity to utilize these technologies to grow crop yields (Khanom, 2016, p. 207). However, these practices have surged the usage of mono-cropping and formed greater dependence on pesticides, Modern Varieties (MVs), inappropriate application of inorganic fertilizers, irrigation and overall intensification of land use without organic fertilizers, in which soil quality and fertility has deteriorated (Khanom, 2016, p. 207). In addition, almost 138,600 ha of crop lands have been transformed into commercial shrimp aquaculture as it is an alternative source of income, opportunity for market growth and strategy advanced by donors and development agencies that can be managed with salinity encroachment for climate change adaptation. Seen as a technological solution, shrimp farms however increase soil salinity through brackish water intrusion, as a result, rice production is prevented. Furthermore, the damming of rivers and hydroelectric projects from India for instance the Tipaimukhi Dam and the Farakka barrage

intensifies the effects of sea level rise and salinity intrusion. Consequently, livelihood agriculture is impacted, along with soil and groundwater degradation, in which long term effects include health problems, ecosystem disruption and food insecurity. Thus, climate change induced salinity intrusion, river bank erosion, floods and cyclones are the primary drivers of human loss, socioeconomic vulnerability, poverty and internal or cross border migration, affecting individuals on a microlevel and communities on a macro scale.

D. Dhaka's Urban Vulnerability and Rural to Urban Migration Patterns

Bangladesh's capital city, Dhaka, is one of the most populated cities in the world and ranked number one as the world's densest and fastest growing megacity (Alam et al., 2015, p. 7). In 2015, it inhabited 17,598,000 million people and the population growth is accelerating at a rate of 3.5% (Ahsan, Karuppanan & Kellett, 2011, 164). In the last two decades, uncontrolled population growth, including climate change and sea levels rise has led to an array of problems in Dhaka such as periodic extreme weather events, floods, intense rainfall, air pollution, water insecurity, unsanitary conditions and lack of greenspace (McLeman et al., 2016, p. 5). The city is rapidly and alarmingly collapsing under the weight of these conditions. Firstly, Dhaka is the second most flood prone city in the world and has experienced three major floods in the last two decades, leading to infrastructure deterioration and economic vulnerability (McLeman et al., 2016; Balica, 2012; Alam, 2015, p. 8). Furthermore, the surface water in Dhaka is contaminated by biological, chemical, and heavy metal pollutants, as there are institutional barriers to treat it, 60% of urban inhabitants obtain drinking water from tube wells (McLeman et al., 2016). However, drinking water from tube wells is a health concern because the city's groundwater contains high concentrations of arsenic. Aquifers also pose a risk because they are contaminated by e.coli bacteria. For residents living in slums and impoverished neighbourhoods, the unavailability of sanitary systems is another example of a risk to health and wellbeing. Some slums only have three toilets for everyone that are in poor conditions (Boiragi,

2012). Overall, the difficulties of accessing safe water lead to waterborne diseases, general poor health and socioeconomic disadvantages (McLeman et al., 2016, p. 5; Afsana, 2013). In addition, population growth and impacts of climate change were unforeseen issues for urban planners of Dhaka in the past, thus, infrastructure such as drainage systems are unable to withstand intense rainfall and continue to deteriorate every year during the wet monsoon (Alam, 2015). According to Jabeen et al. (2010), the urban poor live in inadequate housing structures, unsanitary conditions, and their limitation on necessary resources for survival inhibit them from accessing appropriate coping strategies. In this way, the urban poor are the most vulnerable victims to such environments (Alam, 2015). Consequently, changes in urban land use patterns directly increases urban poverty, urbanization and demands for urban services.

Each year, Dhaka receives more than 400,000 people from rural areas for temporary or permanent settlement, as a result of interrelated push factors that include climate stressors, environmental hazards, disasters, economic reasons, political reasons or social reasons (Ishtiaque, 2017). Moreover, Dhaka hosts numerous people seasonally and yearly from climate-affected areas. In most cases, rural populations migrate to the city for a short term period immediately after a natural disaster (Ishtiaque, 2017). Rural to urban migration in Bangladesh is also considered to be a part of a socioeconomic restructuring process, in which small scale subsistence and opportunities for source of income in rural areas are decreased or altered. However, the demand for more housing juxtaposed with lack of greenspace has pushed migrants from rural Bangladesh to live in slums and squatter settlements, in which there is very little or no water and sanitation facilities, coupled with risk of eviction because tenure status is precarious (Alam, 2015). Slums are the primary destination for rural poor migrants because it provides cheap accommodation and potential access to low paid employment. In 2005, there were 9000 slums and this number has inevitably risen, with the absence of sufficient services coupled with unsanitary environments and overcrowding, conditions in slums lead to malnutrition, the spread of diseases and infections such as tuberculosis, dengue fever, and

hepatitis B (Afsana, 2013). Overall, Dhaka is rapidly experiencing urban environmental decline (UED), this includes effects of “severe air and surface water pollution, soil and groundwater contamination, food insecurity, and lack of greenspace” (McLeman et al, 2016, p. 1). UED is a contributor to respiratory and other illnesses from pollution or unsanitary conditions (McLeman et al, 2016, p. 1). Ultimately, the urban poor experiences challenges regarding their health, pollution, housing services and economic opportunities. Bangladesh is therefore a model of congested urban cores in lower and middle income countries. This urban crisis has also been an incentive for less-skilled migrant workers (who are usually not among the poorest of the poor) to go abroad, for labour opportunities in the Gulf States or Europe for instance. Many economic migration programs however are often contractually exploitative and deny basic labour rights. In addition, the lack of resources and support in other countries upon arrival produces further marginalization. Evidently, vulnerable populations that experience challenges that stem from coastal areas lead to a host of other issues that are not isolated from broader global structures.

The evidence of risks and characteristics of both rural and urban areas in Bangladesh clearly indicate that the marginal rural poor and marginal urban poor are the most socioeconomically vulnerable populations from climate stressors, environmental hazard and disaster impacts. Chindarkar (2012) defines the linkage between vulnerability and climate change related migration, “as the exposure and sensitivity of groups or individuals to stress as a result of the impacts of climate change which in turn make them susceptible to migration due to their low levels of or absence of capacity to adapt” (p. 3). Furthermore, in the context of climate change and environmental risks in developing countries such as Bangladesh, social vulnerability has been used since the mid 1990s to describe the extent of risk and coping mechanisms available for individuals at a household level or groups at a community level. According to Brouwer (2007, p. 315), adaptive capacity is understood as a “process of adaptation (over time) to structural and/or incidental sources of environmental stress, consisting

of distinct social, economic, technological, institutional and cultural adaptive mechanisms.” Poverty and socioeconomic vulnerability determines environmental risk and constraints related to adaptive capacity (Brouwer, 2007, p.315). Poverty includes the disparity in income and household asset or infrastructure distribution. Although household assets or infrastructure are not direct sources of income in rural areas, they are livelihood resources such as agricultural land or livestock which can be sold as a way to recover from disasters. In Dhaka’s slums, many migrants shift to low paid precarious labour, yet have had experiences of farming or domestic work in their previous livelihood. Thus, the extent of vulnerability determines who are poor climate-induced migrants and who have the resources to migrate outside of Bangladesh. Moreover, research suggests that equitable outcomes of adaptation measures and the need to address power and equity for solutions should be further assessed to prevent vulnerability.

