

*Routledge International Studies of Women and Place*

# **DISASTERS, GENDER AND ACCESS TO HEALTHCARE**

**WOMEN IN COASTAL BANGLADESH**

Nahid Rezwana



# Disasters, Gender and Access to Healthcare

*Disasters, Gender and Access to Healthcare: Women in Coastal Bangladesh* emphasizes women's experiences in cyclone disasters being confined with gendered identity and responsibilities in developing socio-economic conditions with minimum healthcare facilities.

The study is situated in the coastal region of Bangladesh, considered as one of the most disaster-prone regions in the world. Bangladesh has been working on disaster management for a long time; however, considering gender perspective, the book reveals gaps in plans and raises serious questions about the successful implementation of healthcare strategies after disasters. The book also describes the pre-during-after disaster periods, showing the full picture of a disaster attack in victims' own words. Case studies of seriously affected victims give the reader an opportunity to understand the situations created for women during a disaster attack in a remote area with poor transport and healthcare facilities.

These unique research findings will contribute to the broader context of gender, disaster and health studies. This book will be helpful for university staff and students of different disciplines, including anthropology, disaster management, gender studies, geography and South Asian regional studies, and be invaluable reading for disaster managers, policy makers, aid workers, development partners, NGOs and governments, especially in disaster-prone countries.

**Nahid Rezwana** is an Assistant Professor in the Department of Geography and Environment at the University of Dhaka in Bangladesh. She was previously an academic tutor at Durham University, where she completed her PhD thesis 'Disasters and access to health care in the coastal region of Bangladesh'. Rezwana was an Assistant Editor for the *Geography and Environment Journal* in 2007 and was awarded the Dhaka University Scholarship and the Doctoral Scholarship from Christopher Moyes Memorial Foundation. She is also an active member of the Bangladesh Geographical Society (BGS).

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Women in Coastal Bangladesh

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# Preface

The first two chapters of the book focus on the background to the research and the plan for investigation, and the next six present the findings of the research. Chapter 1 draws upon relevant theories, suggestions and conceptualizations in the prevailing literature to identify the research gap and the ways in which gender analysis in disaster research can be conceptualized. The chapter presents the background to the selection of research questions, study area and methodology for the present research. The selection of Barguna as a suitable study area for the investigation is explained in Chapter 2. This chapter focuses on the vulnerability of the district, describing several major problems in the health sector, along with the poor socio-economic conditions. The methodology and methods of data collection are elaborated in this chapter. This explains all of the steps of data collection and analysis and the challenges faced in conducting fieldwork in the remote district of Barguna. How these challenges were faced and the consequent limitations of the research are also discussed in this chapter.

Chapter 3 and Chapter 4 look at the findings of the data analysis. These chapters focus on the gendered health impacts of disasters, considering both physical and psychological health problems. Drawing on rich empirical evidence from respondents, the chapters reveal the complexity of health problems created in disasters, describing the contexts, reasons and consequences of unequal vulnerability among the victims and the social factors that influence this. Chapter 5 and Chapter 6 then look at the issue of healthcare access after disasters, one of the major questions of this research. These chapters focus on several factors, especially gender and socio-economic conditions, and how these influence the healthcare access of victims, again drawing on respondent's personal experiences. The poor healthcare access of female victims is explored in these chapters. Chapter 7 focuses on the initiatives taken by disaster managers in the pre-, during- and post-disaster periods. It reveals the gaps in disaster management plans and policies and shows the problems faced by the responders after disasters that must be recognized in order to prepare effective disaster management plans. The recommendations of ordinary respondents are also discussed and evaluated in this chapter. Chapter 8, the concluding chapter, summarizes the findings of the research and concludes with recommendations for improving health and healthcare conditions in disaster-prone regions.

# Acknowledgements

I would like to start the acknowledgement by expressing earnest gratitude to my creator, Almighty Allah, the Beneficent, the Merciful. It was impossible for me without His will, blessings and help to live this life and follow my dreams.

Being a citizen of a disaster-prone country, I have grown up seeing the devastations of disasters: loss of life, the pain of the victims and their life-long sufferings. As a researcher, I felt the need to do research on disasters and gender, and it became an aim to take these experiences to the wider communities of the world. I have conducted my PhD research on gendered health impacts of disasters from Durham University, UK, and this book is based on that research. However, it was not easy for me alone to fulfil my aim. There are so many people who inspired and helped me to bring this research to life.

Among them, first and foremost, I want to say thank you to Professor Janet Momsen, who has invited and inspired me to write a book on my PhD research. Again, my supervisors Professor Rachel Pain, Professor Peter Atkins and Professor Sarah Curtis, who I believe were sent from heaven for me. I had a dream of research, but I was not able to make it come true without their help and guidance. They went hundreds of miles beyond supervisions to guide, support and show me the way.

I want to express my deepest gratitude to all the members of the Christopher Moyes Memorial Foundation (CMMF), with a special thanks to Mrs Moyes for awarding me the scholarship to conduct PhD research on disaster victims. I am also grateful to the United Nations Development Programme (UNDP), the Institute of Hazard, Risk and Resilience (IHRR), the Geography Department of Durham University, the Wolfson Research Institute for Health and Wellbeing and the committee of the Norman Richardson Postgraduate Research Fund for granting me the funds to conduct my fieldwork, disseminate my research attending international seminars and receive valuable feedback to enrich the research.

Now I would like to thank, from the bottom of my heart, those inhabitants of Barguna who spent long hours and shared their sensitive, sad and very personal memories of disasters with me to make this research worthwhile. I am overwhelmed by their simplicity, friendliness and quality of believing in someone within a very short time. Without their spontaneous participation, it would have been impossible for me to reach the aim of this research.

From my family, I would like to say thank you to my ma and baba, the precious gift from the Almighty Creator. I am so fortunate to have them in my life. I would like to say special thanks to my best friend and husband, Raihan, for being with me from the very beginning of my graduation life and inspiring me to do something special and worthy. Another person, a little one but the most important, sweetest and funniest person in my life, Elma, my daughter, should get a special thanks and blessings from me. She is a great surprise and special gift for me. I love you, my little mummy.

# Abbreviations

BBS	Bangladesh Bureau of Statistics
BDRCS	Bangladesh Red Crescent Society
BRAC	Bangladesh Rural Advancement Committee
BMD	Bangladesh Meteorological Department
CCC	Climate Change Cell
CDMP	Comprehensive Disaster Management Programme
CPP	Cyclone Preparedness Programme
CS	Cyclone Shelter
CSBA	Community Skilled Birth Attendant
DGHS	Directorate General of Health Services
DDM	Department of Disaster Management
DRTMC	Disaster Research Training and Management Centre
DMC	Disaster Management Committee
EPI	Expanded Programme on Immunization
ERC	Emergency Relief Chain
FWC	Family Welfare Centre
GAD	Gender and Development
GDP	Gross Domestic Product
HSC	Higher Secondary Certificate
IFRC	International Federation of Red Cross and Red Crescent Societies
INGO	International Non-Governmental Organization
IPCC	Intergovernmental Panel on Climate Change
MoHFW	Ministry of Health and Family Welfare
MBBS	Bachelor of Medicine and Surgery
MCWCs	Mother and Child Welfare Centres
MT	Metric Ton
NGO	Non-Governmental Organization
NIRAPAD	Network for Information, Response and Preparedness Activities on Disaster
OPD	Outpatient Department
PTG	Post-Traumatic Growth
SAMCO	Sub Assistant Community Medical Officer
SAP	South Asia Partnership
SCG	Shelter Coordination Group

SOD	Standing Orders on Disaster
UDMC	Union Disaster Management Committee
UP	Union Parishad
UzDMC	Upazila Disaster Management Committee
WAD	Women and Development
WCD	Women, Culture and Development
WHO	World Health Organization
WID	Women in Development

# Glossary of terms

Mauza	Smallest revenue rural geographic unit having jurisdiction list number.
Union	Smallest administrative rural geographic unit comprising mauzas and villages and having a union parishad institution. Every union parishad has an elected union parishad chairman.
Upazila	Several unions form an upazila. Upazila parishad (Local Government) is one of the three tiers of rural local government. Each Upazila has an elected chairman.
Village	Lowest rural geographic unit, either equivalent to a mauza or part of a mauza.
Paurashava	‘Paurashava’ is a Bengali term, meaning municipality. A municipality is the urban administrative division and has an elected mayor.

# 1 Introduction

## Why is gender analysis important in understanding the health impacts of disasters?

### 1.1 Context

Natural disasters are one of the major problems of humankind (Stromberg 2007). During the recent decade (from 2000 to 2009), the world has faced an annual average occurrence of 387 disasters, with an annual average of 227.5 million victims, with variations in different years. The number of victims was 198.7 million in 2009, 217.3 million in 2010 (Guha-Sapir et al. 2011) and 96.5 million in 2013 (The Watchers 2015). However, these large numbers do not show the total picture of disaster-stricken regions due to the unequal distribution of disaster impacts among and within regions and societies. In 2013, about 88% of disaster mortality was shared by the countries of low income or lower-middle income, and the Asian continent accounted for 90.1% of global disaster victims (The Watchers 2015).

Within societies, disasters affect poor inhabitants more than the rich (Cannon 2002; Few and Tran 2010; Hannan 2002) and have complex gendered consequences (Enarson 2002; Liang and Cao 2014). Disasters have greater impacts on women, on average killing more women than men (Neumayer and Plümper 2007). Reducing the gendered effects of disasters in the world will reduce the number of disaster victims, but this is not an easy task because of its complexity due to different economic and socio-cultural factors. Gender relations are deeply rooted in societies, and gender differences and discrimination prevail prior to the disasters, making inhabitants, especially women, more vulnerable to health consequences (Liang and Cao 2014). Healthcare systems become disturbed after disasters, making it difficult to provide treatment to injured and affected victims (Paul et al. 2011), especially female victims because of different socio-cultural and economic conditions which are revealed in the increased number of miscarriages, and in maternal and infant mortality during and after disasters (Paul et al. 2011; Neumayer and Plumper 2007). Poor women become the most vulnerable victims of disasters, their healthcare needs are especially crucial when pregnant and as new mothers.

Actually, women face several inequalities and inequity in healthcare access during normal times of the year. Previously, I had the opportunity to conduct research on the reproductive healthcare access of Bangladeshi women and found that poor women do not have fair access to healthcare facilities, even when they live just beside the free services (Rezwana 2002). This research raised further



## 2 Introduction

questions and made me curious to know what happens to the health condition of female victims who are living in the remote coastal regions after disasters. Five years after this research, Cyclone Sidr hit Bangladesh in November 2007. On Sidr night, I was staying in Dhaka and was not affected directly in the disaster attack, but I was worried the whole night. The next day, I found how secure I had been in my house when I saw all the images of Cyclone Sidr in the newspapers and on television. All the coastal villages were affected, and a great deal of damage had been caused by the strong winds and the storm surge of Cyclone Sidr. Many women tried to survive and save their children whilst fighting with strong winds and the tidal surge. After the cyclone, they were still struggling to survive under the open sky without any help. They needed food, clothes and treatments for them and their children. Many of them were crying, asking for help, and many were in shock, sitting beside their damaged houses, having lost everything, in some cases their whole family. Those images created a personal empathy for me. As a Bangladeshi woman, I felt I might be one of them. Fortunately, I was living in Dhaka, having received an education, and I was earning and had access to locational facilities; but the women in those coastal areas are mostly poor, helpless and dependent on their family economically and socially. They are mothers, daughters and sisters, just like me. They are extremely vulnerable and easy victims of such disasters. Like other cyclones, Cyclone Sidr killed more women than men. However, no detailed information could be found on other health impacts.

Almost every year, the coastal areas of Bangladesh are hit by several cyclones, and there are many news stories reporting on the human impacts. The numbers of deaths and injuries get publicity, but detailed, in-depth reports are rarely found. Though prevailing disaster management plans in Bangladesh have been quite successful in reducing the number of deaths compared to the previous decades, the health impacts are still high and gendered. Up to now, more women die than men (the ratio of male to female deaths was 1:5 in Cyclone Sidr 2007, Ahmed 2011), and other health impacts are mostly ignored. However, sufficient data and information are not available on injuries, the after-effects of injuries and the psychological impacts, especially considering gender. The experiences of female victims and the real reasons for their vulnerability to health impacts of disasters do not get priority, despite the urgency.

This is not only in Bangladesh. Gender mainstreaming in humanitarian relief programmes, disaster management plans and programmes is not common in many countries. Reviewing the prevailing literature, it has been revealed that gender and its relation with socio-cultural factors still have not received proper attention in disaster management plans and programmes and in disaster research. In-depth, qualitative research studies focusing on gendered health impacts of disasters at the individual level are rarely found in developed nations and are very rare in less developed nations (Enarson and Meyreles 2004; Haque et al. 2012a). However, emphasizing gender in disaster research and incorporating a gender view in disaster planning, especially in managing health impacts of disasters, is essential to improve the effectiveness of the response programmes (Morrow and Phillips 1999) and, above all, to improve the health conditions of the victims.

So, in my research, I have aimed to reveal the gendered impacts of cyclone disasters on health and access to healthcare following a qualitative research methodology in the coastal region of Bangladesh, which has been identified as one of the most disaster-prone countries in the world (Matin and Taher 2001). Being grounded in the victims' experiences, this research plans to capture many unspoken facts and reasons behind vulnerability and to focus on the gender relations, differences and discrimination embedded in the society. It also plans to reveal the real health conditions in disasters in a less developed nation being influenced by various inter-related socio-cultural, economic and environmental factors.

The implications of this research are cross-disciplinary. This research will be helpful to the researchers, planners and practitioners in the gender, health and disaster fields who aim to help vulnerable citizens and improve their present conditions. It offers them detailed information on the complexity of social factors, gender and culture, captured from the in-depth investigations to consider the real conditions of disaster victims and vulnerable groups of the society. It focuses on the importance of gender equality and equity in planning health sectors and disaster management, and it opens an important arena for the disaster planners to rethink prevailing plans and policies. This research also provides recommendations on healthcare improvement based on empirical data and reviewing the literature, and it specifies important and essential aspects for developing more effective disaster management plans, considering gaps and shortcomings in prevailing plans and policies. Above all, the present research emphasizes the mitigation of disaster health impacts on victims and the decrease of inequality among them.

### ***Research aim***

The research aims to make an original contribution to knowledge and understanding by focusing on gender, culture and the social processes affecting disaster vulnerability in the study area. It will emphasize the gendered impacts of disasters on health and healthcare access, seeking to capture local people's (especially women's) views and experiences more effectively from the disaster-prone coastal region of Bangladesh and making recommendations to lessen the effects of disasters on health, decrease the inequality and inequity among victims and improve prevailing disaster management plans.

## **1.2 Conceptual development and theoretical perspective**

The present section has been structured according to key themes in the current research to conduct a critical analysis of existing conceptual and empirical research. Emphasis has been given to recent disaster trends, their gendered impacts on health and healthcare access, and the place of gender in disaster management and development approaches. Through the discussion, the aim is to reveal the significance of gendered analysis in disaster research and to identify research gaps in the prevailing literature.

### ***Disasters and their uneven spatial and social impacts***

In recent years, natural disasters have affected an increasing number of people and their livelihoods throughout the world but disasters are uneven spatially and socially. The occurrence of disasters has ‘a relation with geographical location and geological-geomorphological settings’ (Alcántara-Ayala 2002, p. 108), but 95% of the total death toll is concentrated in the Global South (Alexander 1993). ‘While richer nations do not experience fewer natural disaster events than poorer nations, richer nations do suffer less death from disaster. Economic development provides implicit insurance against nature’s shocks’ (Kahn 2005, p. 271) along with ‘higher educational attainment, greater openness, a strong financial sector and smaller government’ (Toya and Skidmore 2007, p. 20). Analyzing the past records of natural disasters registered from 1900 until 1999 by regions of the world, it is revealed that Asia faced the highest percentage (42%), followed by the Americas 27%, Europe 13%, Africa 10% and Oceania 8% (Alcántara-Ayala 2002). During the decade 2000–2009 the proportions were Asia 40%, Americas 24%, Africa 17%, Europe 15% and Oceania 4% of disasters (modified from Guha-Sapir et al. 2011). However, comparison according to number of victims due to these disasters shows a sharp difference between the continents. Asia had about 204.29 million victims of 156 disasters during the years 2000–2009, whereas the Americas had only 7.09 million victims in 92 disasters (Guha-Sapir et al. 2011). Even in the recent year 2010, although the Americas were dangerously affected by natural disasters, and this included fatalities, the number of disaster victims remained far higher in Asia (Guha-Sapir et al. 2011). Behind these differences, the reasons include the susceptibility of these continents because of their geographical and geomorphological settings and issues related to the role that social, economic, political and cultural aspects play as factors of vulnerability (Alcántara-Ayala 2002; Few and Tran 2010). According to Horwich (2000), the level of wealth of any economy works as a critical underlying factor in response to natural disasters. Political factors have also been mentioned by other researchers (Albala-Bertrand 1993 cited in Toya and Skidmore 2007, Stover and Vinck 2008). Analyzing the recent database, Kahn (2005) and Toya and Skidmore (2007) show that high income, greater democracy in governance and underlying social/economic fabric increase the safety for all of society. Educational and financial development and size of the government, correlated with income, play a role in determining safety from natural disasters. For example, during Cyclone Larry in Australia, key success factors were the preparedness of the Government and their unity with private sector. Oloruntoba mentioned this success as the result of an effective response programme in northern Australia (Oloruntoba 2010).

### ***The health impacts of disasters: a gendered analysis***

The health consequences of disasters cannot be understated – they are massive and long-lasting all over the world (Lai et al. 2003; Keim 2006). Disasters severely affect human health, causing death, injuries and psychological impacts, as well as reducing the provision of healthcare for injuries, diseases and chronic illness due

to affected medical infrastructures and facilities (Keim 2006; Schmidlin 2011; Goldman et al. 2014).

### *The health impacts of disasters*

With regard to cyclones, the impacts of disasters start from the pre-disaster phase and continue through to the post-disaster period. Falls, scratches and puncture wounds are created while making preparations, returning from safe shelters or cleaning up after disasters, and strong winds and storm water lead to the most injuries and deaths during the cyclone attack (Goldman et al. 2014). To mitigate these injuries and avoid further deaths, victims should be found and rescued in a timely manner and provided with early care (Johnson and Galea 2009; Fuse and Yokota 2012), but experience from previous disasters show that, despite disaster preparedness, mighty wind storms have significant health impacts. Lai et al. (2003) mentioned in their research that ‘Typhoon Nari in Taipei proved that significant damage from natural disasters also can happen to modern healthcare systems in urban areas’ (Lai et al. 2003, p. 1109). Again, Hurricane Katrina left considerable health impacts on victims. Sastry and Gregory (2013) revealed ‘a significant decline in health for the adult population of New Orleans in the year after the hurricane, with the disability rate rising from 20.6% to 24.6%’ (Sastry and Gregory 2013, p. 121). These health impacts become worse if the affected areas lack proper medical response plans, preparations and insufficient local healthcare facilities (Few and Tran 2010; Djalali et al. 2011). Besides the physical injuries, disasters have psychological impacts on victims who are injured and who have observed the disasters. After reviewing the last 40 years of disaster research, Galea et al. mentioned that ‘there is substantial burden of post-traumatic stress disorder among persons who experience a disaster’ (Galea et al. 2005, p. 84). Evidence from Hurricane Katrina shows the significant presence of post-traumatic stress disorder symptoms among the evacuees (Coker et al. 2006). But the psychological health impacts of disasters are ‘exceedingly difficult to assess’ due to the spontaneous and chaotic nature of disasters (Bonanno et al. 2010, p. 1). These assessments are mostly conducted in developed countries and rarely get any attention in the low- and middle-income countries (Marx et al. 2012; Nahar et al. 2014). The consideration of such mental health problems is also absent in the medical response programmes in these countries, leaving them unrevealed and unattended (Nahar et al. 2014).

