Cyclone Sidr and Its Aftermath: Everyday Life, Power and Marginality

MD. NADIRUZZAMAN

Cyclone Sidr and Its Aftermath: Everyday Life, Power and Marginality

Md. Nadiruzzaman

This PhD research is about power struggle and marginality in peoples' everyday life in the aftermath of the cyclone Sidr. This research explores how everyday vulnerabilities of a coastal community, which is ignored in the powerful knowledge framing, limit peoples' ability to withstand a cyclone. It reiterates the idea that the conditionality, which makes an individual, a group or a community susceptible to a natural event, is a legacy of our engagement with the environment and, thus, scrutinise our knowledge on that particular event. From a theoretical interest in environment-society studies, my work strives to understand affected communities' quotidian experiences of their livelihoods, after being affected by Cyclone Sidr, through rebuilding, relief support, access to natural resources in land, water and forest, alternative income opportunities, patron-client networks, and local power dynamics.

The whole research is based on an ethnographic account in three proximate villages, Gabtola, Mazer Char and Sonatola Model Village, adjacent to the Sundarbans. This research examines the following research questions – i) How are communities' everyday livelihoods, mediated through their broader societal, political and economic networks, informing their ability to cope with a cyclone event, and thus connected with cyclone knowledge?; ii) How are the complex interface of environmental change, livelihood options and power dynamics reciprocally linked with cyclone rhetoric?; and iii) Whose views are reflected in the development of cyclone knowledge and practice in Bangladesh? Being a native Bengali speaker, knowing local dialects, having previous work experience of academic research on disadvantaged and rural communities, power dynamics and development, I was in an advantageous position to carry out this highly sensitive work.

This research contributes to the idea of vulnerability and resilience by portraying the importance of considering local power dynamics in shaping environment-society relationship. In addition, this research also enlightens on local development and economic aspects through unpacking issues in regard to relief and rehabilitation, fishing and forest use. These theoretical contributions, reciprocally, back up methodological underpinnings of it. More importantly, this research explores the interface of cyclone, power and livelihoods and echoes voices of marginal people with a view to them having their space in policies.

Cyclone Sidr and Its Aftermath: Everyday Life, Power and Marginality

This dissertation is submitted in fulfilment of the requirements of the degree of Doctor of Philosophy in the Department of Geography

Md. Nadiruzzaman
Department of Geography, Durham University, August 2012.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter Seven

Chapter Eight

Chapter Nine

LIST OF ABBREVIATIONS

ADO	Area Development Organisation
AL	Awami League
ALRD	Association for Land Reform and Development
BBC	British Broadcasting Corporation
BBG	British Business Group
BBS	Bangladesh Bureau of Statistics
BDRC	Bangladesh Red Cross and Red Crescent Society
BELA	Bangladesh Environmental Lawyers Association
BFRI	Bangladesh Forest Research Institute
BNP	Bangladesh Nationalist Party
BMD	Bangladesh Meteorological Department
BRAC	Bangladesh Rural Advancement Committee
CARE	Cooperative for American Relief Everywhere
CDMP	Comprehensive Disaster Management Programme
CEGIS	Centre for Environmental and Geographic Information Services
CEP	Coastal Embankment Project
CMC	Co-Management Council
CMgC	Co-management Committee
CPP	Cyclone Preparedness Programme
CRA	Community Risk Assessment
CRED	Centre for Research on the Epidemiology of Disasters
DaLa	Damage and Loss Assessment
DFID	Department for International Development
DFO	District Forest Officer
DoE	Department of Environment
DoF	Department of Fisheries
DSK	Dushtha Shasthya Kendra
EC	European Commission
ECLAC	Economic Commission for Latin America and the Caribbean
EM-DAT	Emergency Events Database
FAD	Food Availability Decline
FD	Forest Department
GDP	Gross Domestic Product
GIS	Geographic Information Systems
GM	Genetically Modified
GNP	Gross National Product
GoB	Government of Bangladesh
GR	General Relief

HFA	Hyogo Framework for Action
ICDDR,B	International Centre for Diarrhoeal Disease Research, Bangladesh
IECO	International Engineering Company Incorporation
IFRC	International Federation of Red Cross and Red Crescent Societies
IPAC	Integrated Protected Area Co-management
IUCN	International Union for the Conservation of Nature
MDMR	Ministry of Disaster Management and Relief
MP	Member of Parliament
NGO	Non-Government Organisation
OPV	Oral Polio Vaccine
PAR	Pressure and Release Model
PDO-ICZMP	Program Development Office – Integrated Coastal Zone Management Plan
PF	People's Forum
PHED	Public Health Engineering Department
PRA	Participatory Rural Appraisal
RDRS	Rangpur Dinajpur Rural Service
REDD+	Reducing Emissions from Deforestation and Forest Degradation
RIC	Resource Integration Centre
SOC	Standing Orders on Cyclones
SOD	Standing Orders on Disasters
SPARSO	Space Research and Remote Sensing Organisation
STS	Science and Technology Studies
SYSMIS	Survey on Shelters Management Information Systems
SWC	Storm Warning Centre
TR	Test Relief
UDMC	Union Disaster Management Committee
UK	United Kingdom
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organisation
UNICEF	United Nations International Children's Emergency Fund
UNISDR	United Nation's International Strategy for Disaster Reduction
UNO	Upazila Nirbahi Officer
UP	Union Parishad
USAID	United States Assistance for International Development
VCF	Village Conservation Forum
VDP	Village Defence Party
VGD	Vulnerable Group Development
VGF	Vulnerable Group Feeding
WARPO	Water Resources Planning Organisation
WHO	World Health Organisation
WMO	World Meteorological Organisation

Glossary of Terms

Aila A cyclone which had its landfall in the south-western coast of Bangladesh in May 25, 2009.

Aus, ***Aman*** and ***Boro*** are there major local varieties of paddy.

Bari Dictionary meaning is house. However, it connotes a *gusthi* (Bode, 2002). Despite its members living in different houses and maintaining separate individual household accounts, they are connected together through the communal essence of their kinship. The oldest parental home of a kinship lineage, despite being split among its decedents, is often being referred as a physical entity of that kinship.

Bauali The group of people, who collect plant materials from the Sundarbans.

Char A relatively stable sandbar that forms at the centre or edge of a river. With further deposition it may become a relatively large island.

Dadon A traditional conditional loaning system, particularly appropriate for fishing business around the Bengal delta, which is explained later in this chapter.

Golpata The only mangrove palm species widely used as roofing and fencing materials.

Ijaradars Investors in inland water bodies leasing system.

Jal Fishing net. Different kinds of fishing nets used in the field sites, i.e. ***dhora jal***, ***vasha jal***, ***bendi jal***, ***char gora jal*** and ***current jal***, are explained in Chapter Seven.

Jele Fishermen.

Jotedar Big landowners, who have substantial money and power, which they often are used to evict others.

Khas *Khas* refers to ownership of land and water bodies. *Khas* means common property acquired by the Ministry of Land to lease out among the landless poor community. This research only deals with a particular type of *khas* land formed through fluvial depositional processes. Under the amendment of the *Alluvium and Diluvium Land Laws* (PO Order no. 15/1994), a newly appeared *char* is brought under the ownership of the Department of Land. According to the *Policy of Distribution of Khas Land among the Landless*, adopted on the 1st July 1987, *khas* land can be allotted to extremely poor farmers who possess less than half an acre of agricultural land per household. However, the policy does not seem to be reflected in practice on the ground (Alim, 2009; Barkat *et al.*, 2000; Barkat 2000; Barkat and Roy, 2004).

Killa Plateaued earthen platforms, constructed to safeguard livestock from storm surges in the cyclone-prone areas.

Gone *Gone* denotes to tide. Coastal people normally experience highest peaks of both high and low tides during and around the full and new moon times, which is called *joba gone*. As the lunar phase changes, gradually tides flatten and reach at their lowest peaks in the first and last quarter of the lunar phase. *Dala gone* portrays the phenomenon of an almost flat tidal situation, which is a synonym of a neap tide.

Gusthi Generally a patriarchal kinship network (Bode, 2002)

Maas r Gaas Fish and tree. This is a unanimous proverbial response if anyone is asked about general livelihood options in the field sites.

Mohajon An investor who gives *dadon* to poor fishermen and forest users in the form of cash and equipment. *Mohajon*s are of different economic capacities and specialise in different stages of the production and distribution chain.

Mouali The group of people, who collect honey from the Sundarbans.

OC Officer in Charge of a *thana*, generally, someone of a sub-inspector equivalent rank in Bangladesh Police.

Para A residential neighbourhood.

Piker Wholesaler

Pira A flat wooden plinth offered to guests to sit on

Purdah Imposed veil. Generally, referred to as an 'Islamic' tradition concealing people from the opposite sex by 'appropriate' dress and behaviour. However, in practice, it is only women who are the subject of *purdah*, which is also culturally relative.

Samaj A commonality based association. For example, *Muslim samaj* is based on religion; *jele samaj* is based on occupation, etc.

Saree A traditional South Asian women clothing, which is about 5-metre long and draped over the body in various styles.

Shalish A constitutionally endorsed rural version of the judicial system, represented by a panel to adjudicate over disputes. *Shalish* also has its formal and informal versions. Formally, *Shalish* was first accommodated at the UP level judiciary system in 1961 by the '*Shalish* Court Ordinance', which was then replaced by the 'Village Court Ordinance' in 1976.

Shalishdar The members of the jury board in a *shalish.*

Sidr A category Five cyclone which swept across Bangladesh in November 15, 2007.

Sundarbans The world's largest mangrove forest, spread around the western part of India-Bangladesh coastal border.

Thana Often referred as a synonym of Upazila, which links to the political practice of renaming local government institutions following the changes of political regime (Nadiruzzaman, 2008). However, in a general use, and also in this dissertation, *thana* means police station.

Union The Union is often abbreviated as UP (*Union Parishad*), the lowest tier of the Local Government structure in Bangladesh. A UP is divided into nine areas called Wards. A Member is elected from each Ward to sit on the UP. Also, a UP Chairman is chosen at the general election to chair a UP. Southkhali Union is one of four Unions under Sarankhola Upazila.

Sone A naturally growing long grass used for making walls and roofs, after being dried. Still there is a huge demand and it is a very common feature in rural parts of Bangladesh, especially for building the kitchen, which is separate from the main house. As they are very light, *sone*-made roofs and walls are easily portable and useful for protection from the sun, particularly in summer.

UNO *Upazila Nirbahi Officer* (UNO) is the chief bureaucrat of an *Upazila.*

Upazila Several UPs form an Upazila, which is the most functional tier of the Bangladesh Local Government system. All governmental development schemes are arranged and funded through the Upazila. NGO intervention programmes are approved by the concerned Upazila administration. Upazila is chaired by an elected Chairman, and the local Member of Parliament acts as an executive advisor to the Upazila council. Such a complex power distribution does not always run smoothly. Political friction within the local bureaucratic structure is common.

DECLARATION OF AUTHORSHIP AND COPYRIGHT

I confirm that no part of the material presented in this thesis has previously been submitted by me or any other person for a degree in this or any other university. In all cases, where it is relevant, material from the work of others has been acknowledged. The copyright of this thesis rests with the author. No quotation from it should be published without prior written consent from the author.

Signed,

Date:

ACKNOWLEDGEMENTS

This thesis is not merely a product of four years work. Rather it is an aggregate of several years' professional experience, eight months of ethnographic fieldwork, and general academic reflection. I would like to sincerely express my gratitude to my first supervisor, Professor Peter J Atkins, for his kind supervision, valuable suggestions, confident guidance, encouragement and cooperation throughout. Peter has supervised a significant number of Bangladeshi researchers and possesses a very deep knowledge of different social, cultural and political issues on Bangladesh. He was not only my academic supervisor, but also cordially extended his supporting hand in other crises. My second supervisor, Professor Phil Macnaghten, helped me a lot to develop my theoretical understanding on the relationships between environment-society. I am really proud to have been supervised by both of them. Their careful and always remarkably prompt reading of my chapters and papers, as well as diligent correspondence and insightful comment and counsel was above and beyond the call of duty. Their patience with me as each deadline came and went unheeded, whilst I busied myself in activities and reading that were only tangentially relevant to my thesis, exemplify their understanding that geography is about more than just space.

I am also grateful to the Christopher Moyes Trust for showing interest in this project and generously funding this research, including my fieldwork, for the first three years. Mrs. Jan Moyes, the Chairman of the trust, in particular, was very generous and encouraging. Despite being a native researcher, I was unfamiliar with the complex life in the coastal area. Adapting with a new lifestyle, gaining trust of my respondents, maintaining connections equally with different groups within their society, understanding internal power dynamics, politics, rivalry, kinship and network, poor road communications, risk of being kidnapped by the bandits (particularly around the Sundarbans) and so on made my fieldwork challenging. As a result it took me the first couple of months to understand and cope with these practicalities. This fieldwork experience had two impacts on my research plan – i) it challenged my pre-fieldwork understanding of the cyclone in Bangladesh, which I developed through PhD-1st-year literature review, and gave me substantial reasons for rethinking my theoretical framework and redesigning the fieldwork plan; and ii) I had to spend more than expected time in my field site to collect extensive and in-depth data to support my new theoretical framing. In light of these practicalities I was not able to complete my PhD in the allocated three-year time frame. Consequently, I am thankful to Charles Wallace Bangladesh Trust, Muslim Aid, Hammond Trust and Sidney Perry Foundation for helping me through the continuation year. Without all their support this research would have remained incomplete.