E. Disproportionate Impacts on Women

As a result of different gender roles and social positions defined under an existing patriarchal system, men and women experience the impacts of a disaster differently. Unequal gender power relations are an unchallenged concern as women continue to experience exclusion, discrimination, violence, and marginalization. Women bear the burden of survival through their arduous labour of sustaining livelihoods in order to feed and protect their families, these responsibilities are compounded during a disaster and increase vulnerability. Chindarkar (2012) contends that women are the primary collectors and users of natural resources. Thus, natural disasters also increase women’s domestic burden, for instance, losing household essentials for cooking or gathering water for the household. Several studies using gender-sensitive vulnerability assessments in Bangladesh reveal that women are the most vulnerable to the impacts and effects of climate change, environmental hazards and disasters (Alam, 2015, p. 22). During the cyclone of 1991, out of the 140, 000 people that died, 90% were women and children (Ikeda, 1995). Women died not just because of physical weakness, but

also risked their lives to save their children. Moreover, they experienced cultural restrictions on female mobility, which also prevented them from receiving critical disaster preparedness information (being unable to leave home without male consent) (Begum, 1993, p. 34). In addition, higher death tolls among displaced women are due to the fact that they may be reluctant to seek refuge in temporary shelters because of lack of privacy, damaged clothing, shame, and harassment leaving them more at risk of gender based violence (GBV). Thus, evacuation during a natural disaster is inconvenient and often not plausible, which is then a barrier in accessing relief assistance. Moreover, the scarcity of natural resources such as food, further decreases the nutritional status of women. Coupled with this, the lack of adequate health facilities during disaster emergencies, leads to high maternal mortality rates and exposure to diseases. Ultimately, in many parts of Bangladesh, women are stewards of land and family, yet are oppressed as victims of gendered processes, which are magnified by climate change and disaster impacts.

While many women bear the burden of protecting their family members and livelihoods, they also fight to protect their bodies, before, during and after a disaster. According to IFRC's *A practical approach to Gender-sensitive Approaches for Disaster Management* (2020), GBV refers to "any harmful act that is perpetrated against a person's will and that is based on socially ascribed differences between males and females", which includes rape, attempted rape, sexual abuse, sexual exploitation, domestic violence, intimate partner violence (IPV), physical and psychological/emotional violence, forced child marriage and trafficking (p.37). One study in Bangladesh found that 71% of women experience more incidences of GBV during a flood, than they did before (The Daily Star, 2018). In the, *Bangladesh (Cyclone Roanu) Joint Response Plan (2016)*, prepared by the Humanitarian Coordination Task Team (HCTT), GBV during a humanitarian emergency is common, however, due to socio-cultural norms in Bangladesh, women hesitate to report violence and rather remain silent because of the "shame" attached to a culture of condoning GBV. Yet GBV ensues long-term trauma, serious consequences to

physical health, mental health and social well-being. In recent years, these concerns are well recognized by humanitarian actors and the need to mainstream GBV prevention and response in all phases of a disaster is acknowledged.

The climate change not only affects women directly, but also impacts them indirectly through socio-cultural and socio-economic factors that produce unequal access to resources, property, education, labour markets and other sources of income. In situations of poverty, common in coastal districts that are hit with cyclones, women, especially female-headed households are most vulnerable to disaster risk. Consequently, impacts from a disaster and gender inequality causes rural to urban migration and economic activities to be primarily male-dominated (Ishtiaque, 2017). Economic and physical capacities are required for migration, thus, migration is also difficult for women. According to Mallick and Vogt (2012), a survey of 288 respondents revealed that male members of cyclone victim households were more likely to move to nearer urban centres promptly after the culmination of a disaster relief service. They migrate to slum neighbourhoods to gain income to provide for their dependants, but leaving the family creates social stress and constraints for their female counterparts, which introduces changes in local social structure. While this is true, in recent years, many women from rural areas have also migrated to urban centres for employment. Anna Plowman's (2015) research conducted on the ways in which the profitability of ready made garment (RMG) factories is linked to climate induced migration and that this sector tends to employ women from rural areas in which 85% of employees are female. She found that women have limited employment opportunities compared to men, thus, women either work as domestic helpers or in the RMG sector. The RMG sector profits from the gendered dynamics of power where women have a tolerance in accepting poor working conditions and little to no pay because of fear in losing the opportunity to engage in the only stable wage employment available. The opportunity to work is "empowering" for women, but they are stripped from having the power to choose. Moreover, Bangladesh is heavily reliant on the largely gendered RMG industry to generate the majority of

its export revenue. As this industry expands, the process of an exploitable surplus labour population also expands and Plowman argues that climate change plays a role. In a survey conducted by Plowman, a woman named Poly shared her experience: “Our house and cultivable land went under the water [through river erosion]. Then we moved to another char. At that time that char was also flooded. [...] When we had our own land we could easily grow more crops but now we were living on another char. Lots of grass grew beside the crop field and it damaged our crops. We needed more money to remove these grasses. We did not have enough money. That’s the reason we had to borrow money from others. That’s the reason we moved to Dhaka. (p. 32). Another respondent, Hosneara also shared her experience: “My husband worked in construction. It’s not enough for our expenses. I thought that if I joined a garment factory I could contribute some money to our family” (p. 34). From these accounts, Plowman argues that climate change strategies should also ensure basic labour rights, recognizing rural to urban migration and that this issue should be further studied. Nevertheless, the inhabitable conditions in Dhaka due to overpopulation from people migrating for wage work has created unsanitary conditions in the slums, which also marginalize the reproductive health of women. Moreover, the shift to low paid precarious labour further marginalizes women’s socioeconomic status.

It becomes clear that gender plays a crucial role in mobility, wealth, and mental and physical health in relation to climate change, with women bearing a disproportionate burden due to their lower social capital and gendered work. However, women hold imperative local knowledge of sustainable resource management and are leaders at the household and community level in sustainable practices. Thus, in responding to impacts of climate change, their meaningful inclusion and full contribution is critical towards achieving improved outcomes of climate-related planning, policy-making and implementation (United Nations Framework Convention on Climate Change, 2020). One of the positive outcomes of a disaster is that

women have a greater opportunity to participate in social transformation and strengthen local community capacity led by organizations that would not have existed otherwise.