### *Gendered health impacts of disasters*

Impacts of natural disasters are never entirely determined by nature (Neumayer and Plümper 2007) but are socially constructed under different geographic, social, cultural, political-economic conditions, and they have complex gendered consequences (Enarson 2002). Much research has been conducted on social vulnerability (Skoufias 2003; Keim 2006; Few and Tran 2010; Karim et al. 2014; Webster 2013), with a focus on the complexity of several social factors increasing people’s vulnerability to disasters. Few and Tran (2010) found in their research that

'Income-poverty tended to constrain people's ability to prevent impacts, to seek treatment and to withstand disease. But income-poverty also operated in sometimes subtle, sometimes stark inter-linkage with other dimensions' (Few and Tran 2010, p. 536). Gender and cultural differences in gender identity and behaviour are one of the strongest social factors creating differences among members of society (Weisman 1997; Bari 1998; Nahar et al. 2014), increasing women's vulnerability in disasters (Nasreen 2004; MacDonald 2005; Alam and Collins 2010; Rahman 2013; Alam and Rahman 2014).

'Gender is a widely used and often misunderstood term. It is sometimes mistakenly conflated with sex or used to refer only to women' (Momsen 2010, p. 2). Actually, 'sex refers to one's biological category and gender refers to the socially learned behaviours and expectations associated with each sex' (Watkins and Whaley 2000, p. 44). Everywhere gender is crosscut by differences in class, race, ethnicity, religion, age and sexuality or ability (Momsen 2010 and Watkins and Whaley 2000). Gender 'identities' and 'roles' are not fixed and globally consistent. Gender is a process that is performed over time and space, which 'is being regulated and produces subjectivities that are unstable' (Butler 1990 cited in Sultana 2009, p. 436), and gender relations are organized everywhere by dominant power or roles and influence in everyday life in such a way that they become natural and usual to the participants (Bourdieu 1977; Bolin et al. 1998), which often 'places a variety of expectations and constraints on women' (Ahmed et al. 2000, p. 362).

Gender is central to the concerns of this study, as gender differences exist in the experiences of health problems (Watkins and Whaley 2000, p. 43), health behaviours and health consequences of disasters all over the world. Moreover, natural disasters on average kill more women than men and lower their life expectancy (Neumayer and Plümper 2007). Statistics from disaster areas frequently show the disproportionately greater impacts in different forms on women and girls (Fordham 1998). But not all women are universally or identically impacted by every disaster (Enarson 2002); their vulnerabilities vary according to their biological and physiological characteristics (Neumayer and Plümper 2007), socio-economic position in society (Bari 1998), literacy (Saroar and Routray 2012) and opportunities to access disaster information (Ikeda 1995). Reducing the gendered impacts of disasters in the world would significantly reduce the high disaster mortality rate, but this is not an easy task because of the great complexity of economic and socio-cultural factors operating. Generally, it is realized that women in developing countries suffer higher levels of mortality and morbidity in disasters and emergencies, like in Cyclone Gorky and Cyclone Sidr in Bangladesh (Ahmed 2011), the 2004 tsunami Indonesia, Sri Lanka and India (Macdonald 2005) and the Nepal Earthquake in 2015 (Earthquake Report.com 2015), but 'it is not widely acknowledged that a similar model of disproportionate impact also applies in the developed world' (Fordham 1998, p. 127). Examples could be drawn from past disasters when more women than men died or were affected during and after the disasters in economically developed countries, e.g. in the 1948 and 1966 Russian earthquakes (Enarson and Meyreles 2004), the 1982 flash flood in Nagasaki (Ikeda 1995), the Kobe earthquake in 1995 (Neumayer and Plümper 2007), in

Hurricane Katrina and in the different fluvial flood events since 1998 in England and Wales (Tunstall et al. 2006). Apart from these direct impacts of disasters, the secondary health impacts are sometimes more serious than the primary hazard itself, such as lifelong physical and mental health problems. But there is only scant information (Ikeda 1995; Paul et al. 2011) on these secondary impacts, whereas evidence shows that some flood victims in England and Wales (Tunstall et al. 2006) and in Thailand (Overstreet et al. 2011) suffered long-term mental health effects (Paul et al. 2011), and women were more traumatized among the victims (Overstreet et al. 2011).

Though it is expected that high status among women lowers the differential negative effect of natural disasters on them relative to male life expectancy (Neumayer and Plümper 2007), the above discussion shows that in both developed and developing countries, more women became the victims of disasters. Here it should be mentioned that men are also affected by disasters, and, sometimes, their vulnerability is also created due to social attitudes and gendered responsibility (Doyal 2000; Alam and Collins 2010). However, as this research focuses on 'gender equity' (Sen 2002), women, as a high vulnerable group, receive more attention. The following sections, therefore, place women at the centre of the inquiry to find the complex reasons behind their higher rates of death and injury, their greater vulnerability and their health conditions during and after disasters in both developed and developing countries.

### *The factors creating gendered vulnerability*

Everyone faces risk in the face of disasters, but some people are more vulnerable than others (Alwang et al. 2001). 'Vulnerability' is defined as the 'characteristics of a person or group in terms of their capacity to anticipate, cope with, resist and recover from the impact of a natural disaster' (Blakie et al. 1994, p. 9), resulting from a complex interplay of political, economic, social and ideological practices present at a given place and varies with different hazards (Blaikie et al. 1994 cited in Bolin et al. 1998). Again, vulnerability is dynamic (Alwang et al. 2001) because the vulnerability status of a place and inhabitants are influenced and reshaped by the local coupled human-environment system (Turner et al. 2003). Residents who are more socially vulnerable and living in risky locations might be affected by even a moderate hazard and need longer-term recovery (Cutter et al. 2000). People in older, female or minority groups are thought to be more vulnerable to natural disasters (West and Orr 2007). So, vulnerability to disasters varies greatly from the individual level to society as a whole, the position of vulnerable groups depending on various socio-economic factors (Cannon 1994). Among the factors, '[g]ender is one of the most important factors that affects this differential vulnerability in all phases of a disaster' (Ikeda 1995, p. 173), 'along with age, material welfare, level of education, politics, ethnicity' (Alexander 1993 cited by Ikeda 1995, p. 173; Bolin et al. 1998). In this regard, women (Ikeda 1995) and women-headed families are thought to be in the vulnerable group (Wiest et al. 1994) because many decisions are made at the household level, and if women household heads have low educational attainment and less accessibility to proper



information, then their vulnerability increases in disasters. Actually, in some countries, women's vulnerability starts from childhood because of poor health due to lower food consumption, as they eat last and least (Enarson 2000). Added to this, poor access to healthcare services (Cannon 2002) makes them physically weaker when disaster strikes. But these culturally created physical weaknesses are by no means the only factors; 'I found that women had died in greater numbers than men, not just because they were physically weaker, but because of Bangladesh's male-dominated social structure, underpinned by religious traditions, which restricts the mobility of women' (Begum 1993, p. 34). The writer had worked as one of the women relief workers after the cyclone of 1991 in Bangladesh.

To prevent this statement being misinterpreted, it should be explained that 'restrictions on the mobility of women' do not mean women that do not go or are not allowed to go to shelters during disasters. On the contrary, the majority of the evacuees in shelters during cyclones in Bangladesh are women, children and old people (Ikeda 1995). The main gap remains rather in women's dependency on others for disaster warnings or information from outside their house (Saroar and Routray 2012) and for the major decisions regarding evacuation before a disaster (Ikeda 1995; Begum 1993). Being in the house, the lack of information makes women more vulnerable and susceptible to panic during any sudden disaster (Ikeda 1995). Women's dress and lack of self-rescue skills also create constraints for them in taking safe shelter, both factors that helped more men to save their own lives in the December tsunami of 2004 in Sri Lanka, for instance (MacDonald 2005). So, the higher vulnerability of women is socially constructed (Neumayer and Plümper 2007) well before the preparation period of any commencing disaster.

When disaster strikes, pre-existing gendered discriminatory practices become intensified (Neumayer and Plümper 2007). Evidence shows that more female than male famine victims die at a very young age because of discriminatory access to food resources during disasters (Neumayer and Plümper 2007). Sometimes, the husband or the head of the family takes the decision that girls should be allowed to die first during a famine (Becker 1996 cited in Neumayer and Plümper 2007). Again, during the 1991 cyclone in Bangladesh, a father was unable to hold on to both his son and daughter from being swept away by a tidal surge, so he released his daughter because of the common son preference (Haider et al. 1993 cited in Neumayer and Plümper 2007). These examples might not happen repeatedly, but they are mentioned here to emphasize that discrimination between males and females still remains even in the vital moment of disasters, illustrating the everyday practices of gender discrimination (Chen et al. 1981).

Again, gender-related issues arise when victims get shelter in refugee camps and temporary housing. Discrimination against women arises in regard to personal safety, food distribution, healthcare and counselling (Enarson 2002). In overcrowded camps, women and girls, if unaccompanied, may become vulnerable to sexual abuse and harassment if law and order are disrupted in the affected area (Wiest et al. 1994 and Baden et al. 1994), as happened in the post-Katrina riots in New Orleans (Neumayer and Plümper 2007) and in the refugee camps of the 2004 tsunami (MacDonald 2005). In addition, women and girls are also

more negatively affected by the insufficient health and hygiene conditions in refugee camps and cyclone shelters (Neumayer and Plümper 2007; CCC 2009) and discriminated against in regard to food relief, as happened to the victims of West Bengal flooding (Sen 1988 cited in Neumayer and Plümper 2007) and among Mozambican refugees in Malawi in late 1990s (Ager et al. 1995 cited in Neumayer and Plümper 2007). Because of these complex gender disparities, the female infant mortality rate was found to be double compared to male infants in Burmese refugee camps in Bangladesh (Neumayer and Plümper 2007).

### ***Poverty, gender and impact of disasters***

‘Poverty is both a cause of vulnerability, and a consequence of hazard impacts’ (Cannon 2002, p. 45). Economic conditions or poverty affect people’s ability to protect themselves against disasters in regard to poor housing, vulnerable location of residence, limited access to information, social protection, positions and connections with powerful groups (politically or economically strong) and effective preventative or coping strategies (Hannan 2002). Keim (2006) discussed locational vulnerability and argued that ‘[p]opulations are at risk of death simply by virtue of their physical proximity to low-lying land situated near the coastline’ (Keim 2006, p. 40). Few and Tran (2010) mentioned in their research on Vietnam that ‘as with most aspects of hazard impact in developing countries, economic factors were seen to have a fundamental role in health-related vulnerability’ (Few and Tran 2010, p. 536). Even in developed countries, the suffering of poor inhabitants in disasters is more than the rich. For example, poverty played a major role in Hurricane Katrina, with mortality highest amongst the indigent (Overstreet et al. 2011). At the individual level, women’s vulnerabilities to disaster depend on their socio-economic position in society (Bari 1998; Cannon 2002). Consider that about 70% of the poor in the world are women (CCC 2009). ‘Everywhere women work longer hours than men’ (Momsen 2010, p. 2), but ‘in every country the jobs done predominantly by women are the least well paid and have the lowest statuses’ (Momsen 2010, p. 3, Lundberg and Parr 2000). Compared to men, more women spend most of their time at unpaid household work (Lundberg and Parr 2000), which keeps them poor, dependent and vulnerable (Bolin et al. 1998). The same or poorer conditions remain for most female-headed families, as over 95% of them are living below the poverty line (Cannon 2002). Women in these families are mostly divorced or widowed, and they experience higher levels of vulnerability than male-headed families (Enarson and Morrow 1998). Social isolation, lack of assistance during an evacuation, lack of money for emergency support, violence and insecurity make these women vulnerable during disasters (Enarson 2002). Even in male-headed families, ‘underlying social structures serve to reinforce divisions before, during and after disaster strikes in developed as well as developing countries’ (Fordham 1998, p. 127). Mostly in every society, women play triple roles as caregivers, producers (food production) and community actors (Moser 1993; Enarson 2000; Nelson et al. 2002), ‘in addition to an expanding involvement in paid employment’ (Momsen 2010, p. 2). These imposed responsibilities for the home and its belongings increase women’s vulnerability during



disasters in any country of the world (Hyndman 2008; Fordhum 1998; Bari 1998). This can result in broken marriages in the developed world (Fordham 1998), but it can become a life risk for women in developing countries. As a result of personal poverty, the insecurity of losing shelter and honour after a divorce and the fear of being blamed or even punished by family and society (Bari 1998), women in the developing countries take risks during disasters to save even very low priced property like chickens (Aker 1992 cited in Ikeda 1995). 'The everyday lives of poor and low income women reflect in stark relief their increasing economic insecurity, often exacerbated by their sole responsibility for maintaining families' (Enarson and Morrow 1998, p. 160). High levels of pre-disaster poverty (Nelson et al. 2002), their secondary status in the labour force (Momsen 2010), extensive informal-sector work like household works and lack of rights to resources (Sultana 2010), and their extensive domestic responsibilities clearly make women economically vulnerable long before a natural disaster strikes (Enarson 2000).

Again, women's workload increases dramatically after disasters because of increased household works and caregiving responsibilities (Hannan 2002; Nelson et al. 2002). Even young girls are forced to drop out of school to take over some family work (Hannan 2002). Again, women also lose their essential productive resources, like land, gardens, animals and jewellery (Hyndman 2008; Hannan 2002), during disasters, which makes them more economically dependent on family income (Khondoker 1996 cited in Cannon 2002, p. 48). All these changes make women more poor and vulnerable during the post-disaster recovery phase (Wiest et al. 1994).

### ***Women's health and special needs in disasters***

Disaster health impacts on women should be considered specially because women's health is affected by gender-specific biological or reproductive factors, and their access to healthcare depends on their social and economic status (Paolisso and Leslie 1995). Generally, women's healthcare needs are categorized as 'reproductive' and then 'all other' (Clancy and Massion 1992), though women's health includes problems beyond reproduction. In some cases, gender differences embedded into the society place emphasis on women's reproductive roles rather than other health problems and lower their self-respect due to the lack of decision-making power related to marriage and childbirth (Ahmed et al. 2000). Gender differences exist significantly in the experience of health problems, and even the 'need for medicines is gendered, as women's experience of illness differs from that of men' (Momsen 2010, p. 79). Malnutrition and chronic energy deficiency due to inadequate food are common among girls and women in the developing countries (Mukuria et al. 2005; Momsen 2010; Baden et al. 1994), and this health status increases the risk of miscarriage and 'makes women more susceptible to diseases like malaria, tuberculosis, diabetes, hepatitis and heart diseases' (Momsen, 2010, p. 81). So, women victims should be considered for their special healthcare needs for childbirth and related health hazards because when the basic healthcare is severely damaged, the number of miscarriages and maternal and infant mortality rate rise (Paul et al. 2011; Neumayer and Plümer 2007). Both in developed or

developing countries, disaster-affected areas face disturbed healthcare systems in most cases. Damaged healthcare facilities like infrastructures, emergency services and machines, lack of electricity and water and the absence of physicians all make it difficult to provide the necessary healthcare to injured victims and chronic disease patients (Paul et al. 2011). For example, six months after Hurricane Katrina in 2005, only one-third of the hospitals in the affected parts of New Orleans were functioning and then at only 20% of their former capacity (Overstreet et al. 2011). Inadequate medical services, including financial resources to access medical facilities, compound the problem for women and girls in developing countries (Sultana 2010). When surrounded by polluted floodwater, women become vulnerable to various illnesses like skin problems, typhoid, cholera and reproductive health problems due to their household washing and sanitation (Rashid 2000 cited in Sultana 2010, p. 48). The lack of adequate safe and private sanitation is another gendered crisis during environmental disasters (Momsen 2010; Sultana 2010; Hannan 2002), and, in some societies, these health problems and additional healthcare needs of women are not shared with male doctors and volunteers; rather, they suffer or even die (Begum 1993; Momsen 2010; Baden et al. 1994). In disasters when women's healthcare problems and vulnerability increase by their social status and gender role, extra attention should be given to their special needs. So, health interventions must take into consideration the social, behavioural and environmental contexts that encompass the lives of women and their ability to address these problems (Paolisso and Leslie 1995; Anwar et al. 2011). Puentes-Markides 1992 in her paper discussed accountability at the institutional level. Affordability (characteristics of clients) and acceptability (behaviour of clients) at the individual/family level should also be considered for analysis of the healthcare utilization of women (Puentes-Markides 1992). But even after the recent cyclone disaster in 2007 in Bangladesh 'no comparative health survey was carried out to examine health impacts of this disaster' (Paul et al. 2011, p. 851), showing limited statistics on other health problems (Ikeda 1995; Paul et al. 2011). In regard to mental health problems, emotional and psychological stresses are always higher among women victims (Sultana 2010; Fordhum 1998; Momsen 2010; Bolin et al. 1998) due to an increase of domestic violence and conflict and the loss of shelters and property, which also increases the sense of powerlessness and marginalization (Hossain et al. 1992 cited in Sultana 2010; Wiest et al. 1994 and Baden et al. 1994). Women receive less and poorer-quality healthcare in comparison to men, e.g. in India, girls are 40 times less likely than boys to be taken to a hospital (Momsen 2010; Cannon 2002), and, when a natural disaster strikes, these pre-existing discriminatory practices become aggravated, and negative health impacts on women and girls are intensified (Neumayer and Plümper 2007).

Another important issue is the health impacts of climate change on women, which has been suggested for future research by Haque and his colleagues (2012a) and Sultana (2010). The global climate is changing, and both developed and developing countries are already facing the adverse effects, such as prolonged floods and severe drought in South Asia and Africa, heat waves in Europe and devastating hurricanes in America (Haque et al. 2012a). And this climate change is projected to increase threats to human health, particularly in lower-income

populations and in tropical/subtropical countries (IPCC 2001 cited in Haque et al. 2012a) compounded by poor socio-economic conditions and weak health systems (Haque et al. 2012a). Climate change with increasing numbers of disasters (Ali 1996; Agrawala et al. 2003; Karim and Mimura 2008 and Sultana 2010) and outbreaks of different diseases (Haque et al. 2012a) will intensify the prevailing health problems of women (Nelson et al. 2002). Nonetheless, little importance has been given regarding the effect of climate change on women's health due to 'gender-blindness' in policy development (Nelson et al. 2002), the subject of the next section.

### ***Prevailing initiatives and the gap between plans and implementations***

Natural disasters are a great concern around the world. 'The frequency and scale of humanitarian emergencies resulting from natural disasters has increased' (Oloruntoba 2010, p. 85), and disaster preparedness and prevention are now a priority concern for the affected countries, donor agencies and implementing organizations (Kahn 2005). But disasters like Hurricane Katrina, Hurricane Rita, the Australian bushfires in 2009, Typhoon Nari, the Bam earthquake, the tsunami in 2004, Cyclone Sidr, Cyclone Nargis, the Orissa floods in 2008 and the Japan tsunami 2011 (Lai et al. 2003; MacDonald 2005; Litman 2006; Stover and Vinck 2008; Fisher 2010; Oloruntoba 2010; Djalali et al. 2011; Fuse and Yokota 2012; Phalkey et al. 2012; Government 2008; CDMP 2014) showed that even good disaster preparation can fail and raise questions about the success of the emergency response programmes. According to these researches, depending on the socio-economic and political condition of the country, emergency programmes were more or less influenced by disrupted transport, insufficiency of medical facilities and resource scarcity, coordination difficulties among the responders and an overall absence of disaster management plans and policies focusing on social issues. Social issues like gender are sometimes mentioned in the disaster plans and policies without considering the strong relation of culture and gender, which becomes a constraint for the successful implementation of response plans. Even 'well-intentioned work of development workers and humanitarian actors can unwittingly reproduce and perpetuate existing gender, racial and geographical hierarchies by uncritically promoting certain kinds of projects i.e., sewing for poor, conflict-affected women' (de Alwis and Hyndman 2002, p. 118 cited in Hyndman 2008). So, response programmes should be gender-sensitive to optimize the effectiveness of the programmes, whereas experience of previous disasters shows that 'the gender dimensions of the disaster are little acknowledged or understood' (Pittaway et al. 2007, p. 307), and gender needs are not focused in response programmes (Moser 1993; Enarson 2000; Pittaway et al. 2007), as female victims need clothes and female doctors and medicine (Begum 1993) and diapers for their infants (Zilversmit et al. 2014), which did not get proper priority in relief efforts. Again, 'women relief workers are important to female survivors' (Enarson 2000, p. 28), and female victims feel uneasy discussing their needs and health problems with male relief workers and doctors. Still, the presence of female relief workers and medical

staff is insufficient and sometimes missing altogether in the field, whereas the efficiency of relief distribution increased when female workers were included after a major Turkish earthquake and a cyclone in 1991 in Bangladesh (Enarson 2000; Begum 1993).