I am greatly indebted to Professor Stuart Lane, former Executive Director of the IHRR, for giving me several opportunities to present my research in front of potential benefactors of IHRR and also in different academic forums. My sincere thanks to Professor Lena Dominelli,

Professor Sarah Curtis, Dr. Andrew Baldwin, Dr. Katie Oven, Dr. Brian Cook and many others for reading and providing feedback on some of my papers. Professor Ainun Nishat has been very supportive all through this research. He has been a great source of information and reference in regard to any environmental scholarships and projects in Bangladesh. In addition, I would also like to convey my indebtedness to all of my respondents and friends at each of the field sites. They were very friendly, nice and cooperative. I owe a lot to them for giving me the access and for enlightening me about complex webs of their livelihoods, which I strived to unpack through this thesis.

I am also thankful to the Department of Geography for providing me with an office space and funding to attend several conferences. This provided a great opportunity to share my research with wider audiences and to learn from other researchers. Durham University has created a splendid academic environment by allowing my access to a rich university library resources and IT service. The Graduate School has run several relevant training courses, which have helped me to improve my skills as well as confidence.

I wish to express my greatest gratitude to my family and friends who always supported me. I also want to express my sincere thanks to Shewly, my wife, for her sacrifice and support. She generously accepted my excuses for not cooking and, despite starting her PhD at the same time, prepared extraordinary foods for us. Our leisure time 'academic' discussions helped me to rethink and sharpen several of my arguments in this thesis. I owe her a great debt for everything.

To

The future generation of Gabtola, Mazer Char and Sonatola Model Village

Chapter One

Statement of the Problem

Chapter One: Statement of the Problem

Introduction

Within hazard and risk research, risk refers to the threat posed by an event. An event is called hazardous (cause and condition) and/or disastrous (appearance and consequence), when it causes 'remarkable' harm to individuals, groups and systems. Three institutional definitions, as shown by views on their websites, broadly cover how and when an event is recognised as a disaster:

> The United Nation's International Strategy for Disaster Reduction (UNISDR) uses four criteria for calling an event a disaster: i) a report of ten or more people killed; ii) a report of one hundred of more people affected; iii) a declaration of a state of emergency by the relevant government; and iv) a request by the national government for international assistance.

> The Centre for Research on the Epidemiology of Disasters (CRED) uses the following definition: a disaster is a situation or event which overwhelms local capacity, necessitating a request to a national or international level for external assistance.

> The IFRC (International Federation of Red Cross and Red Crescent Societies) defines disaster as a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Though often caused by nature, disasters can have human origins. A disaster occurs when a hazard impacts on vulnerable people.

According to these definitions, disaster risk unfolds over time through the concentration of people and economic activities in areas exposed to potential hazards, e.g. earthquakes, tropical cyclones, floods, drought and landslides; through the frequency and magnitude of hazard events; and through the vulnerability of communities and economies, understood in terms of lack of capacity to absorb and recover from hazard impacts. Risk becomes manifest when disasters occur but is complicated due to the difficulty of recognising those taking development decisions at all levels. Risk identification and analysis can therefore be described as a process of making the invisible more visible. Only when risk has been visualised can it be addressed. In disaster-prone countries, identifying, locating, measuring and understanding risk represents one of the first crucial steps toward the design of policies, strategies and actions for disaster risk reduction, ranging from development planning through to addressing risk in preparedness for response.

A series of extraordinary catastrophes, triggered by natural hazards between 2003 and 2009, highlighted and reminded the world of the degree to which disaster risk now underlies and threatens development. The Bam earthquake of December 2003 in Iran, the heat wave that affected Western Europe in 2003, the devastation caused by Hurricanes Ivan and Jeanne in Grenada and

other Caribbean countries in September 2004, the Indian Ocean earthquake and tsunami in December 2004, Hurricane Katrina in the United States of America in August 2005, the Kashmir earthquake of October 2005, and Cyclone Sidr in 2007 and Cyclone Nargis in 2008 accounted for more than half a million deaths and USD 194 billion of economic damage[1]. These catastrophes were only a few of the most visible manifestations of the ongoing unfolding of disaster risk. However, the present thesis does not focus on violent natural events in general; rather it has a particular interest in tropical cyclones.

Table 1.1: Global Distribution of Tropical Cyclones from 1900-2012

Regions		Tropical cyclone	Human Death	Affected People	Damage (000 US$)
Africa	Frequency	109	3639	15481817	3079430
	Average		33	142035	28251.7
Americas	Frequency	574	86439	48405426	417648432
	Average		151	84330	727610.5
Asia	Frequency	979	1239874	580395054	157968139
	Average		1267	592845	161356.6
Europe	Frequency	22	201	94682	1817360
	Average		9	4304	82607.3
Oceania	Frequency	202	1723	2302353	9964364
	Average		9	11398	49328.5
Total	Frequency	1886	1331876	646679332	590477725
	Average		706	342884	313084.69

Source: "EM-DAT (Emergency Events Database); www.em-dat.net - Université Catholique de Louvain - Brussels - Belgium" (Created on 04/06/2012; Data version v12.07)

A careful review of the cyclone data, obtained from the CRED's International Disaster Database (www.emdat.be), shows that in the last five years (03.01.2007-13.10.2011) 138 cyclones swept through different parts of the world leaving 150,719 people dead, 92,179,862 people affected and 88,447.3 million US dollars' worth of economic damage. This means that the world has faced 28 cyclones every year for the last five years. There are no other natural events that have such a frequent impact on human life and trigger hundreds of thousands of deaths, extreme suffering and economic damage. Table 1.1 expands these five years to a century. According to these statistics, during this period every year has seen nearly 17 cyclones, which have killed approximately twelve thousand people. However, there is heterogeneity of impact at the scale of continents (Table 1.1) and countries (Table 1.2). As the second table shows, cyclone damage is economically more damaging in the global north than the global south, which is more a function of the concentration and value of assets than it is of the number of people affected.

[1] EM-DAT (Emergency Events Database): www.em-dat.net - Centre for Research on the Epidemiology of Disasters, Catholic University of Louvain, Brussels, Belgium.

Table 1.2: Top Ten Devastating Global Cyclone Events from 1900-2012

Human Death-toll			Affected People			Economic Damage		
Country	Year	Number of Killed	Country	Year	Number of Affected	Country	Year	Damage (million US$)
BD	1970	300000	CH	2002	100000000	USA	2005	125000
BD	1991	138866	CH	1989	30007500	USA	2008	30000
MY	2008	138366	CH	2006	29622000	USA	1992	26500
CH	1922	100000	CH	2011	22000150	USA	2004	18000
BD	1942	61000	CH	2005	19624000	USA	2004	16000
IN	1909	60000	BD	1965	15600000	USA	2005	16000
BD	1912	50000	BD	1991	15438849	USA	2005	14300
IN	1942	40000	CH	1996	15005000	USA	2011	14000
BD	1965	36000	CH	2001	14998298	USA	2004	11000
BD	1963	22000	IN	1977	14469800	USA	2011	11000

*BD=Bangladesh, MY=Myanmar, CH=China, IN=India and USA=United States of America

Source: "EM-DAT (Emergency Events Database); www.em-dat.net - Université Catholique de Louvain - Brussels - Belgium" (Created on 04/06/2012; Data version v12.07)

Cyclones in Bangladesh

Over the last century, as Table 1.2 shows, out of the top ten deadliest cyclones, six occurred in Bangladesh. Low-lying deltaic physiography, the underwater "bathymetry" (in this case the shallow slope of the Bay of Bengal which engenders high surges of water), and the funnelling shape of the coastline, together exacerbate deadly cyclones and, as a result, Bangladesh experiences 53 per cent of the world deaths from tropical cyclones (Ali, 1999). This fact hints at how much the problem is geographical in nature and is associated with human responses to cyclone. The nature and pattern of disasters are very geographical, despite only partial commonalities. A flood, for example, results in negative social consequences in the global north (Carroll, et al., 2009); whereas, in the global south it damages people's economic livelihood sustainability (Lein, 2009). In the last couple of decades, natural hazard events have increased dramatically and in 2004-5 climate-induced casualties have increased by 18 per cent in the world as a whole (Baumwoll, 2008). As noted earlier, from the EM-DAT database, a hundred years of data (from 1900) gives an average of 17 cyclone landfalls every year, whereas the last five years data (2007-2011) makes this an average of 28 cyclones, which clearly signs a sharp increase in cyclone intensity. Statistical, satellite and observational data suggest that both the intensity and magnitude of storms will increase in the future (Storch and Woth, 2008). Therefore, we need to prepare ourselves to minimise future devastation.

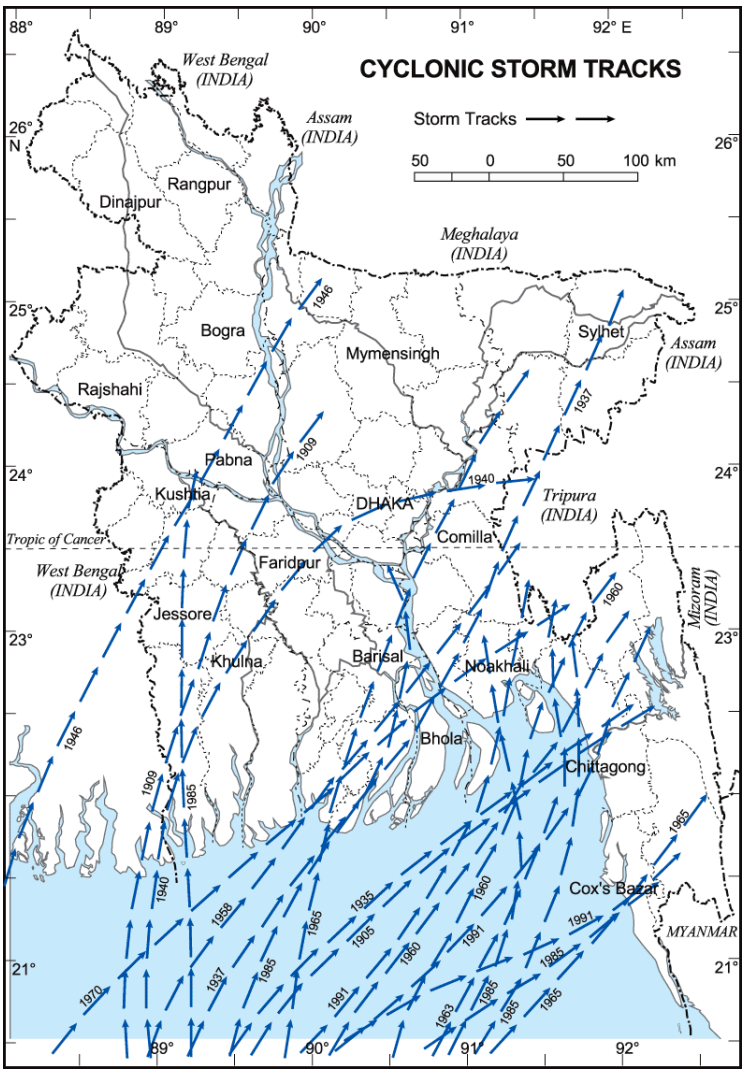


Figure 1.1: Cyclone Tracks in Bangladesh (Source: Banglapedia: Cyclone[2])

As stated in the above paragraph, both the facts, that, i) Bangladesh is extremely vulnerable to cyclones, and ii) cyclone intensity and magnitude is ever-increasing, necessitate an urgent need for research on vulnerability and resilience among the coastal people of Bangladesh. I am interested in cyclones and storm surges in order to improve our understanding of the implications of poverty in areas at high risk of storm surges, and to inform policy with regard to the enhancement of resilience. In addition to a disastrous event, livelihood, local culture, situated knowledge, disaster governance, and socio-politico-economic setting give that disaster a unique character. This practicality of disaster knowledge eventually challenges traditional expert-led 'one size fits all' solutions and problematises the epistemological development of disaster research. The Government of Bangladesh (2010) has emphasised a group of wider strategies in the National Plan for Disaster Management 2010-15, as follows:

[2] http://www.banglapedia.org/httpdocs/Maps/MC_0397.GIF

1. Disaster management would involve the management of both risks and consequences of disasters that would include prevention emergency response and post-disaster recovery.

2. Community involvement for preparedness programmes for protecting lives and properties would be a major focus. Involvement of local government bodies would be an essential part of the strategy. Self-reliance should be the key for preparedness, response and recovery.