Chapter 3: Gender Related Policy Responses and Relief Efforts for Cyclone Sidr and Roanu

A. Findings: Cyclone Sidr

“Another big worry is the increasing price of rice. Now we have to pay BDT 30 per kilo (up from BDT 25 one week ago) and so instead of three meals per day, we are now struggling to serve our families even with two ... and if we do not get job opportunities soon, we do not know if we will survive.” – Oxfam, women’s focus group discussion, Ketachara I, Mathbaria upazila - Cyclone Sidr in Bangladesh (A Report Prepared by the Government of Bangladesh Assisted by the International Development Community with Financial Support from the European Commission, 2008, p. 150).

Between 1797 to 2009, 65 cyclones struck Bangladesh, especially devastating the 16 low-lying coastal districts facing the Bay of Bengal (Alam and Rahman, 2014, p. 69). In addition to causing thousands of lives lost, cyclones have destroyed productive resources affecting livelihoods. Coastal populations face heightened degrees of poor socioeconomic conditions as they are reliant on ecosystems linked to agriculture, fishery, salt farming, forestry and more that are impacted by disasters, slowing down the process of social and economic development (p. 69). Cyclone Sidr, a category 4 storm that made landfall on the southwestern coast of Bangladesh, with winds up to 240 kilometers per hour, reportedly took the lives of 3295 people with 53,000 people missing (International Federation of Red Cross, 2010). According to the National Plan of Disaster Management (2010, p.9), approximately 563,877 houses were totally destroyed, 9,55,065 houses were partly damaged, 186,883 hectares of crop areas were fully destroyed and 498,645-hectare area was partly damaged. Crops that were ready for harvest were destroyed and the main crop damaged was rice. In addition, 1.7 million livestock were killed (International Federation of Red Cross, 2010).

This number is low in comparison to the cyclone of 1991 which took the lives of over 140, 000 people. In recent years, the Bangladeshi government has been required to provide disaster management measures such as cyclone forecasting and early warnings for evacuation of residents. In addition to the improvement of cyclone warning systems, recommendations for adaptation and mitigation strategies for cyclones included the establishment of more public cyclone shelters, and the implementation of an education campaign in coastal areas (Paul, 2009). Nonetheless, about 2 million people lost sources of income, including loss of physical assets in 30 affected districts out of 64 in total (that also suffer from high rates of poverty), however, Bagherat, Barguna, Patuakhali, Pirojpur, were most affected districts (A Report Prepared by the Government of Bangladesh Assisted by the International Development Community with Financial Support from the European Commission, 2008).

For the scope of this paper, using an intersectional feminist framework, any of four gender risk related indicators linked to displacement are identified in the case studies, including: access to adequate relief services and resources, gender-based income opportunities, gender-based security in the shelters and gender-based equal participation in decision-making power. In order to link these indicators to displacement, this research assesses whether 'migration' is present in frameworks and if it shows a relationship to gender. Through a gendered lens of the impacts of Cyclone Sidr, the nutritional status of infants, young children, and pregnant and lactating women was worsened as a result of inadequate access to food supplies (A Report Prepared by the Government of Bangladesh Assisted by the International Development Community with Financial Support from the European Commission, 2008). Although water was everywhere, drinkable water was unavailable and became contaminated from opened latrines, flooding sea water and fallen trees. Many women, especially from female-headed households supported livelihoods in rural households with activities such as collecting shrimp or managing livestock, some were also labourers in pottery factories for instance, all streams of income which were impacted from the disaster. It was also reported that

women's privacy in facilities within cyclone shelters were poor, exposing them to risks of gender based violence (A Report Prepared by the Government of Bangladesh Assisted by the International Development Community with Financial Support from the European Commission, 2008). Finally, early recovery programs implemented after the disaster did address gender issues by ensuring participation of women and minorities (A Report Prepared by the Government of Bangladesh Assisted by the International Development Community with Financial Support from the European Commission, 2008).

a. National and Regional Frameworks

In regards to the governance of disasters, national responsibility to administer frameworks and relief efforts alongside humanitarian organizations in Bangladesh is led by three main government agencies, namely, “the National Disaster Management Council (NDMC), headed by the Prime Minister, responsible for strategic decisions for disaster management; the Inter-Ministerial Disaster Management Committee (IMDMC), responsible for coordination across ministries; and the National Disaster Management Advisory Committee, responsible for policy development and advice” (Government of Bangladesh, 2019, p. 30). However, the Ministry of Disaster Management and Relief (MoDMR) is responsible for coordinating all disaster management efforts amongst agencies and the Ministry of Women and Children Affairs (MoWCA) is responsible for livelihood support for disaster-affected women, including their participation in disaster management activities and their overall security. Yet NGOs, international agencies, community leaders and all other actors in civil society also play a crucial role in reducing vulnerability and protecting disaster-affected populations. Thus, collaboration among all roles and shifting power towards communities with a gender sensitive approach is essential to achieve disaster risk reduction goals. The following national and international frameworks chosen to be studied are specifically related to disasters. At the time of Cyclone Sidr, *The Draft National Plan for Disaster Management (NPDM, 2005-15)*, one of the only national frameworks

to address disasters, was merely a draft. Many of the measures that are currently in place in the National Plan were established much after Cyclone Sidr. The Plan addresses issues like risk reduction, capacity building, climate change adaptation, livelihood security, gender mainstreaming, community empowerment and response and recovery management (United Nations, 2008). Gender is present one of the core principles, Section 6.1, “result oriented and focused on outcomes that will benefit vulnerable communities, especially women, the poor and socially disadvantaged” (National Plan for Disaster Management, 2010, p. 35). The Standing Orders on Disaster (SOD), developed in 1997 and revised in 2010 plays an important role in describing, “the detailed roles and responsibilities of committees, ministries and other organizations in disaster risk reduction and emergency management, and establishes the necessary actions required in implementing Bangladesh’s Disaster Management Model” (Center for Excellence in Disaster Management & Humanitarian Assistance, 2020 p. 34). However, gender has been mentioned more as the SOD has been revised in 2010. At the regional level, the South Asian Association for Regional Cooperation (SAARC), a regional intergovernmental organization of member states in South Asia, formulated a comprehensive regional disaster management framework (2006-2015). The expected outcomes of the framework aim to Gender is present as a part of the strategic goals stating that it prioritizes, “empowering community at risk particularly women, the poor and the disadvantaged” (National Plan for Disaster Management, 2010, p. 35, p. 32). The NPDM is an outcome of this regional strategy.