Again, gender inequities also prevail in distributing relief, as relief does not reach women as quickly as men (Ikeda 1995), and ‘women were pushed down and left behind in the rush’ in the relief collection queue (Begum 1993, p. 36), although women are sometimes cynically presented to relief centres and relief lines to take advantage of the female victim image and maximize benefits (Enarson and Morrow 1998). Again, distributing the relief, low-income, female-headed families (collective and multi-family households) were found to be disadvantaged by the agencies assuming one head of household at each address (Morrow and Enarson 1994 cited in Enarson and Morrow 1998), and, anyway in the US, women-owned small businesses receive disproportionately low government loans (Nigg and Tierney 1990). Again, after the tsunami in 2004, it became difficult for the women victims in some areas of South Asian countries to receive emergency supplies due to gender-blindness in response programmes, recognizing only men as the household head (Oxfam 2005 cited in MacDonald 2005), which sometimes excluded women who had lost husbands (Dominelli 2013). Fisher mentioned in her research that increase in violence against women after tsunami 2004 in Sri Lanka ‘could have been lessened by more gender-sensitive disaster management’ (Fisher 2010, p. 913).

Again, after disasters, both men and women suffer from loss of employment, but women are slower to return to paid work (Enarson 2000; Nelson et al. 2002) or restore their livelihood (Baden et al. 1994 cited in Cannon 2002) because most recovery programmes are targeted mainly at men’s paid work, e.g. food for work after Hurricane Mitch (Enarson 2000), work opportunities after drought-stricken areas in Morocco (Nelson et al. 2002) and Australian bush fires (Enarson 2000). Dominelli mentioned in her research that women were absent as active participants in all stages of the humanitarian aid giving processes in Sri Lanka after the 2004 tsunami and ‘often miss out on aid entitlement unless they find people to advocate on their behalf or form groups to undertake such action themselves. Donors and recipients alike collude in this *gender silence*’ (Dominelli 2013, pp. 77–93).

### ***Understanding gender, culture and disasters: the research gap***

The above discussion has shown that, though disaster health impacts vary significantly according to the gendered identity of the victims, gender has not yet received proper attention in prevailing disaster management plans, programmes and policies. At this point, the question arises how gender has been considered in disaster research. Actually, gender, as a category in the analysis of pre-during-post-disaster situations has only emerged recently (Bari 1998), and, even today, gender does not get proper attention in disaster research (Enarson 1998). ‘Gender has not yet been mainstreamed in humanitarian relief, nor integrated into the research and field projects, nor included in course work . . .’ at

most educational institutions (Enarson and Meyreles 2004, p. 53), and nor has it received adequate attention in policies and strategies of disaster management in most countries (Hannan 2002). 'Many research for development efforts focusing on climate change issues do not take gender considerations into account' (Chaudhury et al. 2012, p. 2). Gender is ignored in disaster management approaches like the Kyoto Protocol and the UN Framework Conventions on Climate Change (CCC 2009). Again, besides the irregular presence, imbalance in gender priorities and involvement is also revealed in gender and disaster research. 'Historically, the dominant theoretical perspectives, research strategies and guiding questions in disaster social science have been determinedly male-oriented if not male-dominated' (Enarson and Meyreles 2004, p. 49), and women are not involved as equal partners in disaster mitigation, community-based planning and preventative and coping strategies during the post-disaster period (Enarson 2002). Again, insufficient attention to gender identities and relations has also been observed in the disaster research. 'Men' and 'women' are not researched in terms of their own identities and needs. Disaster research generally provides 'only basic information on gender "differences"', and does not 'engage in any thorough explanation or analysis of women's experiences or perspectives in disasters' (Fothergill 1998, p. 12). It ignores women's real needs in the wake of disasters (Begum 1993). How gender affects men's lives in the disaster context is rarely considered as a key research question in highly developed nations and is very rare in the less developed nations (Enarson and Meyreles 2004).

Besides analysis of disaster events at the individual level for victims, research on the experiences and views of responders and planners is rare in the less developed nations (Enarson and Meyreles 2004). Haque et al. 2012a mentioned that most of the studies on climate change impacts were based on secondary data, except for a very few studies (Haque et al. 2012a). In reviewing the literatures, the present study also revealed that the majority of research follows a quantitative research methodology and methods without detailed investigation and analysis at the individual level.

However, it is argued in this research that understanding specific gender dimensions in disasters (Cannon 2002) and the relation of gender with the complex interplay of power, resources, privileges, stratification and social opportunities at the individual level will increase the effectiveness of disaster management plans (Morrow and Phillips 1999). But focusing on gender alone for disaster management is not sufficient, because 'gender relations are an interactive connection and distinction among people (and groups of people) – what happens to one group in this affects the others and is affected by them' (Connell 2003, p. 3). Hyndman in her research argues that we should more strongly associate feminist disaster research with development approaches (Hyndman 2008, p. 101), and Fisher also recommends 'gender mainstreaming' as a strategy to incorporate gender views in disaster management (Fisher 2010). Therefore, with the aim of revealing the development approach for gender-sensitive disaster management planning, prevailing literatures have been reviewed, and a brief discussion is given in the following paragraphs.

Historically, special attention for 'women' in development projects emerged in the early 1970s after Ester Boserup published her book on women and development (Momsen 2010). From then onwards, different approaches have been formulated and practised to establish a focus on women in development policy. 'Gender' and gender relations in development were important by the end of the twentieth century, when previous approaches to development involving a focus on women were combined into gender and development (GAD) (Momsen 2010). GAD examines 'power relations between women and men, shifting the focus away from 'women' alone' (Hyndman 2008, p. 104). Before that, 'women or gender is simply grafted in onto existing planning traditions without any fundamental changes' (Moser 1993, p. 86), but the goals of development planning could not be fulfilled by this 'add-women-and-stir method' (Boxer 1982 cited in Moser 1993, p. 87), and planners recognized the need to develop gender planning as a planning tradition in its own right and both genders, male and female, should be equally focused on in the planning. Gender equality which recognizes that 'men and women often have different needs and priorities, face different constraints and have different aspirations' (Momsen 2010, p. 8) is needed in policy to enhance development. So, the term 'mainstreaming gender' became well known in development approaches after the 1995 UN Fourth World Conference on Women held in Beijing. The mainstreaming gender equality approach 'tries to ensure that women's as well as men's concerns and experiences are integral to every step of planning' and confirm that 'inequality is not perpetuated' (Momsen 2010, p. 15).

These development approaches Women in Development (WID), Women and Development (WAD) and GAD could be very useful to improve health conditions during and after disasters in a disaster-struck region, given the earlier discussion in this chapter. However, these approaches have been criticised for 'not taking culture adequately into account' (Bhavnani et al. 2003, p. 6). The vulnerability of women to disasters is primarily 'cultural and organizational rather than biological or physiological' (Wiest et al. 1994), and 'women's status indicators are likely to influence the health of women by the way they limit their socio-economic opportunities, fertility choices, nutritional status, and access and utilization of health services, along with other factors' (Mukuria et al. 2005). So, culture should be taken into account in development approaches, which was highlighted by Sen in his research: 'the cultural dimension of development requires closer scrutiny in development analysis' (Sen 2004, p. 37). Bhavnani et al. (2003) also emphasized culture in their Women, Culture, Development (WCD) approach 'as lived experience rather than as a static set of relationships permits an opening of new avenues for development' (Bhavnani et al. 2003, p. 6). They mentioned that the 'WCD lens brings women's agency into the foreground (side by side with and within, the cultural, social, political and economic domains) as a means for understanding how inequalities are challenged and reproduced' (Bhavnani et al. 2003, p. 8). According to this intersectional approach, ethnicity, religion, age, class and gender are the aspects of women's lives that cannot be omitted from any analysis or practice.

Referring the above discussion, it could be concluded that one perspective or approach on gender is insufficient to analyze and improve the health conditions



in disaster-struck areas. Gaining the advancement of women and achievement of equality to men requires two approaches – integrating gender concerns throughout the planning/policy and focusing on the special concerns of women (March et al. 1999). This research therefore prefers to integrate two approaches for its exploration; it argues that the ‘gender mainstreaming’ and ‘Women, Culture and Development’ approaches are most useful for disaster studies and management. It also suggests that these approaches will be helpful to develop gender-sensitive disaster management plans (Fisher 2010), which focuses on gender equality and equity, with special concerns for women’s vulnerability considering their age, race, religion and culture and geographical location, to reduce the imbalance in the health impacts of disasters. Here, gender equity is especially emphasized in disaster health planning, as ‘it includes concerns about achievement of health and the capability to achieve good health, not just the distribution of health care. But it also includes the fairness of processes and thus must attach importance to non-discrimination in the delivery of healthcare’ (Sen 2002, p. 665). Again, to gain gender equality, men’s and boys’ participation is required, as they are ‘unavoidably involved in gender issues’ (Connell 2003, p. 3), and their relation with women should be seen as co-operation, supportive to each other for familial and social bonds, rather than only exploitation, subordination and conflict (Bhavnani et al. 2003, p. 6).

So, according to the above argument, more research is needed on gender and disasters which emphasizes both men’s and women’s experiences and needs. As Fisher states, ‘Disasters are therefore inherently social processes and as such they impact upon the individual differently’ (Fisher 2010, p. 904). Further, ‘women’s lives are qualitatively different from men’s lives’ (Monk and Hanson 2008, p. 35) in relation to culture and society, and in most societies, their status is not equal to men, but rather far behind. So, individuals’ voices, and especially those of more vulnerable groups, should be listened to and considered, both in research and in the process of disaster management planning, which may offer ‘many possible paths to disaster risk reduction in the globalizing world’ (Enarson and Meyreles 2004, p. 51).

### **1.3 Conclusion**

Reviewing prevailing literatures has enabled me to focus my research to build on the understanding that the health impacts of disasters are socially uneven and gendered, and disaster vulnerability differs with gender identity and relations along with other social and economic factors. It also strongly suggests the need for qualitative research at the individual level in the most disaster-prone areas (Enarson and Meyreles 2004), which will capture the everyday realities and vulnerabilities of men and women, their experiences of disasters and their survival and resilience in the face of disaster health impacts.

Being inspired and influenced by the readings and findings of the literature review, I have selected the coastal region of Bangladesh, one of the most disaster-prone regions in the world, to conduct my research with a qualitative research methodology and methods. I go on to elaborate on these in the next chapter.

## References

- Ager, A., Ager, W. and Long, L. (1995). "The differential experience of Mozambian refugee women and men." *Journal of Refugee Studies* 8(3): 265–287.
- Agrawala, S., Ota, T., Ahmed, A. U., Smith, J. and Aalst, M. V. (2003). "Development and climate change in Bangladesh: Focus on coastal flooding and the Sundarbans." OECOD, France.
- Ahmed, N. (2011). "Gender and climate change: Myth vs. reality." *End Poverty in South Asia: Promoting Dialogue on Development in South Asia*, The World Bank. <http://blogs.worldbank.org/endpovertyinsouthasia/gender-and-climate-change-myth-vs-reality>, accessed on 30/5/2015.
- Ahmed, S. M., Adams, A. M., Chowdhury, M. and Bhuiya, A. (2000). "Gender, socio-economic development and health-seeking behaviour in Bangladesh." *Social Science & Medicine* 51(3): 361–371.
- Akhter, F. (1992). "How Women Cope: Women Are Not Only Victims." In Hossain, C. P. Dodge & F.H. Abed (eds.) *From Crisis to Development: Coping With Disasters in Bangladesh*. Dhaka, University Press Ltd: 59–65.
- Alam, E. and Collins, A. E. (2010). "Cyclone disaster vulnerability and response experiences in coastal Bangladesh." *Disasters* 34(4): 931–954.
- Alam, K. and 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.
- Albala-Bertrand, J. M. (1993). *Political Economy of Large Natural Disasters*. New York, Oxford University Press Inc.
- Alcántara-Ayala, I. (2002). "Geomorphology, natural hazards, vulnerability and prevention of natural disasters in developing countries." *Geomorphology* 47(2): 107–124.
- Alexander, D. E. (1993). *Natural Disasters*, Berlin, Springer Science & Business Media.
- Ali, A. (1996). "Vulnerability of Bangladesh to climate change and sea level rise through tropical cyclones and storm surges." *Water, Air, & Soil Pollution* 92(1): 171–179.
- Alwang, J., Siegel, J. and Jorgensen, S. L. (2001). "Vulnerability: A view from different disciplines." Social protection discussion paper series, The World Bank, 115.
- Anwar, J., Mpofu, E., Mathews, L., Shadoul, A. F. and Brack, K. E. (2011). "Reproductive health and access to healthcare facilities: Risk factors for depression and anxiety in women with an earthquake experience." *BMC Public Health* 11(1): 523. [www.biomedcentral.com/1471-2458/11/523](http://www.biomedcentral.com/1471-2458/11/523).
- Baden, S., Green, C., Goetz, A. M. and Guhathakurta, M. (1994). "Background report on gender issues in Bangladesh." Institute of Development Studies, University of Sussex. IDS. Report 26.
- Bari, F. (1998). *Gender, Disaster, and Empowerment: A Case Study From Pakistan, USA*: Praeger Publishers.
- Becker, J. (1996). *Hungry Ghosts: China's Secret Famine*. New York, John Murray.
- Begum, R. (1993). "Women in environmental disasters: The 1991 cyclone in Bangladesh." *Gender & Development* 1(1): 34–39.
- Bhavnani, K., Foran, J. and Kurian, P. A. (2003). "An Introduction to Women, Culture and Development." In Bhavnani, K., Foran, J. and Kurian, P. A. (eds.) *Feminist Futures: Re-Imagining Women, Culture and Development*. London, Zed Books: 1–21.
- Blaikie, P., Cannon, T., Davis, I. and Wisner, B. (1994). *At Risk: Natural Hazards, People's Vulnerability and Disasters*. London, Routledge, Taylor & Francis Group.
- Bolin, R., Jackson, M. and Crist, A. (1998). "Gender Inequality, Vulnerability, and Disaster: Issues in Theory and Research." In Enarson, E. P and Morrow, B. H. (eds.) *The Gendered Terrain of Disaster: Through Women's Eyes*, New York, Praeger: 27–44.



- Bonanno, G. A., Brewin, C. R., Kaniasty, K. and Greca, A. M. L. (2010). "Weighing the costs of disaster consequences, risks, and resilience in individuals, families, and communities." *Psychological Science in the Public Interest* 11(1): 1–49.
- Bourdieu, P. (1977). *Outline of a Theory of Practice*. Cambridge, Cambridge University Press.
- Boxer, M. (1982). "For and About Women: The Theory and Practice of Women's Studies in the United States." In Keohane, N., Rosaldo, M. and Gelpi, B. (eds.) *Feminist Theory: A Critique of Ideology*, USA, Harvester Press, 237–271.
- Butler, J. (1990). *Gender Trouble: Feminism and the Subversion of Identity*. New York, Routledge.
- Cannon, T. (1994). "Vulnerability analysis and the explanation of 'natural' disasters." in A. Varley (eds.) *Disasters, development and the environment*. Chichester, UK, John Wiley & Sons:13–30.
- Cannon, T. (2002). "Gender and climate hazards in Bangladesh." *Gender & Development* 10(2): 45–50.
- CCC. (2009). *Climate Change, Gender and Vulnerable Groups in Bangladesh*. Dhaka, Climate Change Cell, DoE, MoEF, Component 4b, CDMP, MoFDM: 1–82.
- CDMP. (2014). *Assessment Stakeholder's Role in Preparation For and Facing the Tropical Storm Mahasen*. Bangladesh, Ministry of Disaster Management and Relief.
- Chaudhury, M., Kristjanson, P., Kyagazze, F., Naab, J. and Neelormi, S. (2012). "Participatory gender-sensitive approaches for addressing key climate change-related research issues: Evidence from Bangladesh, Ghana, and Uganda." CCAFS Working Paper 19, CGIAR Research Program on Climate Change, Agriculture and Food Security, Copenhagen.
- Chen, L. C., Emdadul, H. and D'Souza, S. (1981). "Sex bias in the family allocation of food and health care in rural Bangladesh." *Population and Development Review* 7(1): 55–70.
- Clancy, C. M. and Massion, C. T. (1992). "American women's health care." *JAMA: The Journal of the American Medical Association* 268(14): 1918–1920.
- Coker, A. L., Hanks, J. S., Eggleston, K. S., Risser, J., Tee, P. G., Chronister, K. J., Troisi, C. L., Arafat, R. and Franzini, L. (2006). "Social and mental health needs assessment of Katrina Evacuees." *Disaster Management & Response* 4(3): 88–94.
- Connell, R. W. (2003). *The Role of Men and Boys in Achieving Gender Equality*, United Nations, Brazil, Division for the Advancement of Women.
- Cutter, S. L., Mitchell, J. T. and Scott, M. S. (2000). "Revealing the vulnerability of people and places: A case study of Georgetown County, South Carolina." *Annals of the Association of American Geographers* 90(4): 713–737.
- de Alwis, M. and Hyndman, J. (2002). *Capacity-building in Conflict Zones: A Feminist Analysis of Humanitarian Assistance in Sri Lanka*. Colombo, International Centre for Ethnic Studies.
- Djalali, A., Khankeh, H., Ohlen, G., Castren, M. and Kurland, L. (2011). "Facilitators and obstacles in pre-hospital medical response to earthquakes: A qualitative study." *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine* 19(1): 30.
- Dominelli, L. (2013). "Gendering Climate Change: Implications for Debates, Policies and Practices." In Alston, M. and Whittenbury, K. (eds.) *Research, Action and Policy: Addressing the Gendered Impacts of Climate Change*. London, Springer: 77–93.
- Doyal, L. (2000). "Gender equity in health: Debates and dilemmas." *Social Science & Medicine* 51(6): 931–939.
- Earthquake Report.com. (2015). <http://earthquake-report.com/2015/04/25/massive-earthquake-nepal-on-april-25-2015>, accessed on 6/6/2015.

- Enarson, E. P. (1998). "Through women's eyes: A gendered research agenda for disaster social science." *Disasters* 22(2): 157–173.
- Enarson, E. P. (2000). *Gender and Natural Disasters*. Geneva, ILO.
- Enarson, E. (2002). "Gender Issues in Natural Disasters: Talking Points on Research Needs." *Crisis, Women and Other Gender Concerns*. Working paper, ILO, Geneva: 5–12.
- Enarson, E. P. and Meyreles, L. (2004). "International perspectives on gender and disaster: Differences and possibilities." *International Journal of Sociology and Social Policy* 24(10/11): 49–93.
- Enarson, E. P. and Morrow, B. H. (eds.) (1998). *The Gendered Terrain of Disaster*. New York, Praeger.
- Few, R. and Tran, P. G. (2010). "Climatic hazards, health risk and response in Vietnam: Case studies on social dimensions of vulnerability." *Global Environmental Change* 20(3): 529–538.
- Fisher, S. (2010). "Violence against women and natural disasters: Findings from post-tsunami Sri Lanka." *Violence Against Women* 16(8): 902–918.
- Fordham, M. H. (1998). "Making women visible in disasters: Problematising the private domain." *Disasters* 22(2): 126–143.
- Fothergill, A. (1998). "The Neglect of Gender in Disaster Work: An Overview of the Literature." In Enarson, E. P. and Morrow, B. H. (eds.) *The Gendered Terrain of Disaster: Through Women's Eyes*, New York, Praeger: 11–25.
- Fuse, A. and Yokota, H. (2012). "Lessons learned from the Japan earthquake and tsunami, 2011." *Journal of Nippon Medical School* 79(4): 312–315.
- Galea, S., Nandi, A. and Vlahov, D. (2005). "The epidemiology of post-traumatic stress disorder after disasters." *Epidemiologic Reviews* 27(1): 78–91.
- Goldman, A., Eggen, B. and Murray, V. (2014). "The health impacts of windstorms: A systematic literature review." *Public Health* 128(1): 3–28.
- Government. (2008). *Cyclone Sidr in Bangladesh: Damage, Loss and Needs Assessment For Disaster Recovery and Reconstructions*. Bangladesh, Government of Bangladesh.
- Guha-Sapir, D., Vos, F., Below, R. and Ponserre, S. (2011). "Annual disaster statistical review 2010." Centre for Research on the Epidemiology of Disasters, Belgium.
- Haider, R., Rahman, A. A. and Huq, S. (1993). *Cyclone '91: An Environmental and Perceptual Study*. Dhaka, Bangladesh Centre for Advanced Studies.
- Hannan, C. (2002). "Mainstreaming gender perspectives in environmental management and mitigation of natural disasters." *Disproportionate Impact of Natural Disasters on Women*, Roundtable Panel and Discussion organized by The United Nations Division for the Advancement of Women and the NGO Committee on the Status of Women in preparation for the 46th Session of the Commission on the Status of Women.
- Haque, M. A., Yamamoto, S. S., Mallick, A. A. and Sauerborn, R. (2012a). "Households' perception of climate change and human health risks: A community perspective." *Environmental Health* 11(1): 1. [www.ejournal.net/content/11/1/1](http://www.ejournal.net/content/11/1/1), accessed on 27/4/2015.
- Horwich, G. (2000). "Economic lessons of the Kobe earthquake." *Economic Development and Cultural Change* 48(3): 521–542.
- Hossain, H., Dodge, C. and Abel, F. (1992). *From Crisis to Development: Coping With Disasters in Bangladesh*. Dhaka, University Press.
- Hyndman, J. (2008). "Feminism, conflict and disasters in post-tsunami Sri Lanka." *Gender, Technology and Development* 12(1): 101–121.
- 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.