3. Non-structural mitigation measures such as community disaster preparedness training advocacy and public awareness must be given a high priority; this would require an integration of structural mitigation with non-structural measures.

This national plan is a manifestation of the dominant science-led framing of cyclones, where they are viewed as a destructive natural force and the only solutions are seen as advanced scientific prediction, robust engineering structures and the communication of cyclone-science to the people. However, the fact that Bangladesh experiences approximately one per cent of the land falls of tropical cyclones but half of the mortality (Ali, 1999), certainly gives us a clue that the problem is associated with the capability of coping. Gaillard et al (2010) challenge such framing in their articulation of marginalisation.

> '….people (from the Global South) are vulnerable to the impacts of hazards because they are marginalised…geographically because they have been forced by economic and social forces to live in places that are threatened by natural hazards (e.g. steep slopes, ravines, flood plans). They are socially and culturally marginalised because they come from minority groups whose culture and local knowledge is considered 'inferior' and they may not even speak the dominant language. Economically they are marginalised because they are poor and have little or nothing to invest in safer houses or to fall back on for recovery after disaster; and marginalised politically because their voice is not recognised in policy debates' (Gaillard et al., 2010: 68)

The present research will explore these human dimensions of cyclones in Bangladesh from people's experiences with cyclone Sidr.

Cyclone Sidr

On November 15, 2007, coastal Bangladesh was devastated by Cyclone Sidr, a Category 4 storm, which swept across the western coast and ripped through the heart of the country with 155 mph (248 kph) winds triggering up to 20 feet (6 m) tidal surges (Paul, 2009). The number of deaths caused by Sidr is estimated at 3,406 with 871 missing, and over 55,000 people sustained physical injuries (GoB, 2008e). An estimated 1.87 million livestock and poultry perished, and crops on 2.4 million acres suffered complete or partial damage. The storm also caused power outages that resulted in a near-countrywide blackout lasting over 36 hours (Natural Hazards Observer, 2008).

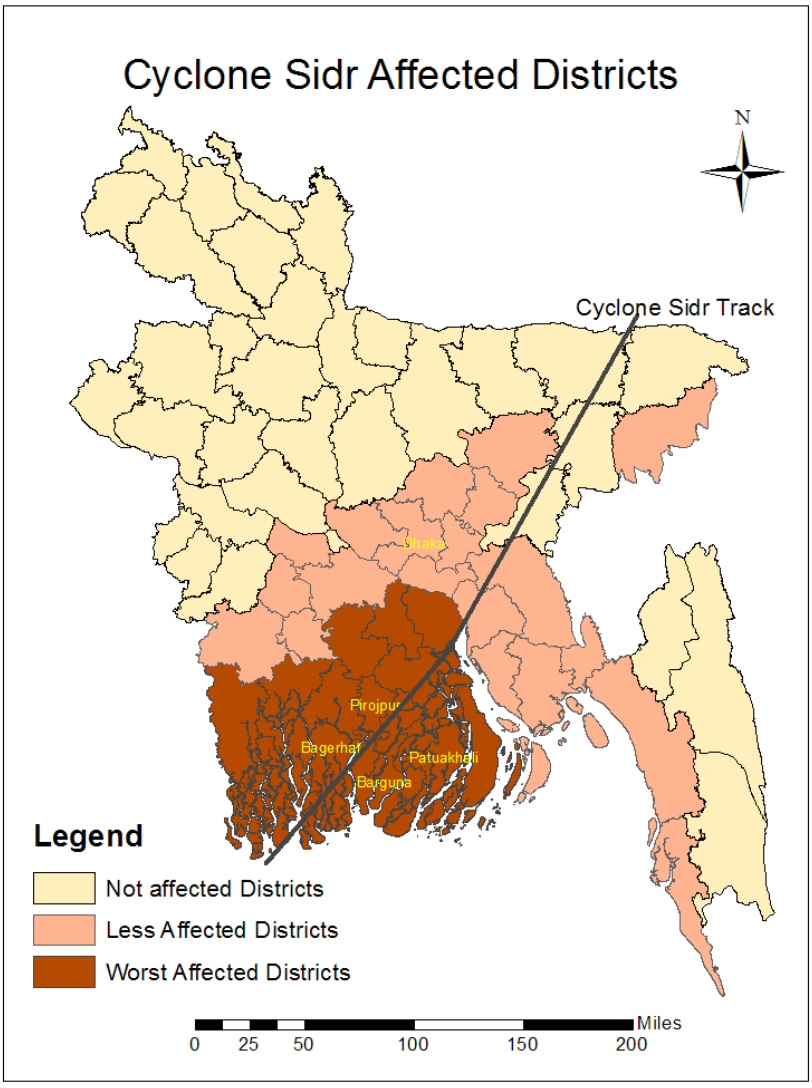


Figure 1.2: Cyclone Sidr Track (Nadiruzzaman and Paul, forthcoming)

The Joint Damage Loss and Needs Assessment Mission, led by the World Bank, estimated the total cost of the damage caused by Cyclone Sidr at US$1.7 billion, a figure that represents about three percent of the total gross national product of Bangladesh (GoB, 2008e). More than two-thirds of the disaster damage was physical and one-third was economic with most damage and losses incurred in the private sector. Nearly two million people lost income and employment in the most severely impacted districts.[3] The effects of the cyclone were highly concentrated by district. The Bangladesh government identified Bagerhat, Barguna, Patuakhali, and Pirojpur as the districts most severely affected (Figure 1.2). All affected coastal districts already suffered from higher poverty rates than the national average (GoB, 2008e).

[3] Districts are the second largest administrative unit in Bangladesh, with an average population of 2.5 million.

My Research Area

A detailed description of my research sites will follow in the methodology chapter. Hence, to avoid repetition, here, I will provide some basic statistics to help readers draw a mental picture of my fieldwork reality. All the statistics given in this particular section are from four successive population censuses of Bangladesh (1974, 1981, 1991 and 2001). I worked in three field sites – Gabtola, Sonatola Model Village and Mazer Char. There was a 2011 census after Sonatola Model Village was created in 2004, but the census report has not yet been published. Mazer Char, despite being an established settlement, is a part of a Ward (census unit) and is not recorded separately in the official statistics. Gabtola's census report covers these two field sites.

Table 1.3: Field Site Population in Four Consecutive Census Years

Area	Census Year			
	1974	1981	1991	2001
Gabtola	1524	1756	2241	2314
Southkhali Union	15949	19693	25252	24090
Sarankhola Upazila	71177	85810	107856	114083

According to the statistics, Gabtola experienced significant change over twenty years (1981-2001). Its overall population increased (Table 1.3), its unemployment rate remained about the same (approximately 16 per cent), the number of agricultural farmers dropped dramatically from 141 to 62, household labourers increased from 406 to 567 and, importantly, dependence on the forest increased from 50 to 451. This picture indicates an economic polarisation at the local level which points to increased poverty and reliance on nature for resource extraction.

Aims and Objectives

My research was initially designed to understand the effects of cyclone Sidr, where the main research agenda was to explore cyclone-centred-vulnerabilities. However, having been on a very interactive and lengthy period of fieldwork, I started reflecting on how different meanings of vulnerabilities constitute and are camouflaged in people's everyday life, and how they are linked to the consequences of the cyclone. Shockingly, a few of my respondents, particularly those unable to access resources and living in relative hardship, as I describe in my empirical chapters, said that they regretted not being killed by the cyclone. Their stories, livelihoods, engagement with their environment, practicalities, sighs, silent tears, blank looks, and occasional submission to god (Scmuck, 2000), inspired me to try to see the cyclone through their quotidian engagement with others. I found that the cyclone was just one beat in the rhythm of their everyday lives and that it needs to be understood as a part of the wider environmental vulnerabilities, which involve people's individual vulnerabilities through their political, cultural and economic engagement with their environment on a day-to-day basis.

I begin with a very basic question: why and how are people vulnerable to cyclones? What is the tipping point of being exposed to this threat? How do people move to that tipping point? Is there any other event that poses similar threats? What do cyclones mean to people given the other struggles in their lives? One way of addressing these questions could be accomplished by drawing an investigative and illustrative portrait of the everyday geography of the coastal people of Bangladesh. Local residents' everyday geographies will give a better picture of how cyclone risks are understood and acted upon (Rigg, 2007). Any disaster policy based on such knowledge is likely to be fruitful in curbing vulnerability and stimulating resilience. Therefore, the present research focuses on understanding the everyday geographies of a very vulnerable group of people who are exposed to multiple hazards, especially to deadly cyclones. I conducted ethnographic research coupled with focus group discussions with the community, key informant interviews with representatives of different GO-NGO institutions, and in-depth interviews with the community. Overall my research challenges the dominant cyclone knowledge framing in Bangladesh and strives to understand the everyday livelihood experiences of a cyclone-affected community. It aims to help in recognising local voices in national policy and development initiatives. This research asks questions on three broad areas – a) environmental vulnerability, b) marginalisation and c) power dynamics, which are elaborated as below:

How are communities' everyday livelihoods connected to cyclone knowledge?

- Who is vulnerable to cyclones?
- How are the most vulnerable groups connected within broader societal, political and economic networks?
- How do their positions within the wider network inform their ability to cope?

This set of questions is connected to the third set of questions and together they constitute my approach of viewing vulnerabilities through an environmental lens and acknowledging cyclones as one of the components. There has been a growing literature since the 1970s challenging naturalistic understandings of disasters and this is underpinned by the search for embedded economic and political inequalities and their role in triggering catastrophes (O'Keefe et al. 1976; Sen, 1981; Watts, 1983). The poor are often regarded as the most vulnerable to a natural event, with an assumed arithmetic relation between poverty and disaster – with one prompting the other. Instead of accepting this easy calculation, I will explore whether and how people have experienced the very essence of this equation since cyclone Sidr. For example, accessing relief and rehabilitation packages, rebuilding homes and exploring income earning opportunities – all are connected to their capacity of getting people back to normal life. Again, all these options of commanding resources are linked to an individual's social and political identity, such as kinship, social networks, financial capacity and political connections and rivalry. Thus, resilience, livelihoods, local power dynamics and cyclone knowledge are tied together with a common thread, which I will strive to capture.

How are environment and society linked to the cyclone rhetoric?

- Are different livelihood options linked together? How?
- How does the nexus of livelihood and power dynamics affect the local environment?
- How does environmental change connect to the cyclone rhetoric?

It is not only formal and informal institutions and networks that inform people's livelihoods, there is also a very complex relationship among different livelihood options and their surrounding environment. According to the 1981 and 2001 population census reports, in one of my field sites (Gabtola) landless households increased from 159 to 353 out of 304 and 463 households respectively. Since there were no additional employment opportunities in the area, these people turned to casual fishing and forest resource use. While conducting my fieldwork, I came across IPAC (Integrated Protected Area Co-management), a USAID funded NGO, working on forest conservation in the Sundarbans. This project is pursuing the restriction of access to common resources in the forest in forms other than eco-tourism. The then Chief of Party, Mr Robert Winterbottom, said that 'It is clear that the rationale or need for conserving the Sundarbans as an ecosystem includes the role of mitigating impacts of climate change, particularly cyclones' (Interview: 08/02/2010). This particular statement strengthens the necessity of understanding the ties between environment, society and cyclones. This statement stresses conserving the Sundarbans to shield people from the adverse effects of cyclones. Simultaneously, it also ignores the complex livelihood bondage of the forest-dependent people with the forest and accuses them of being responsible for degrading the forest. More importantly, it facilitates external economic control over the forest resources. This discussion is further elaborated in Chapter Eight. On the contrary to this statement, however, the research argues that this particular framing of conservation produces challenges to the cyclone-affected community through shrinking their livelihood options.

How has cyclone knowledge and practice in Bangladesh changed over time?

- How are cyclones viewed in dominant practice?
- How have new institutions emerged through the experience of cyclones?
- Whose views are reflected?

The present research challenges the dominant cyclone preparedness approach in Bangladesh (GoB, 2008c and 2010) and this set of research questions sets out a basic problematisation. The questions explore the meaning of cyclones from the viewpoint of the complete cyclone preparedness drill as prescribed in the policy (GoB, 2008c and 2010) and as practised on the ground. It also looks at the process through which this knowledge has evolved and analyses the roles of the actors involved in this process. In doing so, my research tries to understand how this knowledge takes account of

communities' experiences and links them to the whole process. Such interrogations hint at alternative prospective pathways of framing cyclones and I will try to understand whether different meanings of cyclones make sense of the affected communities. If they do, at what level? If not, why not? The research engages with communities in order to understand how and whether their everyday livelihoods are being reflected in the dominant paradigm.