b. International Frameworks

At the international level, the Hyogo Framework for Action (HFA) (2005-2015) is a 10-year plan adopted by 168 states was created to reduce vulnerabilities to disaster risk, reduce loss of lives and other adverse impacts to communities. Gender is represented within goal (ii), where key activities regarding early warning requires: “early warning systems that are people centered, in particular systems whose warnings are timely and understandable to those at risk,

which take into account the demographic, gender, cultural and livelihood characteristics of the target audiences, including guidance on how to act upon warnings, and that support effective operations by disaster managers and other decision makers” (United Nations, 2020). In addition, gender is addressed within goal (iii), where education and training requires: “equal access to appropriate training and educational opportunities for women and vulnerable constituencies; promote gender and cultural sensitivity training as integral components of education and training for disaster risk reduction” (United Nations, 2020). Finally, one of the priorities for action in the framework requires that, “a gender perspective should be integrated into all disaster risk management policies, plans and decision-making processes, including those related to risk assessment, early warning, information management, and education and training” (United Nations, 2020, p. 4). According to Bangladesh’s national progress report on the implementation of the Hyogo Framework for Action (Government of Bangladesh, 2009) and assessment of how Bangladesh addressed the adoption of gender perspectives on risk reduction and recovery, gender mainstreaming in disaster risk reduction was limited. However, in cyclone response plans, violence against women was a key priority and committees have women representatives at the local level. Overall, the need for creative and innovative culturally nuanced actions to address challenges in undertaking gender perspectives was identified.

The *United Nations Framework Convention on Climate Change (UNFCCC)* came into effect in 1994, as a result of which 197 countries ratified the Convention with the goals of stabilizing greenhouse gas concentrations at “such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner” (United Nations Climate Change, 2020). It requires states to prepare a national communication that describes the policies it has adopted to implement its obligations under the UNFCCC. The Convention requires industrialized nations to support climate change activities in developing countries by sharing technology and providing financial assistance. In

2001, decision 36/CP.7 was made in, “improving the participation of women in the representation of Parties in bodies established under the United Nations Framework Convention on Climate Change and the Kyoto Protocol” (United Nations Climate Change, 2020).

c. Operations

At an operational level, the Bangladesh Red Crescent Society (BDRCS), a part of the International Federation for Red Cross (IFRC) responded quickly to Cyclone Sidr. For every cyclone since the 1970s, the Bangladesh Cyclone Preparedness Programme, a joint program by BDRCS and GOB has delivered early recovery support to warn, evacuate and shelter vulnerable populations. In November 2007, IFRC launched a Cyclone Sidr emergency appeal for USD 22.2 million to support the Bangladesh Red Crescent Society in assisting 1,215, 000 beneficiaries for a period of two years (IFRC Final Report, Cyclone Sidr, 2010). IFRC successfully delivered relief operations in affected areas such as distributing family packages that included plastic sheets, blankets, one hygiene box, one box of washing powder, sarees, lungies, rice, lentils, and oil. Overall, “more than 83,000 people were assisted with basic health care and emergency medicines in 13 districts through BDRCS’s mobile medical teams during the emergency phase” (p. 2). In addition, “around 15,000 families were provided with coconut saplings and hoes during the emergency phase in order to restore their livelihoods” (p. 2). The early recovery operation addressed gender and diversity issues to ensure participation of women and minorities and implemented disaster risk reduction (DRR) activities such as evacuation plans. The BDRCS’s Building Community Disaster Preparedness Capacity Project had an active gender component and a network that included female volunteers in disaster-affected areas. In addition, 4, 997 households in the four most affected districts were provided with cash grants to replace livelihoods, female headed households received an additional amount of 15 percent as an incentive (IFRC Final Report, Cyclone Sidr, 2010, p. 19).

B. Findings: Cyclone Roanu

Nine years after the devastation of Cyclone Sidr, the southern coastal region of Bangladesh was hit again with a tropical storm, Cyclone Roanu in May 2016. Cyclone Roanu case is compared to Cyclone Sidr for the purposes of assessing how new governance frameworks and new strategies for relief operations were addressed and how overall governance and operations shifted over a period of time. With winds over 100km/h, eighteen coastal districts were affected and among them, seven (7) severely, namely Chittagong, Cox's Bazar, Bhola, Barguna, Lakshmipur, Noakhali and Patuakhali. With the immediate support of early warning systems, 500, 000 people were evacuated to cyclone shelters before the storm hit. However, 27 people (15 men and 12 women) lost their lives, more than 100 schools were destroyed, and 1.3 million people were directly impacted. Within 24 hours, many folks were able to return to their home, however, homes were destroyed, crops damaged, trees uprooted, fisheries swept away, and lost productive livelihood assets such as livestock.

In regards to a gender perspective on the impacts of this cyclone, a research study exploring the relationship between gender based violence (GBV) and disasters in the Barguna district during Cyclone Roanu, revealed accounts from GBV survivors. Survivors confirmed that, “domestic violence, forced marriage, sexual assault, harassment and trafficking increase immediately before, during and after each cyclone” (Rezwana and Pain, 2020, p. 16). In the case of Roanu, women from the study shared their experiences of sexual assault during weather warning periods, in which men would pretend to be volunteers using the opportunity to harass women. They also described experiences of sexual harassment in crowded cyclone shelters. In addition, there were safety concerns related to women's access to bathing facilities and latrines (Joint Response Plan, p. 11). Therefore, many women felt it was unsafe to go to cyclone shelters, consequently, preventing opportunities to access relief services, leaving themselves more at risk to disaster impacts. Some women reported experiencing domestic violence as a result of poverty due to the economic impacts of the disaster and because of relief

collection. Evidently, in the process of disaster related displacement coupled with the heightened conditions of poverty, women's economic dependency may increase, exposing them to the risk of GBV. Moreover, with access challenges to proper medical care, sanitation, nutritional and clean drinking water, nutritional status was a concern for women's reproductive and maternal health during Cyclone Roanu, as they are at increased risk of disease and deaths. A study that explored women's vulnerability in cyclone disasters in the Barguna district observed that during and after a disaster, women suffered from fever, skin disease and other forms of diseases. Moreover, as Cyclone Roanu affected economic stability by having long term impacts on livelihood rebuilding and other sources of income, women, especially female-headed households struggled to maintain a life in rural coastal areas. Therefore, migration to urban areas presents itself as a viable option for women, especially migrating to areas where economic stability is found. Research has shown that women are migrating to work in garment factories, a female dominated industry (Plowman, 2015).

a. National Frameworks

To supplement existing frameworks related to disasters, several new strategies, plans and policies were developed since 2007. Bangladesh has developed the *National Disaster Management Policy (NDMP, 2015)*, the *Disaster Management Act No. 34 (DMA, 2012)*, the *National Plan for Disaster Management (NPDM, 2010-2015)*, the *Bangladesh Climate Change Strategy and Action Plan (BCCSAP, 2009)*, and the *Climate Change Gender Action Plan of Bangladesh (ccGAP, 2013)*. The *DMA (2012)* is the legal basis for disaster risk management and defines the organizational structure for it. It addresses access to relief services for women, however, inadequately addresses or does not address other gender related risk indicators, for instance, there is no mention of issues related to gender-based security in the shelters.