## Introduction

- Ager, A. , Ager, W. and Long, L. (1995). "The differential experience of Mozambican refugee women and men." *Journal of Refugee Studies* 8(3): 265–287.
- Agrawala, S. , Ota, T. , Ahmed, A. U. , Smith, J. and Aalst, M. V. (2003). "Development and climate change in Bangladesh: Focus on coastal flooding and the Sundarbans." OECD, France.
- Ahmed, N. (2011). "Gender and climate change: Myth vs. reality." *End Poverty in South Asia: Promoting Dialogue on Development in South Asia*, The World Bank.  
<http://blogs.worldbank.org/endpovertyinsouthasia/gender-and-climate-change-myth-vs-reality>, accessed on 30/5/2015.
- Ahmed, S. M. , Adams, A. M. , Chowdhury, M. and Bhuiya, A. (2000). "Gender, socio-economic development and health-seeking behaviour in Bangladesh." *Social Science & Medicine* 51(3): 361–371.
- Akhter, F. (1992). "How Women Cope: Women Are Not Only Victims." In Hossain, C. P. Dodge & F.H. Abed (eds.) *From Crisis to Development: Coping With Disasters in Bangladesh*. Dhaka, University Press Ltd: 59–65.
- Alam, E. and Collins, A. E. (2010). "Cyclone disaster vulnerability and response experiences in coastal Bangladesh." *Disasters* 34(4): 931–954.
- Alam, K. and 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.
- Albala-Bertrand, J. M. (1993). *Political Economy of Large Natural Disasters*. New York, Oxford University Press Inc.
- Alcántara-Ayala, I. (2002). "Geomorphology, natural hazards, vulnerability and prevention of natural disasters in developing countries." *Geomorphology* 47(2): 107–124.
- Alexander, D. E. (1993). *Natural Disasters*, Berlin, Springer Science & Business Media.
- Ali, A. (1996). "Vulnerability of Bangladesh to climate change and sea level rise through tropical cyclones and storm surges." *Water, Air, & Soil Pollution* 92(1): 171–179.
- Alwang, J. , Siegel, J. and Jorgensen, S. L. (2001). "Vulnerability: A view from different disciplines." *Social protection discussion paper series*, The World Bank, 115.
- Anwar, J. , Mpofu, E. , Mathews, L. , Shadoul, A. F. and Brack, K. E. (2011). "Reproductive health and access to healthcare facilities: Risk factors for depression and anxiety in women with an earthquake experience." *BMC Public Health* 11(1): 523. [www.biomedcentral.com/1471-2458/11/523](http://www.biomedcentral.com/1471-2458/11/523).
- Baden, S. , Green, C. , Goetz, A. M. and Guhathakurta, M. (1994). "Background report on gender issues in Bangladesh." *Institute of Development Studies, University of Sussex. IDS. Report 26*.
- Bari, F. (1998). *Gender, Disaster, and Empowerment: A Case Study From Pakistan, USA*: Praeger Publishers.
- Becker, J. (1996). *Hungry Ghosts: China's Secret Famine*. New York, John Murray.
- Begum, R. (1993). "Women in environmental disasters: The 1991 cyclone in Bangladesh." *Gender & Development* 1(1): 34–39.
- Bhavnani, K. , Foran, J. and Kurian, P. A. (2003). "An Introduction to Women, Culture and Development." In Bhavnani, K. , Foran, J. and Kurian, P. A. (eds.) *Feminist Futures: Re-Imagining Women, Culture and Development*. London, Zed Books: 1–21.
- Blaikie, P. , Cannon, T. , Davis, I. and Wisner, B. (1994). *At Risk: Natural Hazards, People's Vulnerability and Disasters*. London, Routledge, Taylor & Francis Group.
- Bolin, R. , Jackson, M. and Crist, A. (1998). "Gender Inequality, Vulnerability, and Disaster: Issues in Theory and Research." In Enarson, E. P. and Morrow, B. H. (eds.) *The Gendered Terrain of Disaster: Through Women's Eyes*, New York, Praeger: 27–44.
- Bonanno, G. A. , Brewin, C. R. , Kaniasty, K. and Greca, A. M. L. (2010). "Weighing the costs of disaster consequences, risks, and resilience in individuals, families, and communities." *Psychological Science in the Public Interest* 11(1): 1–49.
- Bourdieu, P. (1977). *Outline of a Theory of Practice*. Cambridge, Cambridge University Press.
- Boxer, M. (1982). "For and About Women: The Theory and Practice of Women's Studies in the United States." In Keohane, N. , Rosaldo, M. and Gelpi, B. (eds.) *Feminist Theory: A Critique of Ideology, USA*, Harvester Press, 237–271.
- Butler, J. (1990). *Gender Trouble: Feminism and the Subversion of Identity*. New York, Routledge.

Cannon, T. (1994). "Vulnerability analysis and the explanation of 'natural' disasters." in A. Varley (eds.) *Disasters, development and the environment*. Chichester, UK, John Wiley & Sons:13–30.

Cannon, T. (2002). "Gender and climate hazards in Bangladesh." *Gender & Development* 10(2): 45–50.

CCC. (2009). *Climate Change, Gender and Vulnerable Groups in Bangladesh*. Dhaka, Climate Change Cell, DoE, MoEF, Component 4b, CDMP, MoFDM: 1–82.

CDMP. (2014). *Assessment Stakeholder's Role in Preparation For and Facing the Tropical Storm Mahasen*. Bangladesh, Ministry of Disaster Management and Relief.

Chaudhury, M. , Kristjanson, P. , Kyagazze, F. , Naab, J. and Neelormi, S. (2012). "Participatory gender-sensitive approaches for addressing key climate change-related research issues: Evidence from Bangladesh, Ghana, and Uganda." CCAFS Working Paper 19, CGIAR Research Program on Climate Change, Agriculture and Food Security, Copenhagen.

Chen, L. C. , Emdadul, H. and D'Souza, S. (1981). "Sex bias in the family allocation of food and health care in rural Bangladesh." *Population and Development Review* 7(1): 55–70.

Clancy, C. M. and Massion, C. T. (1992). "American women's health care." *JAMA: The Journal of the American Medical Association* 268(14): 1918–1920.

Coker, A. L. , Hanks, J. S. , Eggleston, K. S. , Risser, J. , Tee, P. G. , Chronister, K. J. , Troisi, C. L. , Arafat, R. and Franzini, L. (2006). "Social and mental health needs assessment of Katrina Evacuees." *Disaster Management & Response* 4(3): 88–94.

Connell, R. W. (2003). *The Role of Men and Boys in Achieving Gender Equality*, United Nations, Brazil, Division for the Advancement of Women.

Cutter, S. L. , Mitchell, J. T. and Scott, M. S. (2000). "Revealing the vulnerability of people and places: A case study of Georgetown County, South Carolina." *Annals of the Association of American Geographers* 90(4): 713–737.

de Alwis, M. and Hyndman, J. (2002). *Capacity-building in Conflict Zones: A Feminist Analysis of Humanitarian Assistance in Sri Lanka*. Colombo, International Centre for Ethnic Studies.

Djalali, A. , Khankeh, H. , Ohlen, G. , Castren, M. and Kurland, L. (2011). "Facilitators and obstacles in pre-hospital medical response to earthquakes: A qualitative study." *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine* 19(1): 30.

Dominelli, L. (2013). "Gendering Climate Change: Implications for Debates, Policies and Practices." In Alston, M. and Whittenbury, K. (eds.) *Research, Action and Policy: Addressing the Gendered Impacts of Climate Change*. London, Springer: 77–93.

Doyal, L. (2000). "Gender equity in health: Debates and dilemmas." *Social Science & Medicine* 51(6): 931–939.

EarthquakeReport.com. (2015). <http://earthquake-report.com/2015/04/25/massive-earthquake-nepal-on-april-25-2015>, accessed on 6/6/2015.

Enarson, E. P. (1998). "Through women's eyes: A gendered research agenda for disaster social science." *Disasters* 22(2): 157–173.

Enarson, E. P. (2000). *Gender and Natural Disasters*. Geneva, ILO.

Enarson, E. (2002). "Gender Issues in Natural Disasters: Talking Points on Research Needs." *Crisis, Women and Other Gender Concerns*. Working paper, ILO, Geneva: 5–12.

Enarson, E. P. and Meyreles, L. (2004). "International perspectives on gender and disaster: Differences and possibilities." *International Journal of Sociology and Social Policy* 24(10/11): 49–93.

Enarson, E. P. and Morrow, B. H. (eds.) (1998). *The Gendered Terrain of Disaster*. New York, Praeger.

Few, R. and Tran, P. G. (2010). "Climatic hazards, health risk and response in Vietnam: Case studies on social dimensions of vulnerability." *Global Environmental Change* 20(3): 529–538.

Fisher, S. (2010). "Violence against women and natural disasters: Findings from post-tsunami Sri Lanka." *Violence Against Women* 16(8): 902–918.

Fordham, M. H. (1998). "Making women visible in disasters: Problematising the private domain." *Disasters* 22(2): 126–143.

Fothergill, A. (1998). "The Neglect of Gender in Disaster Work: An Overview of the Literature." In Enarson, E. P. and Morrow, B. H. (eds.) *The Gendered Terrain of Disaster: Through Women's Eyes*, New York, Praeger: 11–25.

Fuse, A. and Yokota, H. (2012). "Lessons learned from the Japan earthquake and tsunami, 2011." *Journal of Nippon Medical School* 79(4): 312–315.

Galea, S. , Nandi, A. and Vlahov, D. (2005). "The epidemiology of post-traumatic stress disorder after disasters." *Epidemiologic Reviews* 27(1): 78–91.

Goldman, A. , Eggen, B. and Murray, V. (2014). "The health impacts of windstorms: A systematic literature review." *Public Health* 128(1): 3–28.

Government . (2008). *Cyclone Sidr in Bangladesh: Damage, Loss and Needs Assessment For Disaster Recovery and Reconstructions*. Bangladesh, Government of Bangladesh.

Guha-Sapir, D. , Vos, F. , Below, R. and Ponserre, S. (2011). "Annual disaster statistical review 2010." Centre for Research on the Epidemiology of Disasters, Belgium.

Haider, R. , Rahman, A. A. and Huq, S. (1993). *Cyclone '91: An Environmental and Perceptual Study*. Dhaka, Bangladesh Centre for Advanced Studies.

Hannan, C. (2002). "Mainstreaming gender perspectives in environmental management and mitigation of natural disasters." *Disproportionate Impact of Natural Disasters on Women*, Roundtable Panel and Discussion organized by The United Nations Division for the Advancement of Women and the NGO Committee on the Status of Women in preparation for the 46th Session of the Commission on the Status of Women.

Haque, M. A. , Yamamoto, S. S. , Mallick, A. A. and Sauerborn, R. (2012a). "Households' perception of climate change and human health risks: A community perspective." *Environmental Health* 11(1): 1. [www.ejournal.net/content/11/1/1](http://www.ejournal.net/content/11/1/1), accessed on 27/4/2015.

Horwich, G. (2000). "Economic lessons of the Kobe earthquake." *Economic Development and Cultural Change* 48(3): 521–542.

Hossain, H. , Dodge, C. and Abel, F. (1992). *From Crisis to Development: Coping With Disasters in Bangladesh*. Dhaka, University Press.

Hyndman, J. (2008). "Feminism, conflict and disasters in post-tsunami Sri Lanka." *Gender, Technology and Development* 12(1): 101–121.

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.

IPCC. (2001). "Climate change: Impacts, adaptation, and vulnerability." *Contribution of Working Group II to the third assessment report of the Intergovernmental Panel on Climate Change*, New York, Cambridge University Press.

Johnson, J. and Galea, S. (2009). "Disasters and Population Health." In K.E. Cherry (ed.) *Lifespan Perspectives on Natural Disasters*, London, Springer: 281–326.

Kahn, M. E. (2005). "The death toll from natural disasters: The role of income, geography, and institutions." *Review of Economics and Statistics* 87(2): 271–284.

Karim, M. , Castine, S. , Brooks, A. , Beare, D. , Beveridge, M. and Phillips, M. (2014). "Asset or liability? Aquaculture in a natural disaster prone area." *Ocean & Coastal Management* 96: 188–197.

Karim, M. F. and Mimura, N. (2008). "Impacts of climate change and sea-level rise on cyclonic storm surge floods in Bangladesh." *Global Environmental Change* 18(3): 490–500.

Keim, M. E. (2006). "Cyclones, tsunamis and human health." *Oceanography* 19(2): 40–49.

Lai, T. I. , Shih, F. Y. , Chiang, W. C. , Shen, S. T. and Chen, W. J. (2003). "Strategies of disaster response in the health care system for tropical cyclones: Experience following Typhoon Nari in Taipei City." *Academic Emergency Medicine* 10(10): 1109–1112.

Liang, Y. and Cao, R. (2014). "Is the health status of female victims poorer than males in the post-disaster reconstruction in China: A comparative study of data on male victims in the first survey and double tracking survey data." *BMC Women's Health* 14(1): 18.

Litman, T. (2006). "Lessons from Katrina and Rita: What major disasters can teach transportation planners." *Journal of Transportation Engineering* 132(1): 11–18.

Lundberg, U. , & Parr, D. (2000). "Neurohormonal factors, stress, health and gender" in R.M. Eisler & M. Hersen (eds.) *Handbook of Gender, Culture and Health*. UK, Taylor & Francis, 21–41.

MacDonald, R. (2005). "How women were affected by the tsunami: A perspective from Oxfam." *PLoS Medicine* 2(6): e178.

March, C. , Smyth, I. and Mukhopadhyay, M. (1999). *A Guide to Gender-Analysis Frameworks*, GB, Oxfam Publications.

Marx, M. Phalkey, R. & Guha-Sapir, D. (2012). "Integrated health, social, and economic impacts of extreme events: Evidence, methods, and tools." *Global Health Action* 5: 19837. <http://dx.doi.org/10.3402/gha.v5i0.19837>, accessed on 8/6/2015.

Matin, N. and Taher, M. (2001). "The changing emphasis of disasters in Bangladesh NGOs." *Disasters* 25(3): 227–239.

Momsen, J. (2010). *Gender and Development*, New York, Routledge.

Monk, J. and Hanson, S. (2008). "On not excluding half of the human in human geography." *Geographic Thought: A Praxis Perspective* 34(1): 35.

Morrow, B. H. and Enarson, E. (1994). "Making the case for gendered disaster research." Paper presented to the Thirteenth World Congress of Sociology, Bielefeld, Germany.

Morrow, B. H. and Phillips, B. (1999). "What's gender 'got to do with it'?" *International Journal of Mass Emergencies and Disasters* 17(1): 5.

Moser, C. (1993). *Gender Planning and Development: Theory, Practice and Training*, New York, Routledge.

Mukuria, A. G. , Aboulaia, C. and Themme, A. (2005). *The Context of Women's Health: Results From the Demographic and Health Surveys, 1994–2001, USA, ORC Macro*.

Nahar, N. , Blomstedt, Y. , Wu, B. , Kandarina, I. , Trisnantoro, L. and Kinsman, J. (2014). "Increasing the provision of mental health care for vulnerable, disaster-affected people in Bangladesh." *BMC Public Health* 14(1): 1–9. [www.biomedcentral.com/1471-2458/708](http://www.biomedcentral.com/1471-2458/708), accessed on 17/12/2014.

Nasreen, M. (2004). "Disaster research: Exploring sociological approach to disaster in Bangladesh." *Bangladesh e-Journal of Sociology* 1(2): 1–8.

Nelson, V. , Meadows, K. , Cannon, T. , Morton, J. and Martin, A. (2002). "Uncertain predictions, invisible impacts, and the need to mainstream gender in climate change adaptations." *Gender & Development* 10(2): 51–59. doi:10.1080/13552070215911

Neumayer, E. and Plümpert, T. (2007). "The gendered nature of natural disasters: The impact of catastrophic events on the gender gap in life expectancy, 1981–2002." *Annals of the Association of American Geographers* 97(3): 551–566.

Nigg, J. M. and Tierney, K. J. (1990). "Explaining differential outcomes in the small business disaster loan application process." Preliminary paper (156), University of Delaware, Disaster Research Center.

Oloruntoba, R. (2010). "An analysis of the Cyclone Larry emergency relief chain: Some key success factors." *International Journal of Production Economics* 126(1): 85–101.

Overstreet, S. , Salloum, A. , Burch, B. and West, J. (2011). "Challenges associated with childhood exposure to severe natural disasters: Research review and clinical implications." *Journal of Child & Adolescent Trauma* 4(1): 52–68, doi:10.1080/19361521.2011.545103

Oxfam . (2005). "The tsunami's impact on women." [www.oxfam.org.uk/what\\_we\\_do/issues/conflict\\_disasters/downloads/bn\\_tsunami\\_women.pdf](http://www.oxfam.org.uk/what_we_do/issues/conflict_disasters/downloads/bn_tsunami_women.pdf), accessed on 3/5/2005.

Paolisso, M. and Leslie, J. (1995). "Meeting the changing health needs of women in developing countries." *Social Science & Medicine* 40(1): 55–65.

Paul, B. K. , Rahman, M. K. and Rakshit, B. C. (2011). "Post-Cyclone Sidr illness patterns in coastal Bangladesh: An empirical study." *Natural Hazards* 56(3): 841–852.

Phalkey, R. , Dash, S. R. , Mukhopadhyay, A. , Runge-Ranzinger, S. and Marx, M. (2012). "Prepared to react? Assessing the functional capacity of the primary health care system in rural Orissa, India to respond to the devastating flood of September 2008." *Global Health Action* 5, doi:10.3402/gha.v5i0.10964

Pittaway, E. , Bartolomei, L. and Rees, S. (2007). "Gendered dimensions of the 2004 tsunami and a potential social work response in post-disaster situations." *International Social Work* 50(3): 307–319.

Puentes-Markides, C. (1992). "Women and access to health care." *Social Science & Medicine* 35(4): 619–626.

Rahman, M. (2013). "Climate change, disaster and gender vulnerability: A study on two divisions of Bangladesh." *American Journal of Human Ecology* 2(2): 72–82.

Rashid, S. (2000). "The urban poor in Dhaka city: Their struggles and coping strategies during the floods of 1998." *Disasters* 24(3): 240–253.

Rezwana, N. (2002). "Reproductive health problems and access to healthcare facilities of poor women in Tongi Slums and two villages of Gazipur: A geographical analysis." unpublished MSc Thesis, Dhaka University.