The above three objectives together help to achieve the overarching aim of revealing aspects of marginality for people living in cyclone affected areas of Bangladesh and their significance in shaping cyclone management. In traditional cyclone management (GoB 2007, 2008bce), the focus is on building cyclone shelters and embankments, disseminating warnings, and distributing post disaster relief and rehabilitation supports. Such a focus sharply distinguishes between disaster and development management and views disaster through a separate lens. While poverty is viewed as one of the causes of triggering disaster (Blair, 2005; Chambers, 2006; Gaillard et al., 2010; Wisner, 1993; Wisner et al., 2004; Sen, 1981), how could we separate ongoing development activities from disaster management? Embedded and deep-rooted marginalisation in social, economic and political systems could potentially challenge people's livelihood options, force them to explore alternation choices, limit their capacity to cope with adverse situations, and make it harder to withstand disaster damage. This research aims to unpack quotidian development and economic aspects of marginalities and to link them with cyclone management.

Organisation of the Thesis

I have followed a conventional way of organising my thesis. First I begin with understanding the claims of different cyclone knowledge framings. My particular interest is to understand their knowledge process – how do they draw on a result or conclusion? On what criteria are they judged? Who is included in the process? Who is ignored? Who is taking decisions and for whom? These questions will guide me to explain my ontological and epistemological stance in this knowledge endeavour. This will also structure the flow of the theoretical and empirical chapters.

Chapter Synchronisation

In Chapter Two, I will describe how understanding cyclones has become tangled through the separate claims of diverse disciplinary worldviews. I will explore how everyday vulnerabilities of a coastal community, which is ignored in the most powerful knowledge framing, limit people's ability to withstand a cyclone. I refresh the idea that the conditionality, which makes an individual, a group or a community susceptible to a natural event, is a legacy of our engagement with the environment and, thus, helps us to scrutinise our knowledge of that particular event. The following chapter is a methodological echo of my theoretical framework. Drawing examples from people's quotidian engagements, Chapter Three re-energises the importance of understanding communities that have intervention. Despite being a native of Bangladesh, I was unfamiliar with the complex life in the

coastal area. Adapting to a new lifestyle, I gained the trust of my respondents, maintaining connections equally with different groups within their society, trying to understand their internal power dynamics, politics, rivalry, kinship and networks. Poor road communications, and the risk of being kidnapped by bandits (particularly around the Sundarbans) made my fieldwork challenging and it took the first couple of months to understand and cope with these practicalities. I learned from my lived experience that it is not Cyclone Sidr but rather social and economic marginalisation through the misappropriation of resource distribution, vested interests, political and kinship networks, which is pushing people into poverty and has taken control of their livelihoods away from them. For example, for several of my respondents who survived Cyclone Sidr, the main reason for their hardship is land disputes, which are created and sustained by those at the top of the social order.

My empirical discussion begins with an elaborative historical account of cyclone knowledge development in Bangladesh. I will unveil how 'life saving' has been the priory focus to cyclone knowledge groups and 'livelihood saving' remains ignored. Cyclone shelters, embankments, effective warning systems, awareness building, and associated on-going preparedness activities strive to save people's lives.

Resilience is a cutting edge concept in the field of disaster preparedness. After Cyclone Sidr in 2007, governmental documents incorporated it, rephrased as 'build back better'. In practice, such governmental endeavours have failed to take account of a range of socio-politico-economic characteristics, such as gender, age, political affiliation, livelihood, access to resources, beliefs, and influences on decision making and wealth. This reality is echoed in the practice of relief and rehabilitation distribution (Chapter Five), access to land (Chapter Six) and in the everyday geographies (Chapter Seven). Chapter Five explains the post-Sidr relief and rehabilitation schemes through the lens of knowledge – its philosophical essence and on the ground practice; power – political agency and control over resources; and marginality – at-risk peoples' position at the knowledge-power interplay. Chapter Six describes a longstanding land dispute between the landless inhabitants and wealthy land-mafias. At Mazer Char, one of my field sites, the amount of effort and money that the landless inhabitants have invested so far to claim control over their lands is twice their loss from Cyclone Sidr. Every new political regime brings hope to them and leaves them with nothing. At Sonatola Model Village, another of my field sites, people were not offered any housing support because they live on disputed land. Chapter Seven elucidates the fishing community. The Boleshwar fishing community is threatened by a particular kind of fishing net practice, which is the consequence of a vicious local power structure. After the devastation of Cyclone Sidr, the Boleshwar people received fishing equipment either as aid or a loan. But their continuing struggle for survival is symbolised by the issues around the *dhora jal*, a local fixed drift net. Despite being in the majority, the *vasha jal* (floating fishing net) users are frequently disadvantaged when their gear gets caught up in the fixed *dhora jal*, which are illegal but supported by corrupt local officials.

Therefore, marginalised fishermen remain caught in a perpetual cycle of economic vulnerability. Their social capital is meagre and NGOs and government have never addressed the marginalisation process in their disaster preparedness framework.

Like the previous three chapters, Chapter Eight connects society and the environment through the lens of contested knowledge and the probable secondary effects of forest conservation. This chapter will have a flavour of international politics over 'climate change'. Thus, the thesis covers a number of different livelihood options at my field site, describes their practicalities, and finds several 'meanings' of the cyclone. And finally, Chapter Nine will reflect back on objectives set out in this chapter to evaluate whether, how and to what extent, those objectives are achieved; what are the recommendations this research would like to offer; what are the limitations this research acknowledges; and what are the way forwards to unpack this research to the next level.

Chapter Two

Theoretical Framework

Chapter Two: Theoretical Framework

Introduction

Cyclones have a very visible effect on human life. But what we see as a physical manifestation is not necessarily a reliable indicator of the collective footprint of long-term social, economic, political and natural processes. The title of this research, 'Cyclone Sidr and its aftermath: everyday life, power and marginality', gives a glimpse of a theoretical framework where such natural events are viewed through quotidian accounts of affected communities. Gaillard et al. (2010) criticise the 'paradigm of extremes', where technocrats from diverse disciplinary backgrounds mainly emphasise narratives of hazard-induced destruction, while the 'unnatural' day-to-day pressures (O'Keefe et al. 1976) on people's livelihoods, which make them more susceptible to any extreme event, remain unacknowledged. Here everyday livelihood pressures include access to resources, income earning opportunities, resource scarcity, unequal distribution, wider market pressures, power struggles, environmental variability, patron-client networks and corruption. Thus, the practicalities of peoples' livelihoods do not exist in isolation from the wider political economy (Adger and Brown, 2009).

The following discussion in this chapter and subsequent empirical chapters, backed up by ethnographic fieldwork evidence, strives to scrutinise our knowledge framing of extreme natural events, particularly cyclones. It reinvests in the idea that the conditionality which makes an individual, a group or a community susceptible to a natural event is a legacy of our collective engagement with the environment (Adger et al., 2005; Adger, 2000, 2006; Adger and Brown, 2009). Here, it is important to elaborate how the meanings of 'collective engagement', 'environment' and 'knowledge' will be conceptualised in this research. 'Environment' in this thesis refers to the whole system of the human-nature continuum (Harris, 2000), where 'collective engagement' – local economic, cultural and political behaviours as well as external, i.e. regional, national and global – is mediated through local behaviours, leaving footprints in the environment. Thus, knowledge means our construction of an image of a living or non-living thing (Macnaghten, 2010), a cyclone in this particular case, through a very dynamic and ever-evolving process, which eventually shapes human-environment relationships (Macnaghten and Urry, 1995). Certain elements of power and politics are involved in this process, determining which version of the 'truth' will override the others (Cook, 2010; Miller, 2000). Marginality emerges collectively, as a consequence of the interplay between knowledge and power, as well as, individually, out of the question of rights and access to resources. Identifying marginality and its root causes can help us to pinpoint strategies and options for future intervention and, thereby, can contribute to the existing knowledge framing of cyclones in particular, and hazards in general.

What is Resilience?

The research strives to understand how people in a selected community attempted to get on with their lives after the devastation wrought by cyclone Sidr in the middle of November 2007. This

capacity to absorb shocks and bounce back/forward is generally seen through the lens of resilience. But having been less exposed and susceptible to any natural event in the first place will mean a relatively easier comeback to normal life, which brings the concept of vulnerability into the discussion. These two concepts, resilience and vulnerability, are inseparable (Adger and Brown, 2009; Adger, 2006; IFRC, 2012; Cutter, 2003; Gallopin, 2006; Brand and Jax, 2007) and by understanding them it should be possible to explore ways forward to cope with extreme events. For example, the IFRC (2012) defines resilience as *the ability of individuals, communities, organisations, or countries exposed to disasters and crises and underlying vulnerabilities to – i) anticipate, ii) reduce the impact of, iii) cope with, and iv) recover from the effects of adversity without compromising their long-term prospects*. This definition, particularly the first two points, clearly acknowledges aspects of exposure to disaster and underlying vulnerabilities. Again, Adger and Brown (2009: 110) elaborate three basic elements of vulnerability as:

i. *Exposure: the nature and degree to which a system experiences environmental or socio-political stress;*
ii. *Sensitivity: the extent to which a human or natural system can absorb the impacts without suffering long-term harm or some significant state change; and*
iii. *Adaptive capacity: the ability of a system to evolve in order to accommodate environmental perturbations or to expand the range of variability with which it can cope.*

The 2nd and 3rd points of this definition are very closely related to resilience. This research acknowledges such interdependences of associated terms and accepts their coexistence to draw a whole picture of everyday life of the researched community.

The word 'resilience' has been adapted from the engineering literature, where the interest is in a material's ability to recoil or spring back into shape after bending.[4] Resilience can be described as a buffer, or a shock absorber, promoting sustainable livelihoods by allowing individuals or systems an opportunity to cope during an event and not depleting all resources or options for recovery in the following period (Adger, 2000, 2006; Adger et al., 2005; Adger and Brown, 2009; IFRC, 2012; Cutter, 2003; Gallopin, 2006; Brand and Jax, 2007). This is the strength and capability of people to do what they want to do, without posing any threat to the environment. There are two different applications for ecological systems, which are now also widely found in the discourse of social systems. Resilience may either refer to the extent to which a system is able to absorb the adverse effects of a hazard, or it may refer to the recovery time for returning after a disturbance (Schipper, 2004). This is predicated on the assumption that people make a rational judgement on the basis of their knowledge, available information and alternative options. A highly resilient system is either characterised by its capacity to endure despite high stress, or its ability to bounce back

[4] It has also been used in the context of the governance of social-ecological systems, as at the Stockholm Resilience Centre. See: http://www.stockholmresilience.org/

quickly. Figure 2.1 portrays an ideal picture of resilience where ability is understood as a holistic manifestation of different interlinked levels (individual, community, organisation, country) with a wider socio-ecological focus. This model assumes resilience as an on-going process which identifies and intervenes against underlying causes of vulnerability with an objective of mutual development (Folke, 2006). Relief and recovery are built-in to this (resilient) system as an advance preparation, which operates during the extreme stress situation and regular shocks to regain any loss and bounce back from adversity. Now the question is – bounce back to where? Does resilience mean a bare survival? The definition given in the paragraph bears the answer where sustainability and long-term prospects are keys to a resilient system. Manyena et al. (2011) argue that the 'bounce back' notion does not signal change, but rather may recreate and strengthen pre-disaster structures and institutions and, thus, may increase vulnerability. Following cyclone Sidr, the Government of Bangladesh campaigned with a 'build back better' slogan (GoB, 2008a; GoB, 2008b; Rector, 2008) in regard to infrastructural building, which rather resonates a theoretical idea of 'bounce forward'. Whether or not the post-Sidr rebuilding project shows that idea, to have any significance is another matter and will be investigated in Chapter Five.