The *NPDM (2010-2015)*, was the first policy document to shift from disaster relief to disaster risk reduction, aligning with regional and international frameworks and leading to the

development of the *DMA*. It proposes that a female representative at the community level should be present in disaster management committees (Hasan et al., 2019, p. 3). In addition, it addresses gender issues in shelter management, for instance, developing separate toilet facilities for women (Hasan et al., 2019, p. 4). The Plan also prioritizes the restoration of income sources, with priority to women, children and the elderly.

The *NDMP (2015)*, was formulated to provide a strategic framework on disaster risk reduction and emergency management. The policy includes gender components stating that it ensures, “participation of women in different programs organized by various government and non-government organizations to increase strengths in the perspective of rearing children, safe maternal responsibilities and awareness against violence” (Hasan et al., 2019, p. 5). It also addresses access to safe and gender-friendly shelter for women, access to relief services and providing resources to increase their expertise in productive activities.

The *BCCSAP (2009)*, was created to prioritize low carbon development, climate change mitigation and adaptation, technology transfer, disaster risk reduction and the mobilization and international provision of adequate finance (BCCSAP, 2009, p. xvii). The plan is built upon the following pillars: (1) food security, social protection and health; (2) comprehensive disaster management; (3) infrastructure; (4) research and knowledge management; (5) mitigation and low carbon development; and (6) capacity building. The pillars includes priority adaptation programs of actions, under pillar four (P4), it states, “monitoring of internal and external migration of adversely impacted populations and providing support to them through capacity building for their rehabilitation in new environments” (Zamudio and Parry, 2016, p. 17). Under pillar six (P6), it states, “strengthening gender consideration in climate change”(p. 17).

Finally, the *ccGAP (2013)* aims to mainstream gender inequality into policies and strategies related to climate change, through the integration of a gender-related focus to supplement four pillars found in the *BCCSAP (2009)*. The Plan, “addressed that it is necessary to engage women meaningfully in development and implementation of community risk

assessment and increase their participation in infrastructure-related decision making in the national level” (p. 3). It also focuses on ensuring movement of women to reach a safe place, gender-friendly shelters, maternal health, and other gender-related needs during relief management (Hasan et al., 2019).

b. International Frameworks

Recent international frameworks, the *Sendai Framework for Disaster Risk Reduction (SFDRR, 2015-2030)* and the *Sustainable Development Goals (2016-2030)* are also aligned with the responses to cyclones in Bangladesh. The *SFDRR* is the successor instrument to the Hyogo Framework for Action (HFA), developed to strengthen disaster risk governance across states at the local, national, regional and international level. Within its priorities, empowering women through adequate capacity building measures (for instance, capacity to secure alternate means of livelihood) and ensuring women’s participation in order to manage disaster risk is highlighted. In regards to addressing migration, the framework includes: “Paragraph 7: governments should engage with relevant stakeholders, including [...] migrants [...] in the design and implementation of policies, plans and standards; Paragraph 27(h): empower local authorities, as appropriate, through regulatory and financial means to work and coordinate with [...] migrants in disaster risk management at local level; Paragraph 36(a)(vi): Migrants contribute to the resilience of communities and societies and their knowledge, skills and capacities can be useful in the design and implementation of disaster risk reduction” (Guadagno, 2014, p.32).

The seventeen Sustainable Development Goals was a call to action adopted by all United Nations Member States to bring forth a more sustainable, peaceful and healthier planet, while also ending poverty. SDG 5 places key priority to gender equality, women’s empowerment, opportunity for women’s leadership for decision-making, social protection policies for domestic workers and ending discrimination for all women and girls through several

targets. Furthermore, SDG 10.7 includes implementation of well-managed migration policies and SDG 8.8 includes protecting migrant worker's rights.

c. Operations

According to the IFRC Emergency Plan of Action Final report on Bangladesh: Cyclone Roanu, operations integrated gender sensitivities throughout the process to provide appropriate relief services to disaster-affected people. Relief packages were created to address women's specific needs, including hygiene kits and sanitary articles. In addition, women and children friendly spaces were established to share information and services related to gender and children specific needs. Also, a high number of latrines were available specifically for women, which were located close to temporary shelters or makeshift houses, along with water facilities. Female enumerators/NDRT volunteers were deployed to conduct gender-specific assessments. A service was also available to report incidences of gender based violence and other security issues. In addition, immediate access to nutrition intake was available for children, pregnant and lactating/breastfeeding women. Overall, BDRCS reached 36,000 people in total, by providing 5,000 families with cash grants, emergency shelter toolkits, tarpaulins, seeds saplings and tube wells. Furthermore, 1,000 families received clean drinking water from the distribution of 4,600 liters and several people were medically treated by Red Crescent mobile health teams.

C. Discussion: Identifying Gaps Across Governance and Implementation

Through a critical analysis of the above findings, it is evident that although existing national, regional, and international frameworks, along with operations of disaster relief efforts are important in reducing risks and vulnerabilities associated with disaster displacement, there is a long way to go. However, after the occurrence of Cyclone Sidr, Bangladesh and global institutions have drastically improved their response by developing a series of policies and action plans in the last 10 years. With very few policy frameworks as a guide nationally and

internationally during 2007, there were several more frameworks available during the Cyclone Roanu response period. In 2016, a legislative tool existed, but during Sidr, there were no laws addressing disasters. As global disasters have been increasing at a heightened rate largely due to the impacts of climate change, international and national bodies have taken more initiative to act, plan and implement, especially since 2015. The development of these initiatives is a start to preventing adverse disaster impacts. From studying Cyclone Roanu, it is clear that the number of casualties from disasters have reduced over the years, better and more available infrastructure is in place, early warning systems are enhanced to be effective in evacuation, mechanisms to support disaster-affected households have been improved, gender-related issues have been addressed more adequately and disaster risk reduction is mainstreamed into plans. In the efforts to collectively transform disaster management for the better, one of the most positive achievements is that gender based violence has been taken more seriously in both frameworks and relief operations.