Saroar, M. M. and Routray, J. K. (2012). "Impacts of climatic disasters in coastal Bangladesh: Why does private adaptive capacity differ?" *Regional Environmental Change* 12(1): 169–190.

- Sastry, N. and Gregory, J. (2013). "The effect of Hurricane Katrina on the prevalence of health impairments and disability among adults in New Orleans: Differences by age, race, and sex." *Social Science & Medicine* 80: 121–129.
- Schmidlin, T. W. (2011). "Public health consequences of the 2008 Hurricane Ike windstorm in Ohio, USA." *Natural Hazards* 58(1): 235–249.
- Sen, A. K. (1988). "Family and Food: Sex Bias in Poverty." In P. Bardhan & T.N. Srinivasan (eds.) *Rural Poverty in South Asia*. New York, Columbia University Press.
- Sen, A. K. (2002). "Why health equity?" *Health Economics* 11(8): 659–666.
- Sen, A. (2004). "How does culture matter?" In V. Rao & M. Walton (eds.) *Culture and public action*. USA, The World Bank, 37–58.
- Skoufias, E. (2003). "Economic crises and natural disasters: Coping strategies and policy implications." *World Development* 31(7): 1087–1102.
- Stover, E. and Vinck, P. (2008). "Cyclone Nargis and the politics of relief and reconstruction aid in Burma (Myanmar)." *JAMA* 300(6): 729–731.
- Stromberg, D. (2007). "Natural disasters, economic development, and humanitarian aid." *The Journal of Economic Perspectives* 21(3): 199–222.
- Sultana, F. (2009). "Fluid lives: Subjectivities, gender and water in rural Bangladesh." *Gender, Place and Culture* 16(4): 427–444.
- Sultana, F. (2010). "Living in hazardous waterscapes: Gendered vulnerabilities and experiences of floods and disasters." *Environmental Hazards* 9(1): 43–53.
- Toya, H. and Skidmore, M. (2007). "Economic development and the impacts of natural disasters." *Economics Letters* 94(1): 20–25.
- Tunstall, S. , Tapsell, S. , Green, C. , Floyd, P. and George, C. (2006). "The health effects of flooding: Social research results from England and Wales." *Journal of Water and Health* 4: 365–380.
- Turner, B. L. , Kasperson, R. , Matson, P. A. , McCarthy, J. J. , Corell, L. C. , Christensen, L. , Eckley, N. , Kasperson, J. X. , Luers, A. , Martello, M. L. , Polsky, C. , Pulsipher, A. and Schiller, A. (2003). "A framework for vulnerability analysis in sustainability science." *Proceedings of the National Academy of Sciences* 100(14): 8074–8079.
- The Watchers. (2015). <http://thewatchers.adorraeli.com/2014/09/24/the-statistics-of-natural-disasters-2013-review>, accessed on 28/5/2015.
- Watkins, P. L. and Whaley, D. (2000). "Gender Role Stressors and Women's Health." Eisler, R. M. and Hersen, M. (eds.) *Handbook of Gender, Culture, and Health*, Mahwah, NJ, Lawrence Erlbaum.
- Webster, P. J. (2013). "Meteorology: Improve weather forecasts for the developing world." *Nature* 493(7430): 17–19.
- Weisman, C. S. (1997). "Changing definitions of women's health: Implications for health care and policy." *Maternal and Child Health Journal* 1(3): 179–189.
- West, D. M. and Orr, M. (2007). "Race, gender, and communications in natural disasters." *Policy Studies Journal* 35(4): 569–586.
- Wiest, R. E. , Mocellin, J. S. P. and Motsisi, D. T. (1994). *The Needs of Women in Disasters and Emergencies*, Disaster Research Institute, Canada, University of Manitoba.
- Zilversmit, L. , Sappenfield, O. , Zotti, M. and McGehee, M. A. (2014). "Preparedness planning for emergencies among postpartum women in Arkansas during 2009." *Women's Health Issues* 24(1): e83–e88.

## Research methodology and fieldwork in Bangladesh

- Agrawala, S. , Ota, T. , Ahmed, A. U. , Smith, J. and Aalst, M. V. (2003). "Development and climate change in Bangladesh: Focus on coastal flooding and the Sundarbans." OECD, France.
- Ahmed, S. M. , Adams, A. M. , Chowdhury, A. M. R. and Bhuiya, A. U. (2000). "Gender, socioeconomic development and health-seeking behaviour in Bangladesh." *Social Science & Medicine* 51(3): 361–371.
- Ahmed, S. M. , Hossain, M. A. , Chowdhury, A. M. R. and Bhuiya, A. U. (2011). "The health workforce crisis in Bangladesh: Shortage, inappropriate skill-mix and inequitable distribution."

Human Resource for Health 9(3): 1–7. [www.human-resources-health.com/content/9/1/3](http://www.human-resources-health.com/content/9/1/3).

Ali, A. (1996). "Vulnerability of Bangladesh to climate change and sea level rise through tropical cyclones and storm surges." *Water, Air, & Soil Pollution* 92(1): 171–179.

Ali, A. (1999). "Climate change impacts and adaptation assessment in Bangladesh." *Climate Research* 12: 109–116.

Baden, S. , Green, C. , Goetz, A. M. and Guhathakurta, M. (1994). "Background report on gender issues in Bangladesh." Institute of Development Studies, University of Sussex. IDS. Report 26.

Banglapedia . (2014). <http://en.banglapedia.org/index.php?title=Cyclone>, accessed on 27/6/2015.

BBS. (2006). Population Census-2001, Community Series. Zila, Barguna, Bangladesh Bureau of Statistics.

BBS. (2011). "Statistical yearbook of Bangladesh-2010." Bangladesh Bureau of Statistics. [www.bbs.gov.bd/PageWebMenuContent.aspx?MenuKey=230](http://www.bbs.gov.bd/PageWebMenuContent.aspx?MenuKey=230), accessed on 2/5/2015.

Bern, C. , Snizek, J. , Mathbor, G. M. , Siddiqi, M. S. , Ronsmans, C. , Chowdhury, A. M. R. , Choudhury, A. E. , Islam, K. , Bennish, M. , Noji, E. and Glass, R. I. (1993). "Risk factors for mortality in the Bangladesh cyclone of 1991." *Bulletin of the World Health Organization* 71(1): 73–78.

Blaikie, N. (2009). *Designing social research*, UK, Polity Press.

Bosco, F. J. and Herman, T. (2010). "Focus Groups as Collective Research Performance." In D. Delyser , S. Herbert , S. Aitken , M. Crang & L. McDowell (eds.) *The Sage of Handbook of Qualitative Geography*. London, Sage Publication Ltd: 193–207.

Byuro, B. P. (2006). Bangladesh Population Census, 2001: Community Series, Bangladesh Bureau of Statistics, Planning Division, Ministry of Planning, Bangladesh, Government of the People's Republic of Bangladesh.

Cannon, T. (2002). "Gender and climate hazards in Bangladesh." *Gender & Development* 10(2): 45–50.

CDMP. (2014). *Assessment Stakeholder's Role in Preparation For and Facing the Tropical Storm Mahasen*. Bangladesh, Ministry of Disaster Management and Relief.

Charmaz, K. and Bryant, A. (2011). "Grounded Theory and Credibility." In Silverman, D. (eds.) *Qualitative Research*. 3rd edition, Thousand Oaks, CA, SAGE Publications: 291–309.

Crang, M. and Cook, I. (2007). *Doing Ethnographies*, Thousand Oaks, CA, SAGE Publications.

Cui, K. (2015). "The insider-outsider role of a Chinese researcher doing fieldwork in China: The implications of cultural context." *Qualitative Social Work* 14(3): 356–369.

DDM. (2013). *Disaster Preparedness Response and Recovery*. Bangladesh, Department of Disaster Management.

del Nino, C. , Dorosh, P. A. , Smith, L. C. and Roy, D. K. (2001). "The 1998 floods in Bangladesh: Disaster impact, coping strategies and response." Research Report 122, Washington, DC, International Food Policy Research Institute.

Dwyer, S. C. and Buckle, J. L. (2009). "The space between: On being an insider-outsider in qualitative research." *International Journal of Qualitative Methods* 8(1): 54–63.

Enarson, E. and Meyreles, L. (2004). "International perspectives on gender and disaster: Differences and possibilities." *International Journal of Sociology and Social Policy* 24(10/11): 49–93.

Government . (2008). *Cyclone Sidr in Bangladesh: Damage, Loss and Needs Assessment For Disaster Recovery and Reconstructions*. Bangladesh, Government of Bangladesh.

Graham, E. (2005). "Philosophies Underlying Human Geography Research." In Flowerdew, R. and Martin, D. (eds.) *Methods in Human Geography: A Guide for Students Doing Research Projects*, New York, Routledge: 6–30.

Health Bulletin 2013. (2013). *Health Bulletin 2013*, District: Barguna, Barguna Civil Surgeon Office, Barguna, Ministry of Health and Family Welfare, Bangladesh.

Health Bulletin 2014. (2014). *Health Bulletin 2014*, Upazila: Barguna Sadar, Barguna Civil Surgeon Office, Barguna, Ministry of Health and Family Welfare, Bangladesh.

Hoggart, K. , Lees, L. and Davies, A. (2002). *Researching Human Geography*, London, Hodder Arnold.

Hossain, M. , Islam, M. T. , Sakai, T. and Ishida, M. (2008). "Impact of tropical cyclones on rural infrastructures in Bangladesh." *Agricultural Engineering International: The CIGR EJournal* 2(X). [www.cigrjournal.org](http://www.cigrjournal.org), accessed on 5/2/2015.



Houston, M. J. and Sudman, S. (1975). "A methodological assessment of the use of key informants." *Social Science Research* 4(2): 151–164.

Islam, A. S. , Bala, S. K. , Hussain, M. A. , Hussain, M. A. and Rahman, M. M. (2011). "Performance of coastal structures during Cyclone Sidr." *Natural Hazards Review* 12(3): 111–116.

Islam, M. R. and Ahmad, M. (2004). *Living in the Coast: Problems, Opportunities and Challenges*, Bangladesh, PDO-ICZMP.

Kahn, R. L. and Cannell, C. F. (1957). *The Dynamics of Interviewing; Theory, Technique, and Cases*. Oxford, England, John Wiley & Sons.

Karim, M. F. and Mimura, N. (2008). "Impacts of climate change and sea-level rise on cyclonic storm surge floods in Bangladesh." *Global Environmental Change* 18(3): 490–500.

Kesby, M. , Kindon, S. and Pain, R. (2005). "Participatory' Approaches and Diagramming Techniques." In Flowerdew, R and Martin, M. (eds.) *Methods in Human Geography*, London, Pearson: 144–166.

LGED. (2015). [www.lged.gov.bd/ViewMap](http://www.lged.gov.bd/ViewMap), accessed on 1/5/2015.

Loayza, N. , Olaberria, E. , Rigolini, J. and Christiaensen, L. (2009). "Natural disasters and Growth: Going Beyond the Averages." *World Bank Policy Research Working Paper* (4980).

Lowe, M. S. and Short, J. R. (1990). "Progressive human geography." *Progress in Human Geography* 14(1): 1–11.

Mahmood, S. S. , Iqbal, M. , Hanifi, S. M. A. , Wahedi, T. and Bhuiya, A. (2010). "Are 'village doctors' in Bangladesh a curse or a blessing?" *BMC International Health and Human Rights* 10(1): 18. [www.biomedcentral.com/1472-698X/10/18](http://www.biomedcentral.com/1472-698X/10/18).

Marshall, C. and Rossman, G. B. (1999). *Designing Qualitative Research*, Thousand Oaks, CA, SAGE Publications.

Mason, J. (2002). *Qualitative Researching*, Thousand Oaks, CA, SAGE Publications.

Matin, N. and Taher, M. (2001). "The changing emphasis of disasters in Bangladesh NGOs." *Disasters* 25(3): 227–239.

Mays, N. and Pope, C. (2000). "Qualitative research in health care: Assessing quality in qualitative research." *BMJ: British Medical Journal* 320(7226): 50.

Miah, M. Y. , Mannan, M. A. , Quddus, K. G. , Mahmud, M. A. M. and Baida, T. (2004). "Salinity on cultivable land and its effects on crops." *Pakistan Journal of Biological Sciences* 7(8): 1322–1326.

Miller, J. and Glassner, B. (2011). "The 'Insider' and the 'Outside': Finding Realities in Interviews." In Silverman, D. (eds.) *Qualitative Research*. 3rd edition, Thousand Oaks, CA, SAGE Publications: 131–148.

Mooley, D. (1980). "Severe cyclonic storms in the Bay of Bengal, 1877 1977." *Monthly Weather Review* 108: 1647.

Morgan, D. L. (1996). *Focus Groups as Qualitative Research*, Thousand Oaks, CA, SAGE Publications.

Network for Information, Response and Preparedness Activities on Disaster (NIRAPAD). (2007). "Cyclone SIDR kills hundreds in Barisal and Khulna division." [www.nirapad.org](http://www.nirapad.org), accessed on 15/7/2008.

Paul, A. and Rahman, M. M. (2006). "Cyclone mitigation perspectives in the Islands of Bangladesh: A case of Sandwip and Hatia Islands." *Coastal Management* 34(2): 199–215.

Prata, N. , Quaiyum, M. A. , Passano, P. , Bell, S. , Bohl, D. D. , Hossain, S. , Azmi, A. J. and Begum, M. (2012). "Training traditional birth attendants to use misoprostal and an absorbent delivery mat in home births." *Social Science & Medicine* 75: 2021–2027.

PreventionWeb. (2014). [www.preventionweb.net/english/hazards/statistics](http://www.preventionweb.net/english/hazards/statistics), accessed on 19/8/2014, data source: EM-DAT: The OFDA/CRED International Disaster Database, [www.emdat.be](http://www.emdat.be), Université catholique de Louvain, Brussels, Belgium.

Rashid, H. (1991). *Geography of Bangladesh*. Dhaka, University Press Limited.

Robson, C. (2002). *Real World Research: A Resource for Social Scientists and Practitioner-Researchers*, Blackwell, UK, Oxford.

Silverman, D. (1993). *Interpreting Qualitative Data*, Thousand Oaks, CA, SAGE Publications.

Silverman, D. (ed.) (2011). *Qualitative Research*. Thousand Oaks, CA, SAGE Publications.

Takeda, A. (2012). "Reflexivity: Unmarried Japanese male interviewing married Japanese women about international marriage." *Qualitative Research* 13(3): 285–298.

Tamima, U. (2009). "Population evacuation need assessment in cyclone affected Barguna district." *Journal of Bangladesh Institute of Planners* 2: 145–157.

UN-HABITAT (2003). *Water and sanitation in the world's cities: local action for global goals*. London, United Nations Human Settlements Programme, Earthscan publication Ltd.

Valentine, G. (2005). "Tell Me About ... Using Interviews as Research Methodology." In Flowerdew, R. and Martin, D. (eds.) *Methods in Human Geography: A Guide for Students Doing a Research Project*, London, Pearson Education.

World Bank. (2015). <http://data.worldbank.org/topic/poverty>, accessed on 3/5/2015.

## Impacts of disaster on health

Alam, E. and Collins, A. E. (2010). "Cyclone disaster vulnerability and response experiences in coastal Bangladesh." *Disasters* 34(4): 931–954.

Alam, K. and 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.

Bonanno, G. A. , Brewin, C. R. , Kaniasty, K. and Greca, A. M. L. (2010). "Weighing the costs of disaster consequences, risks, and resilience in individuals, families, and communities." *Psychological Science in the Public Interest* 11(1): 1–49.

Casey, M. (2008). "Before cyclone hit, Burmese delta was stripped of defences." *International Herald Tribune*, 9 May. [www.nytimes.com](http://www.nytimes.com).

Cash, R. A. , Halder, S. R. , Husain, M. , Islam, M. S. , Mallick, F. H. , May, M. A. , Rahman, M. and Rahman, M. A. (2014). "Reducing the health effect of natural hazards in Bangladesh." *The Lancet* 382(9910): 2094–2103.

Catani, C. , Jacob, N. , Schauer, E. , Kohila, M. and Neuner, F. (2008). "Family violence, war, and natural disasters: A study of the effect of extreme stress on children's mental health in Sri Lanka." *BMC Psychiatry* 8(1): 33.

CCC. (2009). *Climate Change, Gender and Vulnerable Groups in Bangladesh*. Dhaka, Climate Change Cell, DoE, MoEF, Component 4b, CDMP, MoFDM: 1–82.

Coker, A. L. , Hanks, J. S. , Eggleston, K. S. , Risser, J. , Tee, P. G. , Chronister, K. J. , Troisi, C. L. , Arafat, R. and Franzini, L. (2006). "Social and mental health needs assessment of Katrina evacuees." *Disaster Management & Response* 4(3): 88–94.

Curtis, S. (2010). *Space, Place and Mental Health*, UK, Ashgate Publishing, Ltd.

Doocy, S. , Rofi, A. , Moodie, C. , Spring, E. , Bradley, S. , Burnham, G. and Robinson, C. (2007). "Tsunami mortality in Aceh province, Indonesia." *Bulletin of the World Health Organization* 85(4): 273–278.

Figley, C. R. and Kleber, R. J. (1995). "Beyond the 'Victim': Secondary Traumatic Stress." In Kleber, R. J. , Figley, C. R. and Gersons, B. P. R. (eds.) *Beyond Trauma: Cultural and Societal Dynamics*. New York, Plenum Press: 75–95.

Fuse, A. and Yokota, H. (2012). "Lessons learned from the Japan earthquake and tsunami, 2011." *Journal of Nippon Medical School* 79(4): 312–315.

Galea, S. , Nandi, A. and Vlahov, D. (2005). "The epidemiology of post-traumatic stress disorder after disasters." *Epidemiologic Reviews* 27(1): 78–91.

Goldman, A. , Eggen, B. and Murray, V. (2014). "The health impacts of windstorms: A systematic literature review." *Public Health* 128(1): 3–28.

Government (2008). *Cyclone Sidr in Bangladesh: Damage, Loss and Needs Assessment For Disaster Recovery and Reconstructions*. Ministry of Finance, Government of Bangladesh, Bangladesh.

Green, B. L. , Grace, M. C. , Marshal, G. V. , Kramer, T. L. , Goldine, C. G. and Leonard, A. C. (1994). "Children of disaster in the second decade: A 17-year follow-up of Buffalo Creek survivors." *Journal of the American Academy of Child & Adolescent Psychiatry* 33(1): 71–79.

Herman, J. (1997). *Trauma and Recovery: The Aftermath of Violence – From Domestic Abuse to Political Terror*. New York, Basic Books.

Hossain, N. (2008). "The price we pay." *FORUM*, a Monthly Publication of The Daily Star, 3(1). [www.thedailystar.net/forum/2008/january/price.htm](http://www.thedailystar.net/forum/2008/january/price.htm), accessed on 22/9/2014.

Huq-Hussain, S. , Islam, M. S. and Habiba, U. (2013). "Documentation of coping strategies of coastal people particularly the Persons with Disabilities (PWDs) living in Bagerhat District." *Final*

Report submitted to Action on Disability and Development (ADD) International, Disaster Research Training and Management Centre (DRTMC), Dhaka University.

Islam, A. S. , Bala, S. K. , Hussain, M. A. , Hussain, M. A. and Rahman, M. M. (2011). "Performance of coastal structures during Cyclone Sidr." *Natural Hazards Review* 12(3): 111–116.

Jacob, B. , Mawson, A. R. , Payton, M. and Guignard, J. C. (2008). "Disaster mythology and fact: Hurricane Katrina and social attachment." *Public Health Reports* 123(5): 555–566.

Kleber, R. J. , Figley, C. R. and Gersons, B. P. R. (eds.) (1995). *Beyond Trauma: Cultural and Societal Dynamics*. New York, Plenum Press: 1–9.

Kunreuther, H. , Meyer, R. and Michel-Kerjan, E. (2009). *Overcoming Decision Biases to Reduce Losses From Natural Catastrophes*, USA, Risk Management and Decision Processes Center, The Wharton School of the University of Pennsylvania: 1–27.