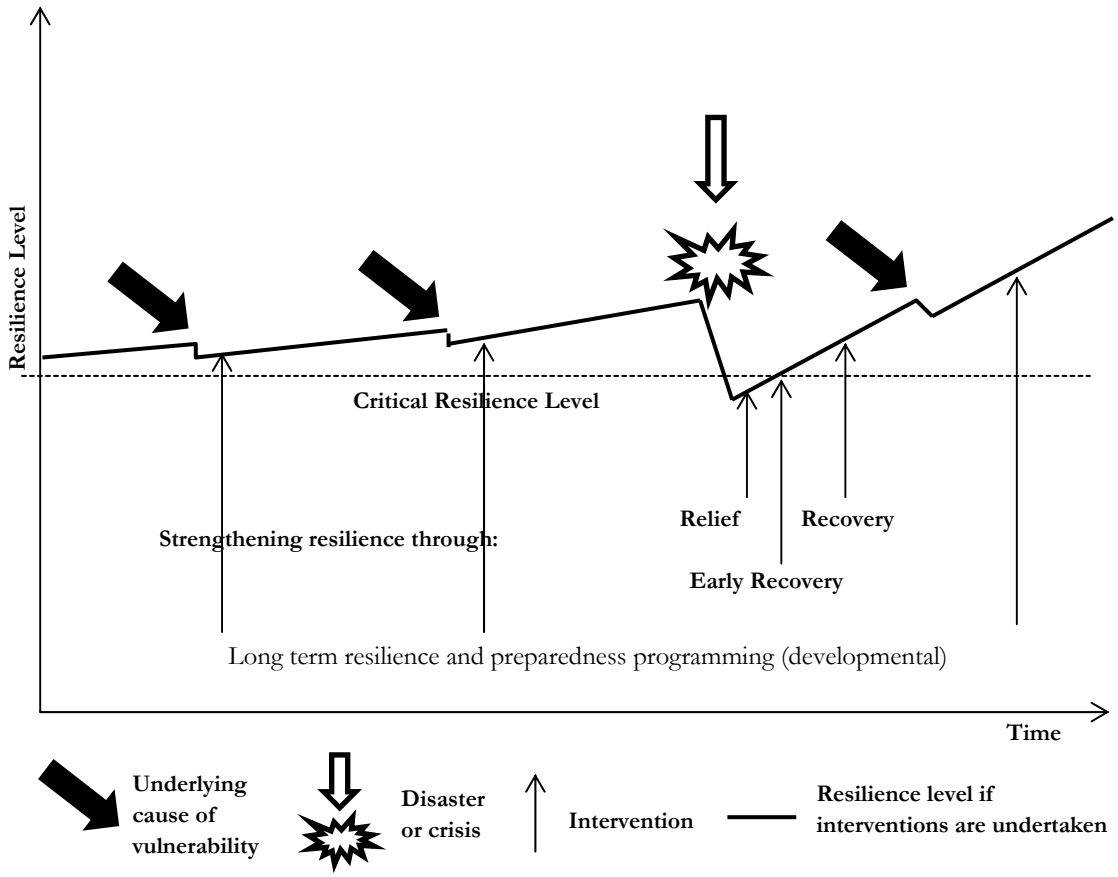


Figure 2.1: An Idealistic Portrayal of Resilience (IFRC, 2012: 11)

DFID (2011) defines resilience as their working principle and they elaborate the definition by questioning – 'resilience of what' and 'to what'. Atkins et al. (2007) describe resilience in relation to knowledge and evolving understanding of uncertainty. As they explain, the introduction of shallow tube wells in the 1970s in terms of increased resilience among Bangladeshi people, especially small children, by protecting them against waterborne diseases but, ironically, within a decade this exposed them to the new risk of arsenic contamination in the groundwater. This environmental irony is also part of the story I wish to tell, although now people are using stored rainwater, filtered water and other techniques to obtain drinking water. Besides, different government and non-government agencies are using communities' cohesiveness to let them share safe tube wells. Thus, resilience needs to be seen as a constantly evolving process that adjusts to changing realities and social constructions. Pelling and Manuel-Navarrete (2011) call it 'transformation', a development of resilience theory through informing the role of power in determining the character of system dynamics in Scheffer et al.'s (2002) adaptive cycle. Resilience has a certain level of rigidity and is guided by strict socio-ecological principles (ibid) which are not necessarily followed through the process in which an overall image of resilience evolves. Moreover, when we talk about a system, which builds through a complex interdependence of diverse components, every individual component of that system has its unique pathway of development up to reaching the level of imagined overall resilience.

Leach (2008) brings some questions forward – resilience from whose point of view? For whom? For what purpose? The example of tube wells in above paragraph draws a salient picture of resilience, where vulnerability, innovation and change flow in a rhythmical way. This rhythm comes from humans' cultural responses to a challenge (Ingold, 2000). At the individual level, as Harris (2000: 16) mentions, '*people depend on past experience to inform the present, but this does not dictate actual practice, because each situation is different.*' However, at the collective level, the attributed meaning of an event hardly reflects an individual's perception (Miller, 2000), while a wide array of opinions, interests, values, perceptions, politics and responses blend in to construct a meaning. Before shallow tube wells were introduced, people used water from ponds, rivers, wells and homestead water tanks for drinking and other domestic purposes. This exposed them to waterborne diseases. There were several solutions to this problem, such as boiling and filtering surface water, harvesting rainwater, using water purification tablets and drinking tube well water. Shallow tube wells were patronised by strong international donors like UNICEF (Atkins et al., 2006) and popularised through local politicians, who capitalised on this opportunity as a means of winning votes by distributing them to their potential vote banks. Having a tube well in the home yard was also symbolic for family identity and prestige (Hassan, 2003; Atkins et al., 2006). This shows how human choices, values, interests and relationships are embedded in knowledge production. Thus, despite being relatively speaking the most expensive solution, shallow tube wells became a dominant feature in rural parts of Bangladesh. Soon after, when the health risk of arsenic poisoning began to emerge, the previously less prioritised solutions again came to the fore. Here, resilience

appears as an instinct, inner force, aspiration and spirit of survival, which follows trial and error, and is governed and conditioned by different political interests.

The first statement of this chapter and successive paragraphs clearly hints at the approach taken in this thesis, emphasising the quotidian detail of people's livelihoods as a method of examining whether and to what extent people's ways of living are addressed in the dominant knowledge paradigms of hazard and risk research. The discussion relies on my ethnographic fieldwork and a literature review to understand and problematise the worldview of those paradigms. My approach is in contrast to the various scientific framings of cyclones. I will not describe the core-science paradigm in this chapter, as a description of it is given in Chapter Four. In the present chapter, I began with illustrating the idea of resilience. I am critical about traditional approaches to hazard science, because of political and social influences on science, despite its claim to be 'realist'. My eight-month long fieldwork disputes the worldview of cyclone science, which finds solutions only through meteorological and hydrological modelling and civil engineering designs. I certainly understand the importance of science, particularly in regard to building resilience through predicting accurate early warnings, information dissemination and communication, constructing robust structures and helping with rebuilding. However, I may hesitate in accepting science as an imposed guiding principle, as science does not necessarily understand other aspects of life and livelihoods. The second section of this chapter focuses on how vulnerability has emerged as a challenge to the scientific framing of hazard. This section takes the 'Pressure and Release' model (Wisner et al., 2004) onboard to reveal the process of vulnerability from a structuralist perspective. A discussion follows on justifying why the structuralist notion of a 'Pressure and Release' model is inefficient in understanding institutional incapacity, transient risk, climate change and people's quotidian engagement with the surrounding environment. I then introduce marginality as a way to understand vulnerability and resilience and finish the discussion by stressing how an understanding of everyday marginalities can help us to rethink the environmental vulnerability that belies science as the prescription against natural forces.

Problematising Scientific Framing in Hazard Research

A hazardous event is popularly viewed as an identifiable entity where measurement and modelling of its physical properties is central to understanding its potential to cause harm to humans and their surrounding environment. This statement will be elaborated in Chapter Four in relation to the knowledge framing of cyclones in Bangladesh. In that chapter, I will present a graph categorising academic cyclone knowledge in Bangladesh, where more than two-thirds of papers are based on either mathematical and statistical models of hydro-thermodynamics, the genesis of depressions, the movement and distribution of wind forces, or the geomorphology and spatiality of the continental shelf and the surface topography. This core science-led scholarship has striven to identify a potential cyclone threat through predicting its physical attributes and to offer hard engineering solutions, such as the construction of robust cyclone shelters, dykes and embankments.

The remaining papers, except for a few on public health issues, supplement the science paradigm by bridging the gap between its application and people's understanding of it. For example, how to make an efficient cyclone warning system, or how to make a cyclone shelter more functional, were the kind of questions that social scientists started asking at the early stage, and which were complementary to the traditional science-led way of framing cyclones. Cook (2008) shares a similar observation through his research on the flood management of Bangladesh. He is critical of a perceived universalism towards engineering knowledge, arguing that the tradition of engineering knowledge, regardless of context, is now mirrored by the social strategies of flood damage reduction. This is not just the case in the global south; it has universal applicability. Science knowledge has a unanimous supremacy all over the globe. Examples include in South Asia, large scale river engineering, such as the building of dams and diverting of rivers to address a water crisis in India, and the technology-driven green revolution in Africa, despite there being other, low-cost, low-tech and more sustainable solutions available in both cases (Leach, et al., 2010). Referring to scientists' influence in drawing attention to risk associated with GM food in policy discourse, Stirling and Mayer (2001) and Wynne (2001) argue that science is playing an enormous political role by defining what the policy concerns should be. The UK government's discriminatory spending policy[5] on arts, humanities and social science subjects in contrast to the so-called 'STEM' science subjects is a good example in this context. However, I do not intend make any claims about disciplinary superiority; nor do I reject the vital importance of science in tackling environmental challenges. Instead I will stress pragmatic aspects of how we can make best use of what is available to us.

The science of hazard identification and prediction is far from achieving a stable consensus in Bangladesh and elsewhere, especially in the case of tropical storms (Kotal et al., 2008; Storch and Woth, 2008; Thomalla and Schmuck, 2004). As mentioned earlier, engineering-led (also male-dominated) solutions have concentrated on building cyclone shelters in coastal areas and on offshore islands without understanding the recipient community. Experience from Bangladesh has shown that, as Thomalla and Schmuck (2004) reveal, the construction of cyclone shelters does not automatically imply that all community members, especially women, will use them. Paul and Rahman (2006) studied two coastal islands and reveal that people become anxious once the signal goes above five, a danger cautionary signal in a 1-11 scale where level of risk coincides with numeric value, as elaborated in Chapter Four. However, about one-third of their respondents stay in their flimsy homes instead of going to a cyclone shelter even if it is the highest level of warning. Haque and Blair (1992) found that about 80 percent of their respondents refused to go to a shelter during the 1991 cyclone because they were afraid of having their homes burgled while they were

[5] As measures to tackle present (2012) economic meltdown, the UK government has been imposing cuts on public spending. In the public universities, although tuition fees will rise sharply for all courses, state support funding for teaching will be withdrawn for arts, humanities and social science courses, while science, technology, engineering and mathematics are protected.

away. Baki (2007), Howell (2003) and the Government of Bangladesh (2008a) identify that the existing cyclone shelters are vested with issues like capacity, toilet facilities, special needs for women, access to the disabled and elderly people, the shelter of livestock, drinking water storage and structural vulnerability, which eventually result in a minimum take-up by refugees in hazardous situations.

Indigenous technological knowledge often challenges expert knowledge when it comes to the deep rootedness of people's lived experience. This knowledge is based on unique local experiences embedded in a given culture or society and passed on down the generations. Howell (2003) worked extensively on indigenous cyclone warning systems in Bangladesh and revealed that they are more easily understandable than numerical systems. Sillitoe et al. (2004) found that Bangladeshi farmers' soil classifications are more detailed than those prepared by scientists. Scientific knowledge globally has been accepted as authoritative, whereas indigenous knowledge has become 'other' (Sillitoe, 2007). In South Africa, in a water quality modelling exercise, it was revealed that the mental maps of a community showed far more water points than had been identified by external experts (Leach and Scoones, 2006). Nevertheless the hydrologists' data on water quality was useful to the local community in finding sources of less contaminated water and in strengthening their case for better water supplies. Thus, a two-way communication between local and global knowledge is useful for all.

Another form of two-way communication could be a synchronised bottom-up demand and top-down supply provision. CEGIS (2004, 2009) explains how issues around cyclone shelters, such as privacy for women, maintenance, the use of resources in normal times, and shelter for cattle, have shaped the design of cyclone shelters. Thus, from the large concrete hall room in a high plinth popular in the 1970s, the design has changed to a multi chambered building which can be used as a school or local council office and has a raised, open plinth for livestock during cyclones. Understanding this type of innovation should focus not only on the technology but also on the conceptual nexus of social, cultural and institutional relationships (Leach and Scoones, 2006). To make an everyday technology sustainable, even if it is very ordinary, it is essential to make that technology culturally relevant to ordinary people. The local people may reject a technology if it conflicts with their social values. Leach and Scoones (ibid) point out, for instance, that in 2003 several Northern Nigerian states refused to use the oral polio vaccine (OPV) because of propaganda alleging that it contained anti-fertility agents. Concerns centred on the motivations of a top-down global campaign, which were perceived as anti-Islamic at both the national and global scales. This derailed the global polio eradication campaign of the World Health Organisation (WHO). In contrast, the Grameen Phone in Bangladesh has developed a village customer base by accessing financial instruments such as credit, rental arrangements and instalment paybacks. Reaching poorer people has often depended on locally adaptive social arrangements, for instance the sharing of phones or the access sometimes given by richer households to their poor neighbours. Technology needs to be scientifically justified and locally meaningful. For example,

community-led total sanitation in South Asia: community organisation, empowerment and learning have facilitated the widespread building of low-tech and low-cost latrines. Thus, the technology-culture hybrid shapes a geographical dimension of 'technological tradition'. For instance, floods are part of daily life in Orissa (Thomalla and Schmuck, 2004) and in Bangladesh (Cook, 2008) and people develop strategies to cope with and adapt to the impacts of extreme flood events. In contrast, the Dutch built dykes to keep water out and the US adopts similar mitigation plans.