Despite these strides, there are several gaps within disaster management at all levels that need to be addressed. Firstly, aside from the reference in the *BCCSAP, SFDRR and SDGs*, migration is still not fully seen as a disaster risk reduction strategy, but governing bodies do recognize the unmanaged ways rural to urban migration is escalating. During Cyclone Sidr, migration was not referenced anywhere, but by 2016, migration was only referenced briefly in international frameworks. This rural to urban migration is largely gendered and stems from the impacts of frequent disasters in coastal areas, especially, inflated poverty. Yet aside from relocation to temporary shelters, frameworks and operations fail to adequately address all aspects of displacement, which includes migration and resettlement planning. Dismissing the ways in which disasters destroy livelihoods, pushing disaster victims to consider migration to urban areas where stable wage work is readily available. But in this process, their human security, lived experiences related to negative impacts from urbanization, land rights, societal integration and other forms of vulnerability may be compromised if proper measures do not

exist. It is common for rural men in Bangladesh to travel to urban areas or overseas for work leaving behind their families, but recently, a large number of women are joining the multi-billion industry of ready made garments in cities. In other words, vulnerable populations seek environmental and economic stability to sustain their livelihoods and to survive, migration being an option to do that. Thus, mobility-related ideas may contribute to strengthening resilience with practical steps.

Second, although the consideration of gender-related needs was more apparent in 2016 than 2007 disaster responses, not all frameworks and disaster relief efforts from 2016 address all factors around gendered impacts of disasters. For instance, one framework addresses female representation at a governance level, but some only mention women's participation solely at a program level. Thus, there is not a consistent response to address gender across all frameworks. In regards to women's participation in decision-making processes, there is more work to be done to clearly set out a strategic plan that describes how women's voices would be centered in final decisions, going beyond participation and shifting to power. Also from a legal perspective, Bangladesh's only legislative document, the DMA, does very little for disaster risk reduction in comparison to other frameworks, and coupled with the absence of an international law, During both Cyclone Sidr and Cyclone Roanu, at an operational level, relief efforts were largely geared towards providing immediate relief support, for instance, improving temporary shelter facilities for women and providing cash grants to rebuild livelihoods during post-recovery periods. Cyclone Roanu relief efforts by IFRC did have services to address gender-based violence in shelters, but overall GBV is not mentioned in all frameworks and thus operationally, GBV may not receive the resources it needs. Ultimately, to align with policy frameworks, disaster relief efforts led by civil society require more resources and support to deliver plans and programs for local community capacity building in post-recovery phases, as the majority of resources under a specific budget are administered during the immediate relief period. Finally, no disaster response of either cyclone event addressed the relationship between disasters,

gender and migration, where they are merged together and fully addressed. In fact, the impacts of these cyclones in Bangladesh further marginalized, deepened and maintained gendered cultural norms rooted in the complex intersections of patriarchy, gender inequality, socioeconomic vulnerability and political instability.

Chapter 4: Conclusion and Recommendations

A. Final Reflections

Recently, Bangladesh has improved its disaster management systems by shifting its focus to work on climate adaptation disaster risk reduction strategies, becoming a resilient nation despite the adverse effects of climate change and its highly dense population. However, disaster governance on a national and international level is doing little to tackle displacement and the ways in which migration is also a common post-disaster recovery strategy when coastal land is eroded and livelihoods are disrupted. Disaster governance also fails to fully address the gendered implications of this, in the context of poverty. Currently, international policies and legal requirements have not been developed to include protection from climate related disasters for vulnerable populations. This is alarming as more vulnerable populations will be displaced from the effects of climate change combined with other reasons for movement. Thus, vulnerable populations often consider temporary or permanent illegal migration or economic migration for precarious work opportunities in urban centres or abroad. Women are one of the most vulnerable victims in all stages of a disaster. In the initial disaster stage, they are victims to gender based violence, health risks and gendered socioeconomic barriers. In the post-disaster recovery stage, women in the rural to urban migration process are disadvantaged in many ways, especially because of limited employment opportunities and labour rights violations through the recent feminization of labour and globalization. Evidently, the relationship between climate related disasters and migration is largely gendered, with economic, sociopolitical and human rights implications. Policymakers and legal practitioners at the international and national level have the ability to shape responses to disasters, allowing civil society to carry out response plans in a combined effort. Thus, it is important to examine the governance of frameworks and relief efforts.

B. Recommendations

From analyzing the findings from this research paper by studying disaster events, Cyclone Sidr (2007) and Cyclone Roanu (2016), it can be suggested that policy makers, development practitioners, academicians and other stakeholders on the issue should ultimately invest in strengthening resilience and institutional, systemic and human-resource community adaptive capacity, using an intersectional gender-sensitive, DRR and human rights approach. With this approach, I recommend that governance mechanisms should first largely shift decision-making power and implementation tools in the hands of disaster-affected people, especially women as they are most vulnerable in all stages of a disaster and also primary agents of change. Ultimately, it is critical that gender-sensitive approaches are mainstreamed and integrated into all aspects of this issue. Second, I recommend that frameworks can be improved by combining disaster risk reduction strategies with climate change adaptation strategies to develop long-term implementation plans, in which efforts across all actors that play a role in disaster management are more aligned with collaborative strategies in place. For instance, international governance mechanisms can ensure that disaster relief organizations have enough resources to adequately deliver support aligned with all relevant goals from the SFDRR, beyond the initial disaster phase. As countries like Bangladesh bear the brunt of environmental violence with pressure to implement various measures, it is important that Global North nations, responsible for the increasing rate of climate change, take accountability. Finally, I recommend that the gendered nature of migration should be represented in climate change adaptation strategies, disaster risk reduction strategies, development practices, urban planning strategies, labour law and human rights. In reassessing what women's empowerment and gendered power relations look like in our current time, it is clear that female labour migration linked to the effects of climate change will only rise, however, more research on this topic is required. Overall, by studying one of the most disaster prone countries and most vulnerable to climate change, Bangladesh, the aim of this Major Paper is to contribute to scholarship around

disaster governance and create awareness, which can influence policies for future actions that address climate related disasters, displacement and migration, recognizing its entanglements.