La Greca, A. M. , Silverman, W. K. , Vernberg, E. M. and Prinstein, M. J. (1996). "Symptoms of posttraumatic stress in children after Hurricane Andrew: A prospective study." *Journal of Consulting and Clinical Psychology* 64(4): 712–723.

Mallick, B. (2014). "Cyclone shelters and their locational suitability: An empirical analysis from coastal Bangladesh." *Disasters* 38(3): 654–671.

Marx, M. , Phalkey, R. & Guha-Sapir, D. (2012). "Integrated health, social, and economic impacts of extreme events: Evidence, methods, and tools." *Global Health Action* 5: 19837. <http://dx.doi.org/10.3402/gha.v5i0.19837>, accessed on 8/6/2015.

Masten, A. S. (2001). "Ordinary magic: Resilience processes in development." *American Psychologist* 56(3): 227.

Mehedi, H. , Nag, A. K. and Farhana, S. (2010). "Climate induced displacement-case study of Cyclone Aila in the Southwest coastal region of Bangladesh." *Humanitywatch*, Khulna.

Nahar, N. , Blomstedt, Y. , Wu, B. , Kandarina, I. , Trisnantoro, L. and Kinsman, J. (2014). "Increasing the provision of mental health care for vulnerable, disaster-affected people in Bangladesh." *BMC Public Health* 14(1): 1–9. [www.biomedcentral.com/1471-2458/708](http://www.biomedcentral.com/1471-2458/708), accessed on 17/12/2014.

Neria, Y. , Nandi, A. and Galea, S. (2008). "Post-traumatic stress disorder following disasters: A systematic review." *Psychological Medicine* 38(4): 467–480.

New York Times. (2007). "Cyclone warning saved many lives." 23 November.

North, C. S. and Pfefferbaum, B. (2013). "Mental health response to community disasters: A systematic review." *JAMA* 310(5): 507–518.

Paul, B. K. (2009). "Why relatively fewer people died? The case of Bangladesh's Cyclone Sidr." *Natural Hazards* 50(2): 289–304.

Paul, B. K. (2010). "Human injuries caused by Bangladesh's Cyclone Sidr: An empirical study." *Natural Hazards* 54(2): 483–495.

Paul, S. K. , Paul, B. K. and Routary, J. K. (2012). "Post-Cyclone Sidr nutritional status of women and children in coastal Bangladesh: An empirical study." *Natural Hazards* 64(1): 19–36.

Paul, S. K. and Routray, J. K. (2011). "Household response to cyclone and induced surge in coastal Bangladesh: Coping strategies and explanatory variables." *Natural Hazards* 57(2): 477–499.

Phalkey, R. , Dash, S. R. , Mukhopadhyay, A. , Runge-Ranzinger, S. and Marx, M. (2012). "Prepared to react? Assessing the functional capacity of the primary health care system in rural Orissa, India to respond to the devastating flood of September 2008." *Global Health Action* 5, doi:10.3402/gha.v5i0.10964

Rahman, M. (2013). "Climate Change, Disaster and Gender Vulnerability: A Study on Two Divisions of Bangladesh." *American Journal of Human Ecology* 2(2): 72–82.

Rajkumar, A. P. , Premkumar, T. S. and Tharyan, P. (2008). "Coping with the Asian tsunami: Perspectives from Tamil Nadu, India on the determinants of resilience in the face of adversity." *Social Science & Medicine* 67(5): 844–853.

Sastry, N. and Gregory, J. (2013). "The effect of Hurricane Katrina on the prevalence of health impairments and disability among adults in New Orleans: Differences by age, race, and sex." *Social Science & Medicine* 80: 121–129.

Schmidlin, T. W. (2011). "Public health consequences of the 2008 Hurricane Ike windstorm in Ohio, USA." *Natural Hazards* 58(1): 235–249.

Silverman, W. K. and La Greca, A. M. (2002). "Children Experiencing Disasters: Definitions, Reactions, and Predictors of Outcomes.: In La Greca, A. M. , Silverman, W. K. and Vernberg, E.

M. (eds.) *Helping Children Cope With Disasters and Terrorism*. Washington, DC, American Psychological Association: 11–34.

Terranova, A. M. , Boxer, P. and Morris, A. S. (2009). "Factors influencing the course of posttraumatic stress following a natural disaster: Children's reactions to Hurricane Katrina." *Journal of Applied Developmental Psychology* 30(3): 344–355.

Thienkrua, W. , Cardozo, B. L. , Chakkraband, M. L. S. , Guadamuz, T. E. , Pengjuntr, W. , Tantipiwatanaskul, P. , Sakornsatian, S. , Ekassawin, S. , Panyayong, B. , Varangrat, A. , Tappero, J.W. , Schreiber, M. and Griensven, F. V. (2006). "Symptoms of posttraumatic stress disorder and depression among children in tsunami-affected areas in Southern Thailand." *JAMA* 296(5): 549–559.

Turpin, G. (2011). "Climate change, disasters and psychological response in Bangladesh." [www.shf.ac.uk/psychology/about/news/2011/climatechange-bangladesh-turpin](http://www.shf.ac.uk/psychology/about/news/2011/climatechange-bangladesh-turpin).

Weems, C. F. , Taylor, L. K. , Cannon, M. F. , Marino, R. C. , Romano, D. M. , Scott, B. G. , Perry, A. M. and Triplett, V. (2010). "Post traumatic stress, context, and the lingering effects of the Hurricane Katrina disaster among ethnic minority youth." *Journal of Abnormal Child Psychology* 38(1): 49–56.

## Gendered health impacts of disasters

Ahmed, T. and Ahmed, A. (2009). "Reducing the burden of malnutrition in Bangladesh." *BMJ* 339: b4490.

Ahsan, R. M. and Khatun, H. (2004). *Disaster and the Silent Gender: Contemporary Studies in Geography*. Bangladesh, Geographical Society.

Alam, E. and Collins, A. E. (2010). "Cyclone disaster vulnerability and response experiences in coastal Bangladesh." *Disasters* 34(4): 931–954.

Alam, K. and 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.

Anderson, K. M. and Manuel, G. (1994). "Gender differences in reported stress response to the Loma Prieta earthquake." *Sex Roles* 30(9–10): 725–733.

Anwar, J. , Mpofu, E. , Mathews, L. , Shadoul, A. F. and Brack, K. E. (2011). "Reproductive health and access to healthcare facilities: risk factors for depression and anxiety in women with an earthquake experience." *BMC public health* 11(1): 523.

Bolin, R. , Jackson, M. and Crist, A. (1998). "Gender Inequality, Vulnerability, and Disaster: Issues in Theory and Research." In Enarson, E. P. and Morrow, B. H. (eds.) *The Gendered Terrain of Disaster: Through Women's Eyes*, New York, Praeger: 27–44.

Bonanno, G. A. , Brewin, C. R. , Kaniasty, K. and Greca, A. M. L. (2010). "Weighing the costs of disaster consequences, risks, and resilience in individuals, families, and communities." *Psychological Science in the Public Interest* 11(1): 1–49.

Cash, R. A. , Halder, S. R. , Husain, M. , Islam, M. S. , Mallick, F. H. , May, M. A. , Rahman, M. and Rahman, M. A. (2014). "Reducing the health effect of natural hazards in Bangladesh." *The Lancet* 382(9910): 2094–2103.

CCC. (2009). *Climate Change, Gender and Vulnerable Groups in Bangladesh*. Dhaka, Climate Change Cell, DoE, MoEF, Component 4b, CDMP, MoFDM: 1–82.

Dominelli, L. (2013). "Gendering Climate Change: Implications for Debates, Policies and Practices." In Alston, M. and Whittenbury, K. (eds.) *Research, Action and Policy: Addressing the Gendered Impacts of Climate Change*. London, Springer: 77–93.

Doocy, S. , Rofi, A. , Moodie, C. , Spring, E. , Bradley, S. , Burnham, G. and Robinson, C. (2007). "Tsunami mortality in Aceh province, Indonesia." *Bulletin of the World Health Organization* 85(4): 273–278.

Doyal, L. (2000). "Gender equity in health: Debates and dilemmas." *Social Science & Medicine* 51(6): 931–939.

Enarson, E. (2002). "Gender Issues in Natural Disasters: Talking Points on Research Needs." *Crisis, Women and Other Gender Concerns*. ILO, Geneva, Working paper, 5–12.

Few, R. and Tran, P. G. (2010). "Climatic hazards, health risk and response in Vietnam: Case studies on social dimensions of vulnerability." *Global Environmental Change* 20(3): 529–538.

- Fothergill, A. (1998). "The Neglect of Gender in Disaster Work: An Overview of the Literature." In Enarson, E. P. and Morrow, B. H. (eds.) *The Gendered Terrain of Disaster: Through Women's Eyes*, New York, Praeger: 11–25.
- Haider, M. Z. and Ahmed, M. F. (2014). "Multipurpose uses of cyclone shelters: Quest for shelter sustainability and community development." *International Journal of Disaster Risk Reduction* 9: 1–11.
- Haque, M. M. , Bhuiyan, M. R. , Naser, M. A. , Arafat, Y. , Roy, S. K. and Khan, M. Z. H. (2014). "Nutritional status of women dwelling in urban slum area." *Journal of Nutritional Health & Food Engineering* 1(3): 1–4.
- Harrison, E. (2007). "Suffering a slow recovery." *Scientific American* 297(3): 22–25.
- Herman, J. (1997). *Trauma and Recovery: The Aftermath of Violence – From Domestic Abuse to Political Terror*. New York, Basic Books.
- Hossain, N. (2008). "The price we pay." *FORUM*, a Monthly Publication of The Daily Star, 3(1). [www.thedailystar.net/forum/2008/january/price.htm](http://www.thedailystar.net/forum/2008/january/price.htm), accessed on 22/9/2014.
- 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, A. S. , Bala, S. K. , Hussain, M. A. , Hussain, M. A. and Rahman, M. M. (2011). "Performance of coastal structures during Cyclone Sidr." *Natural Hazards Review* 12(3): 111–116.
- Jacob, B. , Mawson, A. R. , Payton, M. and Guignard, J. C. (2008). "Disaster mythology and fact: Hurricane Katrina and social attachment." *Public Health Reports* 123(5): 555–566.
- Karim, M. , Castine, S. , Brooks, A. , Beare, D. , Beveridge, M. and Phillips, M. (2014). "Asset or liability? Aquaculture in a natural disaster prone area." *Ocean & Coastal Management* 96: 188–197.
- Keim, M. E. (2006). "Cyclones, tsunamis and human health." *Oceanography* 19(2): 40–49.
- MacDonald, R. (2005). "How women were affected by the tsunami: A perspective from Oxfam." *PLoS Medicine* 2(6): e178.
- Mallick, B. (2014). "Cyclone shelters and their locational suitability: An empirical analysis from coastal Bangladesh." *Disasters* 38(3): 654–671.
- Marx, M. et al. (2012). "Integrated health, social, and economic impacts of extreme events: Evidence, methods, and tools." *Global Health Action* 5: 19837. <http://dx.doi.org/10.3402/gha.v5i0.19837>, accessed on 8/6/2015.
- Morris, S. S. and Wodon, Q. (2003). "The allocation of natural disaster relief funds: Hurricane Mitch in Honduras." *World Development* 31(7): 1279–1289.
- Morrow, B. H. and Phillips, B. (1999). "What's gender 'got to do with it'?" *International Journal of Mass Emergencies and Disasters* 17(1): 5.
- Nahar, N. , Blomstedt, Y. , Wu, B. , Kandarina, I. , Trisnantoro, L. and Kinsman, J. (2014). "Increasing the provision of mental health care for vulnerable, disaster-affected people in Bangladesh." *BMC Public Health* 14(1): 1–9. [www.biomedcentral.com/1471-2458/708](http://www.biomedcentral.com/1471-2458/708), accessed on 17/12/2014.
- Nasreen, M. (2004). "Disaster research: Exploring sociological approach to disaster in Bangladesh." *Bangladesh e-journal of Sociology* 1(2): 1–8.
- Neumayer, E. and Plümpert, T. (2007). "The gendered nature of natural disasters: The impact of catastrophic events on the gender gap in life expectancy, 1981–2002." *Annals of the Association of American Geographers* 97(3): 551–566.
- Norris, F. H. , Friedman, M. J. , Watson, P. J. , Byrne, C. M. , Diaz, E. and Kaniasty, K. (2002). "60,000 disaster victims speak: Part I: An empirical review of the empirical literature, 1981–2001." *Psychiatry: Interpersonal and Biological Processes* 65(3): 207–239.
- Oxfam . (2005). "The tsunami's impact on women." [www.oxfam.org.uk/what\\_we\\_do/issues/conflict\\_disasters/downloads/bn\\_tsunami\\_women.pdf](http://www.oxfam.org.uk/what_we_do/issues/conflict_disasters/downloads/bn_tsunami_women.pdf), accessed on 3/5/2005.
- Paul, B. K. (2010). "Human injuries caused by Bangladesh's Cyclone Sidr: An empirical study." *Natural Hazards* 54(2): 483–495.
- Paul, S. K. , Paul, B. K. and Routrary, J. K. (2012). "Post-Cyclone Sidr nutritional status of women and children in coastal Bangladesh: An empirical study." *Natural Hazards* 64(1): 19–36.
- Pittaway, E. , Bartolomei, L. and Rees, S. (2007). "Gendered dimensions of the 2004 tsunami and a potential social work response in post-disaster situations." *International Social Work* 50(3): 307–319.

Rahman, M. (2013). "Climate change, disaster and gender vulnerability: A study on two divisions of Bangladesh." *American Journal of Human Ecology* 2(2): 72–82.

Rashid, S. F. and Michaud, S. (2000). "Female adolescents and their sexuality: Notions of honour, shame, purity and pollution during the floods." *Disasters* 24(1): 54–70.

Ray-Bennett, N. S. , Collins, A. , Bhuiya, A. , Edgeworth, R. , Nahar, P. and Alamgir, F. (2010). "Exploring the meaning of health security for disaster resilience through people's perspectives in Bangladesh." *Health & Place* 16(3): 581–589.

Skoufias, E. (2003). "Economic crises and natural disasters: Coping strategies and policy implications." *World Development* 31(7): 1087–1102.

Terranova, A. M. , Boxer, P. and Morris, A. S. (2009). "Factors influencing the course of posttraumatic stress following a natural disaster: Children's reactions to Hurricane Katrina." *Journal of Applied Developmental Psychology* 30(3): 344–355.

Turner, B. L. , Kasperson, R. , Matson, P. A. , McCarthy, J. J. , Corell, L. C. , Christensen, L. , Eckley, N. , Kasperson, J. X. , Luers, A. , Martello, M. L. , Polsky, C. , Pulsipher, A. and Schiller, A. (2003). "A framework for vulnerability analysis in sustainability science." *Proceedings of the National Academy of Sciences* 100(14): 8074–8079.

Webster, P. J. (2013). "Meteorology: Improve weather forecasts for the developing world." *Nature* 493(7430): 17–19.

Wilson, R. K. and Stein, R. M. (2006). *Katrina Evacuees in Houston: One-Year Out*. Unpublished manuscript, Houston, TX, Rice University.

Zilversmit, L. , Sappenfield, O. , Zotti, M. and McGehee, M. A. (2014). "Preparedness planning for emergencies among postpartum women in Arkansas during 2009." *Women's Health Issues* 24(1): e83–e88.

## Impacts of disaster on healthcare accessibility

Ahmed, S. M. , Hossain, M. A. , Chowdhury, A. M.R. and Bhuiya, A. U. (2011). "The health workforce crisis in Bangladesh: Shortage, inappropriate skill-mix and inequitable distribution." *Human Resource for Health* 9(3): 1–7. [www.human-resources-health.com/content/9/1/3](http://www.human-resources-health.com/content/9/1/3).

Ahmed, S. M. , Tomson, G. , Petzold, M. and Kabir, Z. N. (2005). "Socioeconomic status overrides age and gender in determining health-seeking behaviour in rural Bangladesh." *Bulletin of the World Health Organization* 83(2): 109–117.

Alam, E. and Collins, A. E. (2010). "Cyclone disaster vulnerability and response experiences in coastal Bangladesh." *Disasters* 34(4): 931–954.

Balcik, B. , Beamon, B. M. , Krejci, C. C. , Muramatsu, K. M. and Ramirez, M. (2010). "Coordination in humanitarian relief chains: Practices, challenges and opportunities." *International Journal of Production Economics* 126(1): 22–34.

Berggren, R. E. and Curiel, T. J. (2006). "After the storm – health care infrastructure in post-Katrina New Orleans." *New England Journal of Medicine* 354(15): 1549–1552.

Biswas, P. , Kabir, Z. N. , Nilson, J. and Zaman, S. (2006). "Dynamics of health care seeking behaviour of elderly people in rural Bangladesh." *International Journal of Ageing and Later Life* 1(1): 69–89.

Cash, R. A. , Halder, S. R. , Husain, M. , Islam, M. S. , Mallick, F. H. , May, M. A. , Rahman, M. and Rahman, M. A. (2014). "Reducing the health effect of natural hazards in Bangladesh." *The Lancet* 382(9910): 2094–2103.

de Ville de Goyet, C. (2007). "Health lessons learned from the recent earthquakes and Tsunami in Asia." *Prehospital and Disaster Medicine* 22(1): 15–21.

Djalali, A. , Khankeh, H. , Ohlen, G. , Castren, M. and Kurland, L. (2011). "Facilitators and obstacles in pre-hospital medical response to earthquakes: A qualitative study." *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine* 19(1): 30.

Fawcett, W. and Oliveira, C. S. (2000). "Casualty treatment after earthquake disasters: Development of a regional simulation model." *Disasters* 24(3): 271–287.

Government of Bangladesh. (2007). *WHO-AIMS Report on Mental Health System in Bangladesh*. Dhaka, Ministry of Health and Family Welfare.

Hasan, J. (2012). "Effective telemedicine project in Bangladesh: Special focus on diabetes health care delivery in a tertiary care in Bangladesh." *Telematics and Informatics* 29(2):

Health Bulletin 2013. (2013). Health Bulletin 2013, District: Barguna, Barguna Civil Surgeon Office, Barguna, Ministry of Health and Family Welfare, Bangladesh.

Hyre, A. D. , Cohen, A. J. , Kutner, N. , Alper, A. B. and Munter, P. (2007). "Prevalence and predictors of posttraumatic stress disorder among hemodialysis patients following Hurricane Katrina." *American Journal of Kidney Diseases* 50(4): 585–593.

Islam, A. S. , Bala, S. K. , Hussain, M. A. , Hussain, M. A. and Rahman, M. M. (2011). "Performance of coastal structures during Cyclone Sidr." *Natural Hazards Review* 12(3): 111–116.

Jacob, B. , Mawson, A. R. , Payton, M. and Guignard, J. C. (2008). "Disaster mythology and fact: Hurricane Katrina and social attachment." *Public Health Reports* 123(5): 555–566.

Johnson, J. and Galea, S. (2009). "Disasters and Population Health." In K.E. Cherry (ed.) *Lifespan Perspectives on Natural Disasters*, London, Springer: 281–326.

Keim, M. E. (2006). "Cyclones, tsunamis and human health." *Oceanography* 19(2): 40–49.

Kohl, P. A. , O'Rourke, A. P. , Schmidman, D. L. and Dopkin, W. A. (2005). "The Sumatra-Andaman Earthquake and Tsunami of 2004: The hazards, events, and damage." *Prehospital and Disaster Medicine* 20(6): 356–363.

Lai, T. I. , Shih, F. Y. , Chiang, W. C. , Shen, S. T. and Chen, W. J. (2003). "Strategies of disaster response in the health care system for tropical cyclones: Experience following Typhoon Nari in Taipei City." *Academic Emergency Medicine* 10(10): 1109–1112.

Mahmood, S. S. , Iqbal, M. , Hanifi, S. M. A. , Wahedi, T. and Bhuiya, A. (2010). "Are 'village doctors' in Bangladesh a curse or a blessing?" *BMC International Health and Human Rights* 1: 18. [www.biomedcentral.com/1472-698X/10/18](http://www.biomedcentral.com/1472-698X/10/18).

Markenson, D. and Reynolds, S. (2006). "The pediatrician and disaster preparedness." *Pediatrics* 117(2): e340–e362.