The Bangladeshi coastal zone is home to 35 million people (Agrawala et al. 2003). Over 1.5 million were moved to shelters in the lead up to Cyclone Sidr in November 2007 (GoB, 2008a). For the remaining vulnerable people, their numbers were beyond the capacity of the existing cyclone shelter infrastructure. Instead of denying the potential benefits of engineering solutions, Rasid and Paul (1987) argue that the solutions offered by massive hard engineering undertakings, involving enormous investment, are in most cases beyond the means of the state's internal resources. They are modelled with a certain event return period in mind, so there remain hazards that can overtop the structures. Hurricane Katrina, for instance, exemplifies the adverse effect of over-reliance on structural defences (Kelman, 2008). It might be better to admit the reality of hazard occurrence and concentrate on identifying who is vulnerable to that hazard. Thus, the limitations of engineering solutions have brought 'vulnerability' to the centre of the disaster debate.

Defining Vulnerability

Vulnerability and many other colloquial terms (risk, hazard, resilience, resistance) found in disaster management concepts are widely used irrespective of the fact that there are still no universally agreed definitions. Also these terminologies maintain a fluid boundary in regard to their individual definitions. In another way, they are complexly cross-dependent concepts and altogether reveal different dimensions of an emergency circumstance. Though vulnerability has evolved as a critique of mainstream technocratic hazard studies, nowadays it has been adopted as part of the standard vocabulary of hazard and risk research. The most popular and simplified fashion of defining vulnerability is to equate it as a function of risk and hazard, symbolically R = V x H, where R refers to risk, V to vulnerability, and H to hazard (Wisner et al., 2004). Vulnerability is the sensitivity of an individual or system to a specific hazard (Schipper, 2004). The most useful element of this concept is the idea that a hazard does not translate directly into risk, but rather is measured by the degree of vulnerability of the individual or system in relation to that hazard. The degree to which a person, a group or a system is at potential harm due to exposure to an anxiety and the ability (or lack thereof) of the exposure to cope, recover, or fundamentally adapt, is vulnerability (Wisner, et al., 2004, Lein, 2009). The definition of 'vulnerability' includes some essentially negative elements. However, such a definition opens up the chance to use the term 'vulnerability' to identify, classify and label people (Lein, 2009). From research experience at Char Nalsonda (Bangladesh), Lein (ibid) claims that both the academic literature and the media generalise and romanticise negative stereotype images of *char* life, without understanding local views and ability to adapt, cope and react. Seemingly, development

agencies and governmental institutions often use such definitions to attract and obtain funds from international donors (Wisner, 2003; Wisner et al., 2004) and this has encouraged a negative meaning of weak, passive people, unable to cope. However, any definition needs to strike a balance between abilities and inabilities. Thywissen (2006) sees vulnerability as forward looking, as it indicates damage potential and gives some space for preparation.

Vulnerability is a function of the exposure, sensitivity and adaptive capacity of a person, group or system. This concept is associated with skills, technological capacity, poverty, social structure and other numerous social, cultural and economic factors, which has a local context. Recent studies focus on understanding how people and communities perceive and respond to hazards (Nasreen, 2004; Ingold, 2000; Few, 2003) and, in many cases, vulnerability is perceived as socially constructed (Howell, 2003). Howell argues that the existing social system delimits the choice of the poor immediately after any hazard event and forces them to sell their property or become indebted. Consequently, they are pushed away to the periphery (social, locational, environmental) where they have poor access to information and resources. Wisner (2003) argues that extreme events take place in a context of vulnerability and exposure that has been produced by patterns of access to resources and information in society. Thus, as Keim (2006) mentions, populations are at risk of death simply by virtue of their physical proximity to low-lying land situated near the coastline. Ericksen, et al. (1997) urges the need to develop means of empowering the landless and poor with entitlements to resources in order to ensure their resilience in terms of scarcity. Again, in a country like Bangladesh, where women are suppressed by a cultural interpretation of religion, they often become the victims of tidal surges. The entire female population of the island Monpura was lost during the 1970 cyclone (Howell, 2003), for instance, while many of the men and boys survived. Also, the minority ethnic/religious groups and socially marginalised people were further excluded and forgotten in the Cyclone Sidr operation (GoB, 2007, 2008b). In addition, the issue of coordination among government agencies, NGOs, donor agencies and civil society (GoB, 2008e), and above all aid-corruption (Wisner, 2003), are also a part of socially constructed hazards. Giving the example of Hurricane Katrina, Mathbor (2007) points to the lack of a coordinated plan between and among associated relief organisations. Wisner (2003) hints that the aid-dependent and corrupt state can, in fact, actually exacerbate disasters. The sensitivity and capacity of a particular system depends on a range of socio-politico-economic characteristics, such as gender, age, political affiliation, livelihood, access to resources, beliefs, and influences on decision-making and wealth (entitlements).

Blaikie et al. (1994) develop, and Wisner et al. (2004) advances, the 'Pressure and Release' model (Figure 2.2) to understand situation and context of vulnerability, which views disaster as an extension of daily life (Oven, 2010). The 'Pressure and Release' model bears an image of a nutcracker (Wisner et al., 2004). This acknowledges two convergent forces, socio-political and natural, which together expose people to potential loss from any natural event, as Wisner et al. (2004: 50) explain, '*with increasing pressure on people from either side – from their vulnerability and from the*

impact of the hazard for those people'. The 'release' denotes the relief of pressure, diminishing the effects of an event, through addressing socio-polito-economic issues. The model refers the socio-politico-economic pressures as 'the progress to vulnerability', where a successive development of a vulnerable condition is portrayed through three levels – roots causes, dynamic pressure and unsafe conditions. The root causes are like the skeleton or base, which creates the breeding ground for the following two levels. This is remotely linked with the whole process, as it underpins the general distribution of power and resources, and reflects back to the past to establish a causal linkage with the present condition and connects cultural elements to relate to lived experience. Here the

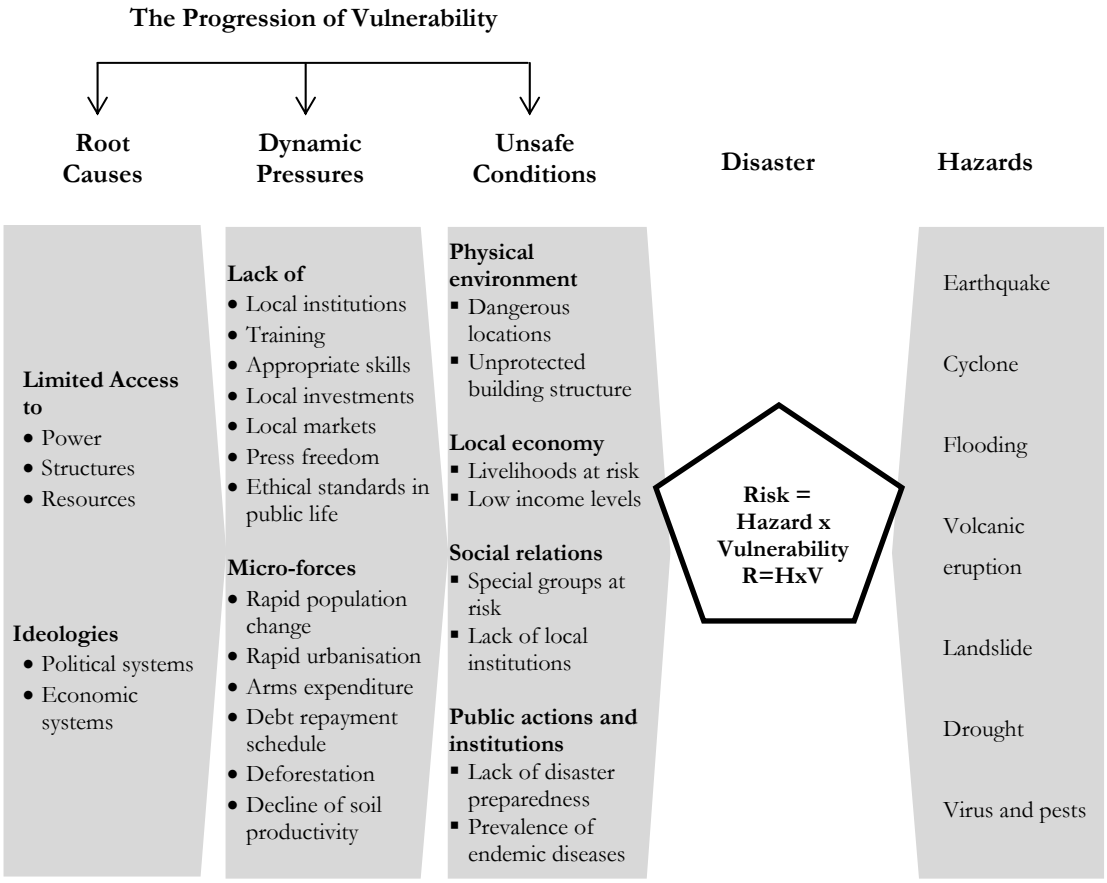


Figure 2.2: Pressure and Release Model: The Progression of Vulnerability (Wisner et al., 2004: 51).

centuries old traditions of capitalism, which were transferred to the global south in the late 1970s and early 1980s in the shape of neoliberalism, inform economic and ideological notions of resource distribution and power relations. In the 'dynamic pressures' that followed, the lack of an institutional capacity or the neglect to tune this imposed neoliberalism, resulted in a counter-productive economic, environmental and governmental system. Thus, local level economic growth is being constrained through a lack of institutions, markets, training, civil society movements, transparency and skills, which have then reciprocally resulted in the emergence of macro forces, such as rapid population growth, environmental degradation, productivity decline, urbanisation and other scarcities. These are manifestations of embedded economic, social and political systems,

which channel the root causes into 'unsafe conditions', the specific form of vulnerability being expressed.

The above-described model adopts a wider lens to understand the pre-disaster situation, 'unsafe condition', built on an unequal and pro-rich socio-politico-economic (capitalist) structure, through establishing complex and reciprocal causal linkages among diverse elements that constitute these extreme circumstances. This model appears as overly economistic and structuralist in nature. The model has been very critical about normative behaviours of capitalism and neo-liberalism, which echoes the Marxist worldview of understanding the exploitations and deprivations that create a bipolar dichotomy and push certain groups into an 'unsafe condition'. This also resonates Sen's (1981) and Watts's (1983) approach of understanding famine, which I describe in the Chapter Five while discussing the distribution of relief and rehabilitation to the Cyclone Sidr-affected community in my study area. I certainly do agree with the argument of a tipping point, an 'unsafe condition', at which level an event can cause disaster, and which may follow a past of unjustified pressures. However, that pressure does not always have to be triggered by a normative economic and political system. For example, what about lawlessness, extortion, corruption, nepotism, patron-clientism and such political and socio-economic processes? Neither capitalism, nor neo-liberalism endorses these mischiefs. Wisner et al. (2004) regard neoliberal adjustments in many poor countries as being responsible for declining health and education services, which were the root cause of their vulnerability. Their comment (ibid: 54) on Southeast Asian nations benefitting from successfully adjusting their national policies with neoliberal economics, contrarily redirects the question to the political process of being neoliberalised, not to the neoliberal system itself. Besides, Hartmann and Boyce (1983) and Arens and Beurden (1977) elucidate details of their lived experiences in two remote Bangladeshi villages where peasants' vulnerabilities were the outcome of exploitations fabricated in the social order.

The model also does not explain how two similar strength cyclones in 1999 and 2002 in Orissa (Thomalla and Schmuck, 2004) and in 1991 and 1997 in Bangladesh (Agrawala, et al., 2003) could have had such significantly different impacts given the similar political and economic settings. Studies show a very different response from the affected communities to the two consecutive events. Burton (1960) argues that hazard memories affect the adoption of preventative action. This argument also supports a story I heard from almost all the respondents in my fieldwork area. Even one month after the Cyclone Sidr, the availability of safe drinking water was an issue as water tanks were still contaminated from corpses and intruded saline water. Therefore, people had to depend on water supplied from outside and anyone with information about water sources shared it immediately with their peers. But on one unfortunate occasion the message 'water is coming' was passed on as 'cyclone water is coming'. Panic consumed everyone and they took refuge in the cyclone shelter. Only later they came to know that a foreign ship was coming to distribute drinking water. Because of the poverty and multiple hazard situations in the southern coast of Bangladesh, people make a rational judgement on the basis of their immediate needs, knowledge and skills,

social networks, clientele linkages, available options and accessible resources, which I call their 'transient reality', and this explains people's next course of action when a natural event is predicted and/or declared as imminent.

The 'Pressure and Release' model explains the production of vulnerability in terms of known hazards. But, what happens when we have little or no knowledge about a hazard? It might be a newly surfaced hazard, for example. In late modernity, we are experiencing the emergence of a 'risk society' where industrial institutions both produce and legitimate hazards that they cannot control (Beck, 1992). Though the idea of a 'risk society' is more appropriate and relevant to the technologically advanced world, it informs two universal elements of vulnerability – i) that the understanding of vulnerability has spatial horizons and ii) that there is a mismatch between new kinds of hazards and people's culturally grounded reactions to them. In one way, for example, a person from Bangladesh, where a 30 per cent inundation as an annual expectation, would not be panicked by a flood of the Carlisle type (2005) because of his or her experience of more massive and regular floods. In contrast, Carlisle residents are very unlikely to have had any preparation for or experience of a Bangladesh-type flood. Not only on the global scale, vulnerability also varies locally at different economic, social and professional levels. Even within a single family, every individual will have different levels of vulnerability. A snake charmer and a layman will not have similar levels of exposure to a snake because this is an experienced emotion that emerges from anxiety, safety nets, skills and practice.