Bibliography

- Afsana, K. & Wahid, S.S. (2013). Health care for poor people in the urban slums of Bangladesh. *The Lancet*, 382(9910), pp.2049–2051.
- Ahmed, N. (2013). Entangled earth. *Third Text*, 27(1), 44-53.
- Ahsan, R., Karuppanan, S., & Kellett, J. (2011). Climate migration and urban planning system: a study of Bangladesh. *Environmental Justice*, 4(3), 163-170.
- Ainuddin, S., & Routray, J. K. (2012). Community resilience framework for an earthquake prone area in Balochistan. *International Journal of Disaster Risk Reduction*, 2, 25-36.
- Alam, K., & Rahman, M. H. (2014). Women in natural disasters: a case study from southern coastal region of Bangladesh. *International journal of disaster risk reduction*, 8, 68-82.
- Alam, S. S., Alam, A. J., & Rahman, S. Urban climate resilience, water and sanitation. (2015) *Asian Cities Climate Resilience* (1-54).
- Ayeb-Karlsson, S., 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*, 11(4), 679-694.
- Balica, S. F., Wright, N. G., & van der Meulen, F. (2012). A flood vulnerability index for coastal cities and its use in assessing climate change impacts. *Natural Hazards*, 64(1), pp.73-105.
- Banford, A., & Froude, C. K. (2015). Ecofeminism and natural disasters: Sri Lankan women post-tsunami. *Journal of International Women's Studies*, 16(2), 170-187.
- Begum, R. (1993). Women in environmental disasters: the 1991 cyclone in Bangladesh. *Gender & Development*, 1(1), 34-39.
- Boano, C., Zetter, R., & Morris, T. (2008). Environmentally displaced people: understanding the linkages between environmental change, livelihoods and forced migration. *Environmentally displaced people: understanding the linkages between environmental change, livelihoods and forced migration*.
- Brouwer, R., Akter, S., Brander, L., & Haque, E. (2007). Socioeconomic vulnerability and adaptation to environmental risk: a case study of climate change and flooding in Bangladesh. *Risk analysis*, 27(2), 313-326.
- Chindarkar, N. (2012). Gender and climate change-induced migration: proposing a framework for analysis. *Environmental Research Letters*, 7(2), 025601.
- Cohen, R., & Bradley, M. (2010). Disasters and displacement: gaps in protection. *J. Int'l Human. Legal Stud.*, 1, 95.

- Edwards, J. H. Y. (2015). The structure of disaster resilience: a framework for simulations and policy recommendations. *Natural Hazards and Earth System Sciences*, 15(4), 827.
- Ferris, E. (2014). RECURRENT ACUTE DISASTERS, CRISIS MIGRATION. *Humanitarian Crises and Migration: Causes, Consequences and Responses*, 77.
- Finger, D., & Luft, R. E. (2011). No shelter: Disaster politics in Louisiana and the struggle for human rights. *Human rights in the United States: Beyond exceptionalism*, 291-312.
- Fletcher, A. J. (2018). More than women and men: a framework for gender and intersectionality research on environmental crisis and conflict. In *Water Security Across the Gender Divide* (pp. 35-58). Springer, Cham.
- Gibney, M. (2006). A thousand little Guantanos: Western states and measures to prevent the arrival of refugees. *Migration, Displacement, Asylum: The Oxford Amnesty Lectures 2004*, 139-160.
- Guadagno, L. Human Mobility in the Sendai Framework for Disaster Risk Reduction. *Int J Disaster Risk Sci* 7, 30–40 (2016). <https://doi.org/10.1007/s13753-016-0077-6>
- Haque, U., Hashizume, M., Kolivras, K. N., Overgaard, H. J., Das, B., & Yamamoto, T. (2012). Reduced death rates from cyclones in Bangladesh: what more needs to be done?. *Bulletin of the World Health Organization*, 90, 150-156.
- Hasan, M. R., Nasreen, M., & Chowdhury, M. A. (2019). Gender-inclusive disaster management policy in Bangladesh: A content analysis of national and international regulatory frameworks. *International Journal of Disaster Risk Reduction*, 41, 101324.
- Hansen, R. (2014). State controls: Borders, refugees, and citizenship. *The oxford handbook of refugee and forced migration studies*, 253-65.
- Hynie, M., Nayak, P. K., Gomes, T. A., & Abdillahi, I. (2019). Refugee Sponsorship and Canada's Immigration Policy in Times of Climate Change. *Local Activism for Global Climate Justice: The Great Lakes Watershed*, 95.
- Ikeda, K. (1995). Gender differences in human loss and vulnerability in natural disasters: a case study from Bangladesh. *Indian Journal of Gender Studies*, 2(2), 171-193.
- Islam, S., & Khatun, H. Women's vulnerability and coping strategies in cyclone prone coastal areas of Barguna District.
- Ishtiaque, A., Nazem, N.I. (2017). Household-level disaster-induced losses and rural–urban migration: Experience from world's one of the most disaster-affected countries. *Natural Hazards*, 86 (1), pp. 315-326.
- Jabeen, H., Johnson, C., & Allen, A. (2010). Built-in resilience: learning from grassroots coping strategies for climate variability. *Environment and Urbanization*, 22(2), 415-431.

- Kabeer, N. (2002). *The power to choose: Bangladeshi women and labor market decisions in London and Dhaka*. Verso.
- Khan, N. I., & Islam, A. (2003). Quantification of erosion patterns in the Brahmaputra–Jamuna River using geographical information system and remote sensing techniques. *Hydrological Processes*, 17(5), 959-966.
- Khanom, T. (2016). Effect of salinity on food security in the context of interior coast of Bangladesh. *Ocean & Coastal Management*, 130, 205-212.
- Lohokare, M. A. D. H. U. R. A., & Davar, B. V. (2000). Women in disasters and mental health. *Indian Journal of Social Work*, 61, 565-580.
- Mallick, B. J., Witte, S. M., Sarkar, R., Mahboob, A. S., & Vogt, J. (2009). Local adaptation strategies of a coastal community during cyclone Sidr and their vulnerability analysis for sustainable disaster mitigation planning in Bangladesh. *Journal of Bangladesh Institute of Planners*, 2, 158-168.
- Mallick, B., & Vogt, J. (2012). Cyclone, coastal society and migration: empirical evidence from Bangladesh. *International Development Planning Review*, 34(3), 217-240.
- McAdam, J., & Saul, B. (2010). Displacement with dignity: international law and policy responses to climate change mitigation and security in Bangladesh. *German YB Int'l L.*, 53, 233.
- McAdam, J. (2016). From the Nansen initiative to the platform on disaster displacement: Shaping international approaches to climate change, disasters and displacement. *UNSWLJ*, 39, 1518.
- McAdam, J. (2012). *Climate change, forced migration, and international law*. Oxford University Press (chapter one).
- McAdam, J. (2014) "Conceptualizing Climate Change-Related Movement." In *Climate Change, Forced Migration and International Law* (chapter one).
- McAdam, J. (2019, November 7). Managing Displacement in the Era of Climate Change. *Georgetown Journal of International Affairs*.
- McEntire, D. A., Fuller, C., Johnston, C. W., & Weber, R. (2002). A comparison of disaster paradigms: The search for a holistic policy guide. *Public administration review*, 62(3), 267-281.
- McEntire, D., Crocker, C. G., & Peters, E. (2010). Addressing vulnerability through an integrated approach. *International Journal of Disaster Resilience in the Built Environment*.
- McEntire, D. A. (2004). Tenets of vulnerability: An assessment of a fundamental disaster concept. *Journal of Emergency Management*, 2(2), 23-29.