Meredith, J. and Bradley, S. (2002). "Hurricanes." In Hogan, D. and Burnstein, J. (eds.) *Disaster Medicine*. Philadelphia, PA: Lippincott, William and Wilkins: 179–186.

Morris, S. S. and Wodon, Q. (2003). "The allocation of natural disaster relief funds: Hurricane Mitch in Honduras." *World Development* 31(7): 1279–1289.

Nahar, N. , Blomstedt, Y. , Wu, B. , Kandarina, I. , Trisnantoro, L. and Kinsman, J. (2014). "Increasing the provision of mental health care for vulnerable, disaster-affected people in Bangladesh." *BMC Public Health* 14(1): 1–9. [www.biomedcentral.com/1471-2458/708](http://www.biomedcentral.com/1471-2458/708), accessed on 17/12/2014.

Parvin, G. A. , Takahashi, F. and Shaw, R. (2008). "Coastal hazards and community-coping methods in Bangladesh." *Journal of Coastal Conservation* 12(4): 181–193.

Paul, S. K. , Paul, B. K. and Routrary, J. K. (2012). "Post-Cyclone Sidr nutritional status of women and children in coastal Bangladesh: An empirical study." *Natural Hazards* 64(1): 19–36.

Paxson, C. , Fussell, E. , Rhodes, J. and Waters, M. (2012). "Five years later: Recovery from post traumatic stress and psychological distress among low-income mothers affected by Hurricane Katrina." *Social Science & Medicine* 74(2): 150–157.

Phalkey, R. , Dash, S. R. , Mukhopadhyay, A. , Runge-Ranzinger, S. and Marx, M. (2012). "Prepared to react? Assessing the functional capacity of the primary health care system in rural Orissa, India to respond to the devastating flood of September 2008." *Global Health Action* 5, doi:10.3402/gha.v5i0.10964

Phalkey, R. , Reinhardt, J. D. and Marx, M. (2011). "Injury epidemiology after the 2001 Gujarat earthquake in India: A retrospective analysis of injuries treated at a rural hospital in the Kutch district immediately after the disaster." *Global Health Action* 4: 7196. doi:10.3402/gha.V4i0.7196

Rahmatullah, M. , Ferdousi, D. , Mollick, M. A. H. , Jahan, R. , Chowdhury, M. H. and Haque, W. M. (2010). "A survey of medicinal plants used by Kavirajes of Chalna area, Khulna district, Bangladesh." *African Journal of Traditional, Complementary and Alternative Medicines* 7(2): 91–97.

Rathore, F. A. , Gosney, J. E. , Reinhardt, J. D. , Haig, A. J. , Li, J. and DeLisa, J. A. (2012). "Medical rehabilitation after natural disasters: Why, when, and how?" *Archives of Physical Medicine and Rehabilitation* 93(10): 1875–1881.

Ray-Bennett, N. S. , Collins, A. , Bhuiya, A. , Edgeworth, R. , Nahar, P. and Alamgir, F. (2010). "Exploring the meaning of health security for disaster resilience through people's perspectives in Bangladesh." *Health & Place* 16(3): 581–589.

Sarwar, M. G. M. (2005). "Impacts of sea level rise on the coastal zone of Bangladesh." Sweden, Lund University, Master's Thesis.

Story, W. T. , Burgard, S. A. , Lori, J. R. , Taleb, F. , Ali, N.A. and Hoque, D. E. (2012). "Husbands' involvement in delivery care utilization in rural Bangladesh: A qualitative study." *BMC Pregnancy and Childbirth* 12(1): 28.

Stratton, S. J. and Tyler, R. D. (2006). "Characteristics of medical surge capacity demand for sudden-impact disasters." *Academic Emergency Medicine* 13(11): 1193–1197.

Takasaki, Y. (2011). "Targeting cyclone relief within the village: Kinship, sharing, and capture." *Economic Development and Cultural Change* 59(2): 387–416.

Tunstall, S. , Tapsell, S. , Green, C. , Floyd, P. and George, C. (2006). "The health effects of flooding: Social research results from England and Wales." *Journal of Water and Health* 4: 365–380.

Uddin, J. and Mazur, R. E. (2014). "Socioeconomic factors differentiating healthcare utilization of cyclone survivors in rural Bangladesh: A case study of cyclone Sidr." *Health Policy and Planning* 30(6): 782–790, doi:10.1093/heapol/czu057

WHO. (2006). "Working together for health: The world health report 2006." World Health Organization.

## Gender and healthcare access after disasters

Adamson, J. , Ben-Shlomo, Y. , Chaturvedi, N. and Donovan, J. (2003). "Ethnicity, socio-economic position and gender – do they affect reported health-care seeking behaviour?" *Social Science & Medicine* 57(5): 895–904.

Ahmed, F. E. (2004). "The rise of the Bangladesh garment industry: Globalization, women workers, and voice." *NWSA Journal* 16(2): 34–45.

Ahmed, S. M. , Tomson, G. , Petzold, M. and Kabir, Z. N. (2005). "Socioeconomic status overrides age and gender in determining health-seeking behaviour in rural Bangladesh." *Bulletin of the World Health Organization* 83(2): 109–117.

Alam, E. and Collins, A. E. (2010). "Cyclone disaster vulnerability and response experiences in coastal Bangladesh." *Disasters* 34(4): 931–954.

Alam, K. and 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.

Anwar, J. , Mpofu, E. , Mathews, L. , Shadoul, A. F. and Brack, K. E. (2011). "Reproductive health and access to healthcare facilities: Risk factors for depression and anxiety in women with an earthquake experience." *BMC Public Health* 11(1): 523. [www.biomedcentral.com/1471-2458/11/523](http://www.biomedcentral.com/1471-2458/11/523)

Arnold, F. , Choe, M. K. and Roy, T. K. (1998). "Son preference, the family-building process and child mortality in India." *Population Studies* 52(3): 301–315.

BBS. (2006). *Population Census-2001, Community Series. Zila, Barguna, Bangladesh Bureau of Statistics.*

Begum, R. (1993). "Women in environmental disasters: The 1991 cyclone in Bangladesh." *Gender & Development* 1(1): 34–39.

Bhuiya, A. (2009). *Health for the Rural Masses: Insights From Chakaria, Bangladesh, ICDDR.B.*

Biswas, P. , Kabir, Z. N. , Nilson, J. and Zaman, S. (2006). "Dynamics of health care seeking behaviour of elderly people in rural Bangladesh." *International Journal of Ageing and Later Life* 1(1): 69–89.

Bloom, S. S. , Wypij, D. and Das Gupta, M. (2001). "Dimensions of women's autonomy and the influence on maternal health care utilization in a north Indian city." *Demography* 38(1): 67–78.

Boscarino, J. A. , Adams, R. E. , Stuber, J. and Galea, S. (2005). "Disparities in mental health treatment following the World Trade Center disaster: Implications for mental health care and health services research." *Journal of Traumatic Stress* 18(4): 287–297.

Brah, A. and Phoenix, A. (2004). "Ain't I a woman? Revisiting intersectionality." *Journal of International Women's Studies* 5(3): 75–86.

Brunson, E. K. , Shell-Duncan, B. and Steele, M. (2009). "Women's autonomy and its relationship to children's nutrition among the Rendille of northern Kenya." *American Journal of Human Biology* 21(1): 55–64.



- Butler, J. (1990). *Gender Trouble: Feminism and the Subversion of Identity*. New York, Routledge.
- Byrne, B. and Baden, S. (1995). *Gender, Emergencies and Humanitarian Assistance*. Brighton, Institute of Development Studies.
- Cannon, T. (2002). "Gender and climate hazards in Bangladesh." *Gender & Development* 10(2): 45–50.
- CCC. (2009). *Climate Change, Gender and Vulnerable Groups in Bangladesh*. Dhaka, Climate Change Cell, DoE, MoEF, Component 4b, CDMP, MoFDM: 1–82.
- Chowdhury, A. M. R. , Bhuiya, A. , Mahmud, S. , Salam, A. K. M. A. and Karim, F. (2003). "Immunization divide: Who do get vaccinated in Bangladesh?" *Journal of Health, Population and Nutrition* 21(3): 193–204.
- Chowdhury, A. M. R. , Nath, S. R. and Choudhury, R. K. (2002). "Enrolment at primary level: Gender difference disappears in Bangladesh." *International Journal of Educational Development* 22(2): 191–203.
- Collins, P. H. (1990). *Black Feminist Thought: Knowledge, Consciousness, and the Politics of Empowerment*. Boston, Unwin Hyman.
- Collins, P. H. (2000). *Black Feminist Thought: Knowledge, Consciousness, and the Politics of Empowerment*, 2nd edition. New York, Routledge.
- Connell, R. W. (2002). *Gender*. Cambridge, Polity Press.
- Dominelli, L. (2013). "Gendering Climate Change: Implications for Debates, Policies and Practices." In Alston, M. and Whittenbury, K. (eds.) *Research, Action and Policy: Addressing the Gendered Impacts of Climate Change*. London, Springer: 77–93.
- Doyal, L. (2000). "Gender equity in health: Debates and dilemmas." *Social Science & Medicine* 51(6): 931–939.
- Enarson, E. P. (2000). *Gender and Natural Disasters*. Geneva, ILO.
- Enarson, E. P. and Morrow, B. H. (eds.) (1998). *The Gendered Terrain of Disaster*. New York, Praeger.
- Fikree, F. F. and Pasha, O. (2004). "Role of gender in health disparity: The South Asian context." *BMJ* 328(7443): 823–826.
- Few, R. and Tran, P. G. (2010). "Climatic hazards, health risk and response in Vietnam: Case studies on social dimensions of vulnerability." *Global Environmental Change* 20(3): 529–538.
- Fisher, S. (2010). "Violence against women and natural disasters: Findings from post-tsunami Sri Lanka." *Violence Against Women* 16(8): 902–918.
- Furuta, M. and Salway, S. (2006). "Women's position within the household as a determinant of maternal health care use in Nepal." *International Family Planning Perspectives* 32(1): 17–27.
- Gelberg, L. , Andersen, R. M. and Leake, B. D. (2000). "The behavioral model for vulnerable populations: Application to medical care use and outcomes for homeless people." *Health Services Research* 34(6): 1273–1303.
- Goetz, A. M. and Gupta, R. S. (1996). "Who takes the credit? Gender, power, and control over loan use in rural credit programs in Bangladesh." *World Development* 24(1): 45–63.
- Hadley, C. , Brewis, A. and Pike, I. (2010). "Does less autonomy erode women's health? Yes. no. maybe." *American Journal of Human Biology* 22(1): 103–110.
- Hart, N. (1989). "Sex, gender and survival: inequalities of life chances between European men and women." in J. Fox (ed.) *Health inequalities in European countries*. Aldershot, UK, Gower Publishing Limited, 109–141.
- Johnson, J. and Galea, S. (2009). "Disasters and Population Health." In K.E. Cherry (ed.) *Lifespan Perspectives on Natural Disasters*, London, Springer: 281–326.
- Karim, F. , Islam, M. A. , Chowdhury, A. , Johansson, E. and Diwan, V. K. (2007). "Gender differences in delays in diagnosis and treatment of tuberculosis." *Health Policy and Planning* 22(5): 329–334.
- Karim, M. , Castine, S. , Brooks, A. , Beare, D. , Beveridge, M. and Phillips, M. (2014). "Asset or liability? Aquaculture in a natural disaster prone area." *Ocean & Coastal Management* 96: 188–197.
- Karim, F. , Tripura, A. , Gani, M. S. and Chowdhury, A. M. R. (2006). "Poverty status and health equity: Evidence from rural Bangladesh." *Public Health* 120(3): 193–205.
- Kaufman, M. (1987). "The Construction of Masculinity and the Triad of Men's Violence." In M. Kaufman (ed.) *Beyond Patriarchy: Essays on Pleasure, Power and Change*. Toronto, Oxford University Press.

Killewo, J. , Anwar, I. , Bashir, I. , Yunus, M. and Chakraborty, J. (2006). "Perceived delay in healthcare-seeking for episodes of serious illness and its implications for safe motherhood interventions in rural Bangladesh." *Journal of Health, Population, and Nutrition* 24(4): 403–412.

MacDonald, R. (2005). "How women were affected by the tsunami: A perspective from Oxfam." *PLoS Medicine* 2(6): e178.

Mahmood, S. S. , Iqbal, M. , Hanifi, S. M. A. , Wahedi, T. and Bhuiya, A. (2010). "Are 'village doctors' in Bangladesh a curse or a blessing?" *BMC International Health and Human Rights* 10(1): 18. [www.biomedcentral.com/1472-698X/10/18](http://www.biomedcentral.com/1472-698X/10/18).

Momsen, J. (2010). *Gender and Development*, New York, Routledge.

Nahar, N. , Blomstedt, Y. , Wu, B. , Kandarina, I. , Trisnantoro, L. and Kinsman, J. (2014). "Increasing the provision of mental health care for vulnerable, disaster-affected people in Bangladesh." *BMC Public Health* 14(1): 1–9. [www.biomedcentral.com/1471-2458/708](http://www.biomedcentral.com/1471-2458/708), accessed on 17/12/2014.

Narayan, D. , Patel, R. , Schafft, K. , Rademacher, A. , Koch-Schulte, S. (2000). *Voice of the poor: can anyone hear us?* New York, Oxford University Press.

Neumayer, E. and Plümpert, T. (2007). "The gendered nature of natural disasters: The impact of catastrophic events on the gender gap in life expectancy, 1981–2002." *Annals of the Association of American Geographers* 97(3): 551–566.

Paolisso, M. and Leslie, J. (1995). "Meeting the changing health needs of women in developing countries." *Social Science & Medicine* 40(1): 55–65.

Parkhurst, J. O. , Rahman, S. A. and Ssengooba, F. (2006). "Overcoming access barriers for facility-based delivery in low-income settings: Insights from Bangladesh and Uganda." *Journal of Health, Population, and Nutrition* 24(4): 438–445.

Parvin, G. A. , Takahashi, F. and Shaw, R. (2008). "Coastal hazards and community-coping methods in Bangladesh." *Journal of Coastal Conservation* 12(4): 181–193.

Paul, B. K. (2010). "Human injuries caused by Bangladesh's Cyclone Sidr: An empirical study." *Natural Hazards* 54(2): 483–495.

Peters, D. H. , Garg, A. , Bloom, G. , Walker, D. G. , Brieger, W. R. and Rahman, M. H. (2008). "Poverty and access to health care in developing countries." *Annals of the New York Academy of Sciences* 1136(1): 161–171.

Phoenix, A. and Pattynama, P. (2006). "Intersectionality." *European Journal of Women's Studies* 13(3): 187–192.

Pitman, P. (1999). "Gendered experiences of health care." *International Journal for Quality in Health Care* 11(5): 397–405.

Puentes-Markides, C. (1992). "Women and access to health care." *Social Science & Medicine* 35(4): 619–626.

Rahman, M. (2013). "Climate change, disaster and gender vulnerability: A study on two divisions of Bangladesh." *American Journal of Human Ecology* 2(2): 72–82.

Rahmatullah, M. , Ferdousi, D. , Mollick, M. A. H. , Jahan, R. , Chowdhury, M. H. and Haque, W. M. (2010). "A survey of medicinal plants used by Kavirajes of Chalna area, Khulna district, Bangladesh." *African Journal of Traditional, Complementary and Alternative Medicines* 7(2): 91–97.

Rashid, S. F. and Michaud, S. (2000). "Female adolescents and their sexuality: Notions of honour, shame, purity and pollution during the floods." *Disasters* 24(1): 54–70.

Rathore, F. A. , Gosney, J. E. , Reinhardt, J. D. , Haig, A. J. , Li, J. and DeLisa, J. A. (2012). "Medical rehabilitation after natural disasters: Why, when, and how?" *Archives of Physical Medicine and Rehabilitation* 93(10): 1875–1881.

Sen, A. (2001). "The many faces of gender inequality." *New republic* 18: 35–39.

Sen, A. (2013). "What's happening in Bangladesh?" *Lancet* 382(9909): 1966.

Shields, S. A. (2008). "Gender: An intersectionality perspective." *Sex Roles* 59(5): 301–311.

Stock, R. (1983). "Distance and the utilization of health facilities in rural Nigeria." *Social Science & Medicine* 17(9): 563–570.

Story, W. T. , Burgard, S. A. , Lori, J. R. , Taleb, F. , Ali, N. A. and Hoque, D. E. (2012). "Husbands' involvement in delivery care utilization in rural Bangladesh: A qualitative study." *BMC Pregnancy and Childbirth* 12(1): 28. [www.biomedcentral.com/1471-2393/12/28](http://www.biomedcentral.com/1471-2393/12/28).

Sultana, F. (2010). "Living in hazardous waterscapes: Gendered vulnerabilities and experiences of floods and disasters." *Environmental Hazards* 9(1): 43–53.

- Uddin, J. and Mazur, R. E. (2015). "Socioeconomic factors differentiating healthcare utilization of cyclone survivors in rural Bangladesh: a case study of cyclone Sidr." *Health policy and planning* 30(6): 782–790.
- Waldron, I. (1995). "Contributions of Changing Gender Differences in Behavior and Social Roles to Changing Gender Differences in Mortality." In Sabo, D. and Gordon, D. F. (eds.) *Men's Health and Illness: Gender, Power and the Body*, Thousand Oaks, CA, SAGE Publications: 22–45.
- Wiest, R. E. , Mocellin, J. S. P. and Motsisi, D. T. (1994). *The Needs of Women in Disasters and Emergencies*, Canada, Disaster Research Institute, University of Manitoba.
- Zilversmit, L. , Sappenfield, O. , Zotti, M. and McGehee, M. A. (2014). "Preparedness planning for emergencies among postpartum women in Arkansas during 2009." *Women's Health Issues* 24(1): e83–e88.

## Prevailing initiatives, gaps and people's expectations

- Adams, A. M. , Ahmed, T. , Arifeen, S. E. , Evans, T. G. , Huda, T. and Reichenbach, L. (2013). "Innovation for universal health coverage in Bangladesh: A call to action." *The Lancet* 382(9910): 2104–2111.
- Ahmed, F. (2007). "Bangladesh: Cyclone Sidr field report – BRAC." <http://reliefweb.int/report/bangladesh/bangladesh-cyclone-sidr-field-report-brac-healthdirector-faruque-ahmed>, accessed on 1/12/2012.
- Ahsan, D. A. (2014). "Does natural disaster influence people's risk preference and trust? An experiment from cyclone prone coast of Bangladesh." *International Journal of Disaster Risk Reduction* 9: 48–57.
- Alam, E. and Collins, A. E. (2010). "Cyclone disaster vulnerability and response experiences in coastal Bangladesh." *Disasters* 34(4): 931–954.
- Balcik, B. , Beamon, B. M. , Krejci, C. C. , Muramatsu, K. M. and Ramirez, M. (2010). "Coordination in humanitarian relief chains: Practices, challenges and opportunities." *International Journal of Production Economics* 126(1): 22–34.
- BBS. (2006). *Population Census-2001, Community Series*. Zila, Barguna, Bangladesh Bureau of Statistics.
- Berg, R. (2009). *Hurricane Ike tropical cyclone report*. Miami, Florida, National Hurricane Center.
- Cash, R. A. , Halder, S. R. , Husain, M. , Islam, M. S. , Mallick, F. H. , May, M. A. , Rahman, M. and Rahman, M. A. (2014). "Reducing the health effect of natural hazards in Bangladesh." *The Lancet* 382(9910): 2094–2103.
- CCC. (2009). *Climate Change, Gender and Vulnerable Groups in Bangladesh*. Dhaka, Climate Change Cell, DoE, MoEF, Component 4b, CDMP, MoFDM: 1–82.
- CDMP. (2014). *Assessment Stakeholder's Role in Preparation For and Facing the Tropical Storm Mahasen*. Bangladesh, Ministry of Disaster Management and Relief.
- Custers, P. (1992). "Cyclones in Bangladesh: A history of mismanagement." *Economic and Political Weekly* 27(7): 327–329.
- Cyclone Preparedness Programme (CPP) and Bangladesh Red Crescent Society (BDRCS). (2007). "CPP at a glance." Dhaka. [www.preventionweb.net](http://www.preventionweb.net).
- DDM. (2013). *Disaster Preparedness Response and Recovery*. Bangladesh, Department of Disaster Management.
- Debnath, S. (2007). "More shelters could save many lives." *Daily Star*, 24 November.
- Djalali, A. , Khankeh, H. , Ohlen, G. , Castren, M. and Kurland, L. (2011). "Facilitators and obstacles in pre-hospital medical response to earthquakes: A qualitative study." *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine* 19(1): 30.
- Dominelli, L. (2013). "Gendering Climate Change: Implications for Debates, Policies and Practices." In Alston, M. and Whittenbury, K. (eds.) *Research, Action and Policy: Addressing the Gendered Impacts of Climate Change*. London, Springer: 77–93.
- Fernandes, A. and Zaman, M. H. (2012). "The role of biomedical engineering in disaster management in resource-limited settings." *Bulletin of the World Health Organization* 90(8): 631–632.