The Bangladeshi coast is often regarded as a death trap of climate change, a consequence of global industrial pollution. The question of what to do about it really has two answers: in the West, it is all about greenhouse gases, and the political processes involved in trying to get countries to cut their carbon emissions. But in countries like Bangladesh − where emissions are comparatively speaking minimal but the potential impact of climate change is enormous − it is about anticipating what will happen and preparing in advance for a world where the sea levels are higher and the weather is more extreme. This is known as adaptation, an action or process of voluntarily adapting or being forced to adapt. In the context of hazard and risk, adapting means adjusting to a new or unfamiliar set of climatic attributes or changed parameters of existing attributes (Pelling and Manuel-Navarrete, 2011; Scheffer et al., 2002; Leach et al., 2010; Folke, 2006). This adjustment can be based on conscious or autonomous planning. Schipper (2004) notices a shift of emphasis from the latter to the former since the 1970s. In this process, adaptation has gone from being considered something done by plants and animals in the process of evolution, to being promoted as a concept for guiding policy to ensure sustainable development, reduce vulnerability and minimise risk to humans from climate change. However, in *Life on the Amazon*, Harris (2000) resists taking the concept of adaptation on board by posing a few questions – does adaptation have any space for the practical livedness of a disaster prone area? Does it take account of the ongoing unpredictable nature of the relationship between humans and their surrounding environment? Where is the space

for details of quotidian arrangements, trial and error? The environment is not just one's surroundings, but also a bearer of symbolically and morally constituted relationships, which are experienced, lived in and related to (ibid). Harris (ibid) stresses a detailed understanding of people's continual engagement with the locality. Because, he thinks, knowledge of change is sensed and judged, and a reaction to that follows, primarily from their active engagement and movement in the landscape. Inspired by Ingold (1992), Harris (2000: 18) notes,

> 'Indeed, the rhythm of life on the floodplain is centrally organised around the rise and fall of the river, year after year. Crucially, though, this does not mean people know in advance what will happen; a calendar cannot be produced to aid prediction. Instead, people rely on their perceptual abilities to gain information on changes in the environment. On this basis they decide what to do, when to plant or reap the crops, when to catch a passing shoal of fish, or whatever.'

Having said that may not suffice in a changed and ever-evolving new disaster situation. The question is not only about emerging new reality, but, more importantly, also about – i) the limited options given to a group of people to choose from as a social, economic and political process (Giallard et al., 2010); ii) limited culturally possessed knowledge on newly occupied lands (Islam, 1974); iii) external influences which govern and condition norms and patterns of the community's engagement with the local environment (Sen, 1981; Watts, 1983); and more importantly, iv) structural take on addressing the issue as reflected in policies (Miller, 2000; Cook, 2010). The question is about marginality, a position within social, economic and political space that limits peoples' aptitude to demonstrate their perceptual abilities. Thus, the condition of vulnerability is produced as a result of the beholders' marginal identity.

Marginality

The word 'marginality' generally resonates with something at the edge, insignificant and inferior. The *Macmillan English Dictionary for Advanced Learners* (2007: 921) defines it as transitive verb, 'to marginalise', as – i) to make someone or something seem not important or relevant; and ii) to prevent someone from having power or influence. The word has its roots in the 1980s in the environmental justice movement and echoes explicit moral terrains in locating environmental problems across the globe, such as the lack of entitlements during the Bengal and the Sahel famines (Sen, 1981); failed market mechanisms and droughts in Nigeria (Watts, 1983); the political economy of soil erosion and land degradation in Nepal (Blakie, 1985; Blakie and Brookfield, 1987); challenging the received wisdom on the African environment (Leach and Mearns, 1996); complex relations between shrinking economic power of Gulf residents and threatened ecosystem of the Mexican Gulf (Robbins, 2012); knowledge controversies on land use and exclusion of livestock herders in West Africa (Goldman and Turner, 2011); and many others. In addition, several researchers on Bangladesh, such as Hartmann and Boyce (1983), Arens and Beurden (1977), Barkat (2000), BRAC (1983), Bode (2002), Blair (2005), and many others, have explored marginality

through the lens of social justice in regard to altering poverty and access to resources.

As discussed in the vulnerability section, there is also a danger of relying on economistic and structuralist models, as in vulnerability where the stress is on incapacities rather than capacities and often marginality is only connected with poverty. Rigg (2007) challenges structural explanations of poverty for being inefficient in understanding development in the global south. Giving the example of Mrs Chandaeng, a landless, widowed mother of six, from rural Laos, who altered her poverty to prosperity, Rigg (ibid) argues that a structuralist framing limits our understanding of personal geographies, which makes ordinary people extraordinary. Cases of prosperity like Mrs Chandaeng's are very much class-based in my field sites, because: i) relatively richer people can afford to send their sons abroad to send foreign remittances back home, and ii) relatively poorer people split with their parents and settle in big cities or with their fathers-in-law. Thus, the rich become richer and poor become poorer. However, people's levels of wealth may not be the only determinant of their exposure to risk. Cook (2010) has researched knowledge controversies on flood management in Bangladesh. One of his findings is that middle-class urban people are more susceptible to floods than poor people partly because the middle-class was ignored in the flood action plan, and he also rejects an economistic framing of vulnerability. Marginality exists in different forms, such as, social – in terms of class, ethnicity, age, kinship and network; economic – in terms of access to resources; geographical – in terms of the proximity of being exposed to an event; and political – in terms of having space in the policy.

Marginality could be in a single form or in a combination of several forms. Also one form of marginality triggers others. My eight months of ethnographic fieldwork in three southern coastal villages in Bangladesh, as elaborated in the following chapters, revealed some forms of marginality. My fieldwork (September 2009 – April 2010) was after two consecutive cyclones in November 2007 and May 2009. It is important to mention that the November 2007 cyclone was of the highest magnitude according to the meteorological record of the Disaster Management Bureau (DMB) of Bangladesh and EM-DAT, a Belgian-based international disaster database. They found that this cyclone caused the most economic damage from a single cyclone so far in Bangladesh. Having been a considerable time in my research area and after interacting with different groups of people, as elucidated in the next chapter, it appeared to me that apart from a very general sense of exposure to cyclones due to weak infrastructure, all other elements of material loss, such as unequal distribution, extortion, nepotism, corruption, lawlessness and abuse of political power, are deeply embedded within the social, economic and political system. A cyclone generally comes every few years but exploitation prevails at every step of life for ordinary people. They lose more through ongoing struggles than by cyclones. A cyclone hurts everyone indiscriminately, but not everyone can withstand and recover at the same time, at the same pace. People's marginality is mediated through their status quo, their position within the society and connections with the political and administrative elites. For some people, marginality is temporal situation. For example, despite having wealth, some people may still be marginal, having a political affiliation with the opposition.

But even when in opposition, someone from the elite may still be in a strategically advantageous position. An example is when some of those in the government party may make common cause with an 'opposition ally' in order to undermine a rival faction in their own political party.

It is not only the local power dynamic that produces marginality; also local human-environment relations are shaped through an external notion of framing. Goldman and Turner (2011) explain the divergent material interests of herders, farmers, conservationists and government officials over a barren stretch of ground in the Sahelian region of West Africa. They remark (ibid: 3):

> 'Environmental knowledge production is framed, funded and publicised in widely different social arenas. The livestock herders, who arguably know the stretch of land in question best, are not even aware that their eventual exclusion from their pasture is because they have been identified as agents for its demise by research conducted halfway around the globe by scientists who have never set foot on the pasture or, in some cases, the region.'

Reflecting back on the examples of shallow tube wells and climate change, mentioned at the beginning of this chapter, I would argue, in the context of Cyclone Sidr-affected areas, that a community is not always an isolated entity; instead it is sustained by a body of complex wider networks through the sharing and exchange of resources. I will elaborate this point in one of the following chapters in which I will discuss a forest conservation project. Thus, marginality is a matter of one's relative distance from the centre of power and is manifested in everyday livelihoods, in access to relief and rehabilitation support, in fishing, in having control over land, and in the right to use certain forest resources.

My Approach

Through the last decade, disaster and climate change have drawn widespread attention from different disciplinary experts. In my view both the physical and social scientists have failed to go beyond their particular disciplinary 'school of thought' and, in so doing, they have contributed to a technocratic version of disaster which is detached from a socially constructed world (Gaillard et al., 2010). The focus of scholarship has very much been natural-event-centric and hardly bears any reference to the day-to-day pressures, the daily marginalisations, which make the situation harder for the affected people to cope with an event. A cyclone is just a pulse in people's lives, which amplifies their difficulties. In saying this I am not departing from accepting the necessity of scientific and engineering solutions, which I clearly mentioned in a former section. Adaptive capacity is upstream of choice and design of technologies and downstream of delivery and regulation. This necessarily recognises social practices, culture, local perception and knowledge. Having said that, people can still ignore traditional preparedness in their desperate livelihood situations. Therefore, either when addressing chronic marginalisation or for having efficient disaster preparedness, there is no better option than strengthening people's livelihoods. As I described

before, a long-term sustainability of people's livelihoods is not possible if long-term socio-ecological prospects are compromised, institutions and structures are updated and strengthened according to change, disruptions to other's interests are taken care of, and ethics, politics and notions are not institutionalised.

My theoretical ideas will be further developed and integrated with the empirical Chapters: Four to Eight. In Chapter Four, I will catalogue successive cyclone knowledge framings in Bangladesh. Chapter Five engages with patron-client networks and entitlements to understand the relief and rehabilitation programme that followed Cyclone Sidr. Chapters Six and Seven discuss the political economy of land and fishing net disputes. Chapter Eight explores a forest conservation project and people's access to the forest through the lenses of political ecology and the politics of knowledge framing.

In this chapter I have outlined my theoretical underpinnings. In doing so I have faced two limitations. First, much of the existing published work is pitched at a fairly general, and sometimes abstract, level. Second, there is no high quality and ethnographic work on my topic for Bangladesh that I know of. On both grounds I have developed my own conceptual base for my work. My research will make an important contribution in filling the gaps in the literature on the environmental and cultural geography of vulnerable coastal people in Bangladesh.

Finally, the above discussion suggests a two-way communication between the policy makers and the community to lead an appropriate disaster policy, which must advocate a participatory research approach to understand the lives of poor, at-risk people. The government of Bangladesh has already made a gesture towards this kind of approach in community risk

Figure 2.3: Focus Group Discussion with SIDR victims (Source: Rector, 2008:8)

assessments that seek to 'build back better' (GoB, 2007; GoB, 2008abe; Rector, 2008). Theoretically, a participatory approach needs to be emancipatory by defusing power relations and ensuring joint ownership between the researcher and the community (Pelling, 2007). But, a glance

at Figure 1 questions: a) the type of power relation between the researcher and the respondents; b) the power relations among the respondents where age and sex are very influential factors; c) an appropriate environment where the respondents are comfortable to interact; and d) ethical issues associated with a focus group. Thus, the denotation of Figure 2.3, taken from a journal, which makes a claim of a participatory approach, firmly questions their efforts. I will elucidate these points in the following chapter where I will discuss my methodology.

Chapter Three

Methodology

Chapter Three: Methodology

Introduction

My background reading shaped my theoretical framework before going to the field. That framework was reviewed and strengthened through a defence viva with a panel of experts before setting off. According to that framework, I was interested to investigate and illustrate a portrait of the everyday geography of the coastal people of Bangladesh. Acknowledging the fact that science and technology are not always certain (Atkins et al, 2007) and our knowledge of nature and the nature of reality itself are culturally relative (Hoggart et al, 2002), this research strives to focus on understanding cyclone risk from the perspective of a very vulnerable group of people who are exposed to multiple hazards, especially to deadly cyclones. Accordingly, this study looks at socio-cultural and politico-economic behaviours and individual experiences and develops a new vocabulary around cyclone risk.

Two years on from cyclone Sidr, it was early October 2009 when I first entered one of the most devastated villages. I found a neat and well-built village. The houses mostly had tin walls and roofs and earthen floors. I had been to other villages around this coast a few years before while working on a development project and at that time most of the houses were made of *Golpata*, bamboo and wood. Any outsider, without having some grounded information, is likely to view such change as a positive development. However, a closer look at the houses, particularly the commonalities in their structures and having an NGO's or relief provider's logo on the 'tins' [roofing material], tells a different story of the newly transformed village landscape. Generic housing structures inform us of some common sources, and the subdued brightness of the tins with their thin layer of dust hints at newness and the quite visible imprinted "NfS" (Not for Sale) sign on the tins tells about their marketability. Being the most dominant feature of the built environment, these (replacement) houses tell us how robust and indiscriminately flattening cyclone Sidr was. Though, a few well-off people have expanded their houses' basic structure, most remained unchanged since they were built through aid-relief. This, in some way, depicts the homogeneity of their economic capacity. Besides, my visit was just two years after Sidr hit and they had experienced another major cyclone, named Aila, just a few months before. They were still recovering from their losses in these two consecutive cyclones. The effects of Sidr and Aila were still visible in their lives. Yet this community is psychologically so resilient that there was no trauma apparent in their appearance. On the second evening of my fieldwork, I went to the local bazaar of that village and found all five tea stalls overwhelmed with people, all men. Other shopkeepers were preparing to close their shops. Inside those tea stalls they were playing Bengali music videos and men of all ages were watching them. It is important to mention here that this village does not have any cabled electricity. They buy mechanically generated electricity from 6-10 p.m. every evening to play those videos, which attracts male customers and boosts the sale of tea.