- McEntire, D.A. (2005). Why vulnerability matters: exploring the merit of an inclusive disaster reduction concept. *Disaster Prevention and Management: An International Journal*, 14(2), 206–222.
- McEntire, D. A. (2001). Triggering agents, vulnerabilities and disaster reduction: towards a holistic paradigm. *Disaster Prevention and Management: An International Journal*, 10(3), 189–196.
- McLeman, R. A., Moniruzzaman, M., & Akter, N. (2016). Bangladeshis in Toronto: Do environmental conditions in Dhaka influence their decision to migrate to Canada? Findings from an exploratory study. *Population and Environment*.
- McLeman, R., & Smit, B. (2006). Migration as an adaptation to climate change. *Climatic change*, 76(1-2), 31-53.
- Mercer, J., Kelman, I., Taranis, L., & Suchet-Pearson, S. (2010). Framework for integrating indigenous and scientific knowledge for disaster risk reduction. *Disasters*, 34(1), 214-239.
- Mollett, S., & Faria, C. (2013). Messing with gender in feminist political ecology. *Geoforum*, 45, 116-125.
- O’Shaughnessy, S., & Krogman, N. T. (2011). Gender as contradiction: From dichotomies to diversity in natural resource extraction. *Journal of Rural Studies*, 27(2), 134-143.
- Palliyaguru, R., Amaratunga, D., & Baldry, D. (2014). Constructing a holistic approach to disaster risk reduction: the significance of focusing on vulnerability reduction. *Disasters*, 38(1), 45-61.
- Paul, B. K. (2009). Why relatively fewer people died? The case of Bangladesh’s Cyclone Sidr. *Natural Hazards*, 50(2), 289-304.
- Parker, D.J. (2020) Disaster resilience – a challenged science. *Environmental Hazards*, 19:1, 1-9.
- Plowman, A. (2015). Could the Effects of Climate Change be Profitable? A case study of climate induced migration into the Bangladeshi readymade garments industry.
- Rezwana, N., & Pain, R. (2020). Gender-based violence before, during and after cyclones: slow violence and layered disasters. *Disasters*.
- Sahinkuye, M. G. (2019). A Theoretical Framework for the Protection of Environmental Refugees in International Law. *Transnat'l Hum. Rts. Rev.*, 6, 1.
- Shamsuddoha, M., Khan, S. M. M. H., Raihan, S., & Hossain, T. (2012). Displacement and Migration from Climate Hotspots: Causes and Consequences. *Center for Participatory Research and Development and ActionAid Bangladesh, Dhaka: December*.

Shaw, R., & Oikawa, Y. (Eds.). (2014). *Education for sustainable development and disaster risk reduction*. Tokyo, Japan: Springer.

Siddique, A., (2015, October 11). Farakka barrage leads to water crisis in Bangladesh. Retrieved April 24, 2017, from <https://www.thethirdpole.net/2015/06/02/farakka-barrage-leads-to-water-crisis-in-bangladesh/>

Swain, A. (1996). Displacing the conflict: environmental destruction in Bangladesh and ethnic conflict in India. *Journal of Peace Research*, 33(2), 189-204.

Warner, K. (2010). Assessing institutional and governance needs related to environmental change and human migration. *Assessing institutional and governance needs related to environmental change and human migration*.

Zamudio, A. N. and Parry, J. (2016). Review of Current and Planned Adaptation Action in Bangladesh. CARIAA Working Paper no. 6. *International Development Research Centre*.
Wisner, B., Gaillard, J. C., & Kelman, I. (2012). Framing disaster: theories and stories seeking to understand hazards, vulnerability and risk. In *Handbook of hazards and disaster risk reduction* (pp. 47-62). Routledge.

(2012). Issue Brief: Disaster Risk Governance. *United Nations Development Programme*, 1-4.

Mercer, J., Kelman, I., Taranis, L., & Suchet-Pearson, S. (2010). Framework for integrating indigenous and scientific knowledge for disaster risk reduction. *Disasters*, 34(1), 214-239.

(2015). National Plan of Disaster Management. *Government of Bangladesh*.

(2010, February 25). Bangladesh: Cyclone Sidr Final Report. *International Federation of Red Cross and Red Crescent Societies*, 1-31.

(2016). Voices of SIDR Survivors: Life stories of surviving victims of Cyclone SIDR. *Voice of South Asia Bangladesh and Gender and Water Alliance*, 1-35.

(2019). Global Report on Internal Displacement. *Internal Displacement Monitoring Centre and Norwegian Refugee Council*, 1-159.

(2008). Gender Perspectives: Integrating Disaster Risk Reduction into Climate Change Adaptation. *International Strategy For Disaster Reduction. United Nations*, 1-87.

(2020). *World Data Lab website*. <https://worlddata.io/>

(2018, December 10). Gender-based Violence in Development and Humanitarian Settings. *The Daily Star*.
<https://www.thedailystar.net/round-tables/news/gender-based-violence-development-and-humanitarian-settings-1671610>

(2020). Introduction to Gender and Climate Change. *United Nations Climate Change website*.
<https://unfccc.int/gender>

- (2008). Cyclone Sidr in Bangladesh: Damage, Loss, and Needs Assessment for Disaster Recovery and Reconstruction. *A Report Prepared by the Government of Bangladesh Assisted by the International Development Community with Financial Support from the European Commission*, 1-182.
- (2019). National Disaster Management System in Bangladesh. *Government of Bangladesh*.
- (2016). Bangladesh (Cyclone Roanu) Joint Response Plan 2016. *Govt. Bangladesh, UN RC Bangladesh, UNCT Bangladesh, Prepared jointly by Humanitarian Coordination Task Team (HCTT)*.
- (2020). *United Nations International Strategy for Disaster Reduction, United Nations*.
- (2010). National Plan for Disaster Management. *Government of Bangladesh*.
- (2015). National Disaster Management Policy. *Government of Bangladesh*.
- (2009). Bangladesh Climate Change Strategy and Action Plan. *Government of Bangladesh*.
- (2013). Climate Change Gender Action Plan of Bangladesh. *Government of Bangladesh*.
- (2015). Sendai Framework for Disaster Risk Reduction. *United Nations*.
- (2016). Sustainable Development Goals. *United Nations*.
- (2020). A practical guide to Gender-sensitive Approaches for Disaster Management. *International Federation of Red Cross*.
- (2012). The ICRC in Bangladesh. *International Committee of the Red Cross, website*.
<https://www.icrc.org/en/doc/where-we-work/asia-pacific/bangladesh/overview-bangladesh.htm>
- (2016). UN praises Bangladesh Cyclone Preparedness Programme ahead of World Humanitarian Summit. United Nations Office for Disaster Risk Reduction, website.
<https://www.undrr.org/news/un-praises-bangladesh-cyclone-preparedness-programme-ahead-world-humanitarian-summit>
- (2010). Inter-Agency Standing Committee. IASC Framework on durable solutions for internally displaced persons. In *IASC Framework on durable solutions for internally displaced persons*. The Brookings Institution. University of Bern. Project on Internal Displacement.