Government . (2008). Cyclone Sidr in Bangladesh: Damage, Loss and Needs Assessment For Disaster Recovery and Reconstructions. Bangladesh, Government of Bangladesh.

Haider, M. Z. and Ahmed, M. F. (2014). "Multipurpose uses of cyclone shelters: Quest for shelter sustainability and community development." *International Journal of Disaster Risk Reduction* 9: 1–11.

Haque, U. , Hashizume, M. , Kolivras, K. N. , Overgaard, H. J. , Das, B. and Yamamoto, T. (2012). "Reduced death rates from cyclones in Bangladesh: What more needs to be done?" *Bulletin of the World Health Organization* 90(2): 150–156. doi:10.2471/BLT.11.088302

Hossain, M. , Islam, M. T. , Sakai, T. and Ishida, M. (2008). "Impact of tropical cyclones on rural infrastructures in Bangladesh." *Agricultural Engineering International: The CIGR EJournal* 2(X). [www.cigrjournal.org](http://www.cigrjournal.org), accessed on 5/2/2015.

Hossain, N. (2008). "The price we pay." *FORUM*, a Monthly Publication of The Daily Star, 3(1). [www.thedailystar.net/forum/2008/january/price.htm](http://www.thedailystar.net/forum/2008/january/price.htm), accessed on 22/9/2014.

Huque, R. , Barkat, A. and Nazme, S. (2012). "Chapter 3: Public Health Expenditure: Equity, Efficacy and Universal Health Coverage." In S.M. Ahmed , T. G. Evans , A.M.R. Chowdhury , S. Mahmud & A. Bhuiya (eds.) *Bangladesh Health Watch: Moving Towards Universal Health Coverage*. Dhaka, James P Grant School of Public Health, BRAC University: 25–32.

IFRC. (2010). "Bangladesh: Cyclone Sidr." Final Report, International Federation of Red Cross and Red Crescent Societies.

Islam, A. S. , Bala, S. K. , Hussain, M. A. , Hussain, M. A. and Rahman, M. M. (2011). "Performance of coastal structures during Cyclone Sidr." *Natural Hazards Review* 12(3): 111–116.

Kunreuther, H. , Meyer, R. and Michel-Kerjan, E. (2009). *Overcoming Decision Biases to Reduce Losses From Natural Catastrophes*, Risk Management and Decision Processes Center, USA, Risk Management and Decision Processes Center, The Wharton School, the University of Pennsylvania, 1–27.

Lai, T. I. , Shih, F. Y. , Chiang, W. C. , Shen, S. T. and Chen, W. J. (2003). "Strategies of disaster response in the health care system for tropical cyclones: Experience following Typhoon Nari in Taipei City." *Academic Emergency Medicine* 10(10): 1109–1112.

Litman, T. (2006). "Lessons from Katrina and Rita: What major disasters can teach transportation planners." *Journal of Transportation Engineering* 132(1): 11–18.

MacDonald, R. (2005). "How women were affected by the tsunami: A perspective from Oxfam." *PLoS Medicine* 2(6): e178.

Mallick, B. J. , Witte, S. M. , Sarkar, R. , Mahboob, A. S. and 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. (2014). "Cyclone shelters and their locational suitability: An empirical analysis from coastal Bangladesh." *Disasters* 38(3): 654–671.

Ministry of Finance (2010). *Gender Budgeting Report 2010-2011*. Bangladesh, Ministry of Disaster Management and Relief, Ministry of Finance.

Ministry of Finance. (2014). "Gender budgeting report 2014–2015." Ministry of Disaster Management and Relief, Ministry of Finance. [www.mof.gov.bd](http://www.mof.gov.bd).

MoDMR. (2012). "Cyclone shelter construction, maintenance and management guideline 2011." Ministry of Disaster Management and Relief.

Murdock, D. (2005). "Multi-layered failures: Government responses to Katrina." *National Review*.

Murtaza, N. , Shirin, M. and Alam, K. (2013). *Enhancing disaster resilience in Borobogi Union, Barguna district, Bangladesh-Community Managed Reduction Program in Taltoli Upazilla, ACF*.

Nahar, N. , Blomstedt, Y. , Wu, B. , Kandarina, I. , Trisnanto, L. and Kinsman, J. (2014). "Increasing the provision of mental health care for vulnerable, disaster-affected people in Bangladesh." *BMC Public Health* 14(1): 1–9. [www.biomedcentral.com/1471-2458/708](http://www.biomedcentral.com/1471-2458/708), accessed on 17/12/2014.

Oloruntoba, R. (2010). "An analysis of the Cyclone Larry emergency relief chain: Some key success factors." *International Journal of Production Economics* 126(1): 85–101.

Paul, B. K. (2009). "Why relatively fewer people died? The case of Bangladesh's Cyclone Sidr." *Natural Hazards* 50(2): 289–304.

Paul, B. K. and Dutt, S. (2010). "Hazard warnings and responses to evacuation orders: The case of Bangladesh's Cyclone Sidr." *Geographical Review* 100(3): 336–355.

Pittaway, E. , Bartolomei, L. and Rees, S. (2007). "Gendered dimensions of the 2004 tsunami and a potential social work response in post-disaster situations." *International Social Work* 50(3): 307–319.

Rashid, S. F. and Michaud, S. (2000). "Female adolescents and their sexuality: Notions of honour, shame, purity and pollution during the floods." *Disasters* 24(1): 54–70.

Ray-Bennett, N. S. , Collins, A. , Bhuiya, A. , Edgeworth, R. , Nahar, P. and Alamgir, F. (2010). "Exploring the meaning of health security for disaster resilience through people's perspectives in Bangladesh." *Health & Place* 16(3): 581–589.

Seaman, J. (1999). "Malnutrition in emergencies: How can we do better and where do the responsibilities lie?" *Disasters* 23(4): 306–315.

Shelter Coordination Group (SCG). (2008). "Barguna ward level shelter assessment." <http://sheltercluster.org/sites/default/files/docs/BWLSA%20Barguna%20WardLevel%20Assessment%20Presentation.ppt>, accessed on 25/1/2015.

Shultz, J. M. , Russell, J. and Espinel, Z. (2005). "Epidemiology of tropical cyclones: The dynamics of disaster, disease, and development." *Epidemiologic Reviews* 27(1): 21–35.

Simatupang, T. M. et al. (2002). "The knowledge of coordination for supply chain integration." *Business Process Management Journal* 8(3): 289–308.

Stover, E. and Vinck, P. (2008). "Cyclone Nargis and the politics of relief and reconstruction aid in Burma (Myanmar)." *JAMA* 300(6): 729–731.

## Conclusions and recommendations

a2i. (2013). "Access to Information (a2i) Programme, Prime Minister's Office." Dhaka, Bangladesh. [www.azi.pmo.gov.bd](http://www.azi.pmo.gov.bd), accessed on 13/3/2015.

Adams, A. M. , Ahmed, T. , Arifeen, S. E. , Evans, T. G. , Huda, T. and Reichenbach, L. (2013). "Innovation for universal health coverage in Bangladesh: A call to action." *The Lancet* 382(9910): 2104–2111.

Adnan, S. (1992). *People's Participation, NGOs, and the Flood Action Plan: An Independent Review*. Dhaka, Bangladesh: Research & Advisory Services.

Ahmed, N. (2011). "Gender and climate change: Myth vs. reality." *End Poverty in South Asia: Promoting Dialogue on Development in South Asia*, The World Bank. <http://blogs.worldbank.org/endpovertyinsouthasia/gender-and-climate-change-myth-vs-reality>, accessed on 30/5/2015.

Alam, E. and Collins, A. E. (2010). "Cyclone disaster vulnerability and response experiences in coastal Bangladesh." *Disasters* 34(4): 931–954.

Alam, K. and 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.

Bari, F. (1998). *Gender, Disaster, and Empowerment: A Case Study From Pakistan*, New York, Praeger.

Begum, R. (1993). "Women in environmental disasters: The 1991 cyclone in Bangladesh." *Gender & Development* 1(1): 34–39.

Bhavnani, K. , Foran, J. and Kurian, P. A. (2003). "An Introduction to Women, Culture and Development." In Bhavnani, K. , Foran, J. and Kurian, P.A. (eds.) *Feminist Futures: Re-Imagining Women, Culture and Development*. London, Zed Books: 1–21.

Bishop, A. (2002). *Becoming an Ally: Breaking the Cycle of Oppression in People*. London and New York, Zed books.

Braithwaite, R. L. , Bianchi, C. and Taylor, S. E. (1994). "Ethnographic approach to community organization and health empowerment." *Health Education Quarterly* 21(3): 407–416.

Branscomb, L. and Michel-Kerjan, E. (2006). "Public-Private Collaboration on a National and International Scale." In Auerswald, P. E. , Branscomb, L. M. , Porte, T. M. L. and Michel-Kerjan, E. O. (eds.) *Seeds of Disaster, Roots of Response: How Private Action Can Reduce Public Vulnerability*. New York, Cambridge University Press: 395–403.

Butler, J. (1990). *Gender Trouble: Feminism and the Subversion of Identity*. New York, Routledge.

Cannon, T. (2002). "Gender and climate hazards in Bangladesh." *Gender & Development* 10(2): 45–50.

Cash, R. A. , Halder, S. R. , Husain, M. , Islam, M. S. , Mallick, F. H. , May, M. A. , Rahman, M. and Rahman, M. A. (2014). "Reducing the health effect of natural hazards in Bangladesh." *The Lancet* 382(9910): 2094–2103.

CCC. (2009). *Climate Change, Gender and Vulnerable Groups in Bangladesh*. Dhaka, Climate Change Cell, DoE, MoEF, Component 4b, CDMP, MoFDM: 1–82.

Connell, R. (1987). *Gender and Power*. Cambridge, Polity Press.

Connell, R. W. (2003). *The Role of Men and Boys in Achieving Gender Equality*, Brazil, United Nations, Division for the Advancement of Women.

DDM. (2013). *Disaster Preparedness Response and Recovery*. Bangladesh, Department of Disaster Management.

Dominelli, L. (2013). "Gendering Climate Change: Implications for Debates, Policies and Practices." In Alston, M. and Whittenbury, K. (eds.) *Research, Action and Policy: Addressing the Gendered Impacts of Climate Change*. London, Springer: 77–93.

Dominelli, L. (2014). "Internationalizing professional practices: The place of social work in the international arena." *International Social Work* 57(3): 258–267.

Doyal, L. (2000). "Gender equity in health: Debates and dilemmas." *Social Science & Medicine* 51(6): 931–939.

EM-DAT. (2015). [www.emdat.be](http://www.emdat.be), accessed on 12/02/2015.

Enarson, E. (2002). "Gender Issues in Natural Disasters: Talking Points on Research Needs." *Crisis, Women and Other Gender Concerns*. ILO, Geneva, Working paper, 5–12.

Enarson, E. , Fothergill, A. and Peek, L. (2007). "Gender and Disaster: Foundations and Directions." In Rodriguez, H. , Quarantelli, E. L. and Dynes, R. (eds.) *Handbook of Disaster Research*. New York, Springer: 130–146.

Fernandes, A. and Zaman, M. H. (2012). "The role of biomedical engineering in disaster management in resource-limited settings." *Bulletin of the World Health Organization* 90(8): 631–632.

Fisher, S. (2010). "Violence against women and natural disasters: Findings from post-tsunami Sri Lanka." *Violence Against Women* 16(8): 902–918.

Fordham, M. (2003). "Gender, Disaster and Development." In Pelling, M. (ed.) *Natural Disasters and Development in a Globalizing World*, New York, Routledge, Taylor & Francis: 57.

Fordham, M. H. (1998). "Making women visible in disasters: Problematising the private domain." *Disasters* 22(2): 126–143.

Fuse, A. and Yokota, H. (2012). "Lessons learned from the Japan earthquake and tsunami, 2011." *Journal of Nippon Medical School* 79(4): 312–315.

Government . (2008). *Cyclone Sidr in Bangladesh: Damage, Loss and Needs Assessment For Disaster Recovery and Reconstructions*. Bangladesh, Government of Bangladesh.

Government of Bangladesh. (2007). "WHO-AIMS report on mental health system in Bangladesh." Dhaka, Ministry of Health and Family Welfare.

GTZ. (2005). *Linking Poverty Reduction and Disaster Risk Management*, Schmidt, A. , Bloemertz, L. and Macamo, E. (eds.), GTZ, Bonn: 88.

Haque, U. , Hashizume, M. , Kolivras, K. N. , Overgaard, H. J. , Das, B. and Yamamoto, T. (2012). "Reduced death rates from cyclones in Bangladesh: What more needs to be done?" *Bulletin of the World Health Organization* 90(2): 150–156. doi:10.2471/BLT.11.088302

Hossain, H. , Dodge, C. and Abel, F. (1992). *From Crisis to Development: Coping With Disasters in Bangladesh*, Dhaka, University Press.

Huq-Hussain, S. , Islam, M. S. and Habiba, U. (2013). "Documentation of coping strategies of coastal people particularly the Persons with Disabilities (PWDs) living in Bagerhat District." Final Report submitted to Action on Disability and Development (ADD) International, Disaster Research Training and Management Centre (DRTMC), Dhaka University.

Hyndman, J. (2008). "Feminism, conflict and disasters in post-tsunami Sri Lanka." *Gender, Technology and Development* 12(1): 101–121.

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.

Kandaswamy, D. (2005). "Media forgets female face of tsunami, Global Media Monitoring Project (GMMP)." [www.womensenews.org/article.cfm/dyn/aid/2390](http://www.womensenews.org/article.cfm/dyn/aid/2390).

Kaufman, M. (1987). "The Construction of Masculinity and the Triad of Men's Violence." In M. Kaufman (ed.) *Beyond Patriarchy: Essays on Pleasure, Power and Change*. Toronto, Oxford University Press.

Kunreuther, H. , Meyer, R. and Michel-Kerjan, E. (2009). *Overcoming Decision Biases to Reduce Losses From Natural Catastrophes*, Risk Management and Decision Processes Center, USA, The Wharton School of the University of Pennsylvania: 1–27.

MacDonald, R. (2005). "How women were affected by the tsunami: A perspective from Oxfam." *PLoS Medicine* 2(6): e178.

Mallick, B. (2014). "Cyclone shelters and their locational suitability: An empirical analysis from coastal Bangladesh." *Disasters* 38(3): 654–671.

Markenson, D. and Reynolds, S. (2006). "The pediatrician and disaster preparedness." *Pediatrics* 117(2): e340–e362.

Momsen, J. (2010). *Gender and Development*, New York, Routledge.

Murtaza, N. , Shirin, M. and Alam, K. (2013). *Enhancing disaster resilience in Borobogi Union, Barguna district, Bangladesh-Community Managed Reduction Program in Taltoli Upazilla, ACF*.

Nahar, N. , Blomstedt, Y. , Wu, B. , Kandarina, I. , Trisnantoro, L. and Kinsman, J. (2014). "Increasing the provision of mental health care for vulnerable, disaster-affected people in Bangladesh." *BMC Public Health* 14(1): 1–9. [www.biomedcentral.com/1471-2458/708](http://www.biomedcentral.com/1471-2458/708), accessed on 17/12/2014.

Nasreen, M. (2004). "Disaster research: Exploring sociological approach to disaster in Bangladesh." *Bangladesh e-Journal of Sociology* 1(2): 1–8.

Neumayer, E. and Plümpert, T. (2007). "The gendered nature of natural disasters: The impact of catastrophic events on the gender gap in life expectancy, 1981–2002." *Annals of the Association of American Geographers* 97(3): 551–566.

Nicholson, L. (1994). "Interpreting gender." *Signs* 20(1): 79–105.

Paolisso, M. and Leslie, J. (1995). "Meeting the changing health needs of women in developing countries." *Social Science & Medicine* 40(1): 55–65.

Parvin, G. A. , Takahashi, F. and Shaw, R. (2008). "Coastal hazards and community-coping methods in Bangladesh." *Journal of Coastal Conservation* 12(4): 181–193.

Paul, B. K. and Dutt, S. (2010). "Hazard warnings and responses to evacuation orders: The case of Bangladesh's Cyclone Sidr." *Geographical Review* 100(3): 336–355.

Paxson, C. , Fussell, E. , Rhodes, J. and Waters, M. (2012). "Five years later: Recovery from post traumatic stress and psychological distress among low-income mothers affected by Hurricane Katrina." *Social Science & Medicine* 74(2): 150–157.

Phoenix, A. and Pattynama, P. (2006). "Intersectionality." *European Journal of Women's Studies* 13(3): 187–192.

The Prothom Alo. (2015a). "Women's development has been achieved but not the empowerment." [www.prothom-alo.com](http://www.prothom-alo.com), accessed on 1/3/2015.

The Prothom Alo. (2015b). "Women's health but family's decision." [www.prothom-alo.com](http://www.prothom-alo.com), accessed on 31/3/2015.

Rahman, M. (2013). "Climate Change, disaster and gender vulnerability: A study on two divisions of Bangladesh." *American Journal of Human Ecology* 2(2): 72–82.

Rajkumar, A. P. , Premkumar, T. S. and Tharyan, P. (2008). "Coping with the Asian tsunami: Perspectives from Tamil Nadu, India on the determinants of resilience in the face of adversity." *Social Science & Medicine* 67(5): 844–853.

Ray-Bennett, N. S. , Collins, A. , Bhuiya, A. , Edgeworth, R. , Nahar, P. and Alamgir, F. (2010). "Exploring the meaning of health security for disaster resilience through people's perspectives in Bangladesh." *Health & Place* 16(3): 581–589.

Rezwana, N. (2013). "Factors affecting women's accessibility to the reproductive healthcare facilities in Bangladesh." *Oriental Geographer* 54 (1): 57–69.

Rose, S. O. (2010). *What is Gender History?* Cambridge, Polity Press.

Sen, A. (2002). "Why health equity?" *Health Economics* 11(8): 659–666.

Shields, S. A. (2008). "Gender: An intersectionality perspective." *Sex Roles* 59(5): 301–311.

Sultana, F. (2010). "Living in hazardous waterscapes: Gendered vulnerabilities and experiences of floods and disasters." *Environmental Hazards* 9(1): 43–53.

Sultana, F. (2011). "Spaces of Power, Places of Hardship." In Raju, S. (ed.) *Gendered Geographies: Space and Places in South Asia*. India, Oxford University Press: 293–306.

Takasaki, Y. (2011). "Targeting cyclone relief within the village: Kinship, sharing, and capture." *Economic Development and Cultural Change* 59(2): 387–416.

Tunstall, S. , Tapsell, S. , Green, C. , Floyd, P. and George, C. (2006). "The health effects of flooding: Social research results from England and Wales." *Journal of Water and Health* 4: 365–380.

Vetter, S. , Rossegger, A. , Elbert, T. , Gerth, J. , Urbaniok, F. , Laubacher, A. , Rossler, W. and Endrass, J. (2011). "Internet-based self-assessment after the tsunami: Lessons learned." *BMC Public Health* 11(1): 18. [www.biomedcentral.com/1471-2458/11/18](http://www.biomedcentral.com/1471-2458/11/18).

Weisman, C. S. (1997). "Changing definitions of women's health: Implications for health care and policy." *Maternal and Child Health Journal* 1(3): 179–189.