After exchanging one or two greetings with known faces, I came outside on to the main

street where I met Anwar Haulader, a fisherman who works as a labourer for a *mohajon*. Anwar asked me about my organisational affiliation and I explained to him my reason for being in his village. At one point of our discussion I asked him what he had been doing during Sidr. I was very surprised to learn that despite knowing about the cyclone warning he had been fishing at the mouth of the river Boleshwar. Seeing my expression of surprise he continued that there had been a tsunami false alarm just a month before Sidr struck. Moreover, his family lives from hand to mouth and he is the only bread winner for four dependents. He does not have any savings and his family will starve if he does not go to work. This statement shook my conviction that I would focus on the broader system of cyclone preparedness, comprising the weather forecasts, warning dissemination, and engineering defence constructions. At the same time, it also reinforced my understanding about 'vulnerability through marginalisation' (Wisner, 1993), which I had stressed in my primary research framework paper. I realised, for people like Anwar, who has to work every day for their next meal, comprehensive cyclone preparedness does not make much sense as their desperation to live pushes them to go beyond the margin irrespective of the circumstances. He lives on a knife-edge between starvation and death. This was echoed by Anwara, an old lady from the same village, who expressed her grief as follows: 'those who died in Sidr were blessed by God, as they escaped from being in a living hell like us'. This story is not intended to undermine the importance of structural and non-structural measures like weather forecasting and the early warning system. Instead, these very early experiences made me question how at-risk community are disconnected from a traditional ways of understanding cyclones. As Mercer et al. (2008) and Gaillard et al. (2010) point out, at-risk people become marginalised in three ways: geographically – they live in marginal, hazard-prone areas; socially – they are poor; and politically – their voice is not heard. Thus, they become more exposed to vulnerability, which can be reduced only by ensuring their hands-on participation in decision-making processes. This means that any top-down development effort must reflect on how it can meet the needs of the beneficiary community. Keeping this in mind, though the cyclone remained the main focus of my study, I decided that I wanted to explore its resonance in the everyday lives of the survivors of Sidr.

My prime objective in this thesis is to understand how the community view the issues around cyclone hazards. It is not for me to judge whether they are right or wrong, credible or fallible, in their responses. Rather, my methodology seeks appropriate ways to bring out the essence of the meaning of cyclones in my respondents' lives. I will remain critical about how their knowledge is produced, and how and why different knowledge frames are contested and survive. In the following chapter I will illustrate how cyclone knowledge has flourished through time and how a very modernist top-down notion has dominated that process. Despite claims of being participatory, the traditional modernist framing has not been able to reflect on why a community may behave other than they are expected to do. The stories of Anwar and Anwara above are examples in this regard. They throw up an epistemological challenge to the traditional framing of cyclones in Bangladesh and, thereby, open up other avenues of understanding of how a community may behave in a setting of disaster. Accordingly, the very first challenge was to select my field site. I preferred to work in an area where people had very recent experience of cyclones.

Initial Thoughts Before Going to the Field

After a year of intense academic preparation, I flew to Dhaka at the end of September 2009. I intended to look at how a system, at all scales from individuals to whole communities with all their internal (social and economic structure, local government, politics and so on) and external (NGOs, donor agencies, civil societies and so on) forces, reacts to a devastating cyclone event and how the complex interwoven relations of their reactions shape their everyday lives and future cyclone responses. More precisely, my research strives to reconstruct a picture of 'cyclone Sidr and its aftermath' from lived experiences through engaging with different actors within a community setting, in order to provide the basis for a reflective structural analysis (Moustakas, 1994). As I want to learn about cyclone experiences from fresh memories, my priority was to work in the hardest hit areas from a recent cyclone. Sarankhola Upazila[6] seemed to be the most appropriate choice as the human death toll was highest there after cyclone Sidr struck in 2007, and it was also badly affected by cyclone Aila in mid-2009. Another reason for choosing the Sidr-affected area was that most of the qualitative literature on extreme events refer either to the 1970 Bhola cyclone (also affected the wider Barisal region) or cyclone Gorki, which hit the Chittagong coast in 1991. Despite experiencing several deadly cyclones, the Khulna region, where my field site is located, has always suffered a relatively lower human death toll because of its distinctive physiography, especially the natural shield of the Sundarbans. But, beyond the regional setting, this research also challenges traditional ways of generalising about cyclone knowledge because in reality it can be different between two neighbouring villages. At 756.61 square kilometres in size and with 107,856 inhabitants, Sarankhola Upazila is large for an in-depth qualitative study with limited time, so my first task was to look for gatekeepers who have good knowledge of the area and who could help me arrange some visits before selecting my field sites.

My Gatekeepers

The BBC Bangla Service were enthusiastic about my work from the very beginning. Akber Hossain, a journalist of BBC Bengali Service, had been to Southkhali Union[7] immediately after Sidr. Akber introduced me to Ismail Hossain, the General Secretary of the Sarankhola Press Club. Being a leading local journalist, Ismail has connections with all quarters of society around Sarankhola and

[6] Several UPs form an Upazila, which is the most functional tier of the Bangladesh Local Government system. All governmental development schemes are arranged and funded through the Upazila. NGO intervention programmes are approved by the concerned Upazila administration. An elected Chairman chairs and local Members of Parliament act as executive advisors to the Upazila council. Such a complex power distribution does not always run smoothly. Political friction within the local bureaucratic structure is common.

[7] The Union, often abbreviated as UP, is the *Union Parishad*, the lowest tier of the Local Government structure in Bangladesh. A UP is divided into nine areas called Wards. A Member is elected from each Ward to sit on the UP council and this is chaired by a UP Chairman who is chosen at the general election. Several UPs form an Upazila, which is chaired by an elected Chairman, and the local Member of Parliament acts as an executive advisor to the Upazila council. Southkhali Union is one of four Unions under Sarankhola Upazila.

this enabled me to access political leaders, NGOs and government officials. However, I had to adapt my own strategy to build up a relationship with them by cutting through the shield of my image of being a good friend of an influential journalist leader. Later in the thesis I will explain power networks and politics of the local journalists, which will help us to understand this context. Ismail introduced me to one of his known and most reliable motorbike riders, named Mamun, who took me around the local bazaars of Southkhali Union. The bazaar is the heart of each village and is the right place to make contacts, observe, listen and talk to people. This helped me to have a generalised picture of livelihoods around the Union.

My second gatekeeper is a friend of mine from undergraduate days who works with an NGO called Friendship, which operates in two marginal locations: the island of *Mazer Char*[8] and a newly emerged *char* (Sonatola Model Village). This gave me the opportunity to observe the influence of geographical disparities in perceptions of risk. At the very beginning of my field visit, I conducted a two-week pilot survey to acquaint myself with my study area (Hoggart et al, 2002) and in order to make initial contacts to gain access (Crang and Cook, 2007). At the writing up stage of my PhD, when I look back to my fieldwork memories, I feel grateful to Akbar for introducing me to Ismail. This contact with the local press club gave me a tremendous opportunity to get on with my research.

Pilot Study

During my first two weeks of pilot study, I spent my whole day exploring potential field sites, talking to people, NGOs and government officials and in the evening the local press club was the place to find me. The press club was the most exciting place to learn about the community as the journalists are like the eyes and ears of the Upazila, where everyone from the highest administrators of the Upazila to the very poorest come to give their opinions, and to tell about their sufferings, grief, and deprivation. I was amazed to see their connections and their power. Any news published in a local newspaper matters immensely to anyone. This was a good place to make the first contact with local power-elites like NGO and government officials, policemen and politicians. I knew, from being introduced through the local press club, that there was a risk of triggering suspicion about me in the eyes of the local power-elite and that this might hamper the quality of my data. However, I took that chance for a number of reasons – i) my journalist friends clearly mentioned my identity and objectives when introducing me to anyone; ii) two other researchers worked in this area who were also introduced through this press club; iii) I knew that I would be staying in that area for a long time and I knew that opportunities for future interactions would open up once an initial contact had been made; iv) my queries to the power elites were purely academic and there were hardly any room to ask them any question where they could detect any 'policing' of their activities;

[8] A *char* is a relatively stable sandbar that forms at the centre or edge of a river. With further deposition it may become a relatively large island.

and most importantly, v) among the powerful elites, I observed a culture of boldness and rational legitimisation and justification of their deeds. For example, a politician of the present regime (2008-13), who is also an elected representative of the Upazila council, told me that he keeps 30 percent of any aid relief for his own activists who he is always surrounded by. He legitimised this statement by arguing that as those people always work for him, they deserve to receive something in return.

Also, political nepotism is to some extent accepted and overlooked within the elite group. I heard many stories of events (which are corrupt in the strict legal sense) discussed loudly in the press club yard in the presence of members of the public. I remember talking with a few journalists about the illegal involvement of the Upazila Chairman's son in timber felling inside the Sundarbans and extortion from different governmental relief schemes. Though I do not have, nor did I look for, any hard evidence to prove whether the Upazila Chairman's son was guilty or not, I was extremely shocked when the local journalists told me that they do not intend to report his alleged acts as, to them, what he was doing was within the limit of extortion that an Upazila Chairman's son is expected to do.

Spending my days in different parts of the Upazila with ordinary people and evenings in the press club with the elites, I developed a picture of life in Sarankhola Upazila. This picture is of a cycle of marginalisation. Any disaster indiscriminately devastates everyone regardless of one's power, wealth, connections, prosperity and so on. In the aftermath of the event, a wealthy, powerful and well-networked person can recover quickly by accessing available resources, in this case relief and rehabilitation packages offered by the government and NGOs. People with fewer connections and power are often deprived of receiving anything. People who have agricultural land can get back on track through their crops. But landless people have to struggle to acquire newly emerging lands along the riverbanks or offshore. Here they are confronted by land mafias, who possess a strong economic and political base onshore. Islam (1974) refers these land mafias as 'absentee landlords'. According to the 2001 population census, 20 per cent of the people of Southkhali Union, the most Sidr-affected Union in Sarankhola Upazila, are extremely poor and landless and another 50 per cent have very little land to support their families. So, they look for other opportunities. People, whether they move to new lands or cling on to their old places, look for alternative sources of income. Available sources of wage employment include fishing, resource collection from the Surdarbans, or moving to a big city for industrial employment. Economic marginalisation is very evident among the legally employed, pushing the poor to the edge of subsistence with very limited choices. Beyond that the worst case scenarios include illegal felling inside the Sundarbans or joining a bandit gang. Jail sentences and extra judicial killings are the ultimate consequences for anyone caught in these two illegal activities. This portrayal is a very simplified extraction from the extremely complex nesting of marginalising phenomena. I had to restrict my interest to exploring only issues around land disputes in the newly emerging lands, along with fishing and the forest, as – i) they are most dominant among available income earning

opportunities, and ii) I had to consider the time limit of my fieldwork. This focus in my interests did at least help me to determine my field sites.

The following section mentions and rationalises three different sites of my fieldwork. Two are in Southkhali Union of Sarankhola *Upazila.* Among these, Gabtola received the most attention from all corners, as the human death toll was significantly higher than any of the Sidr-affected areas. Since Sidr hit, the Gabtola people have been overwhelmed by philanthropists and NGOs. Unlike any other rural settings in Bangladesh, they do not show any interest about a stranger's roots, but rather ask about their organisational affiliation. So, instead of being guided through any gatekeeper, I walked into Gabtola on my own, sat in a tea stall and started chatting with them as a stranger.

Study Area

I finally picked Gabtola and Sonatola Model Village as two sites of my research. In addition, I chose Mazer Char, which is located on the border of two *Upazilas* (subdivision) and belongs to Mathbaria *Upazila.* All of these three areas are adjacent to the Sundarbans, the largest mangrove forest in the world. Because of their proximity to the forest and to the fresh and saline water bodies, the local people's livelihoods are dominated by resource extraction from the forest, rivers and the sea. Asking anyone about their general livelihood options in the area will elicit the almost unanimous proverbial response of *maas r gaas*, which means fish and timber. Insufficient employment opportunities in the off-peak economic season for both the farmers and fishermen leaves them few options.

Gabtola is a village in Southkhali Union Parishad that has been experiencing riverbank erosion very frequently. The river has pushed in approximately half a mile in last few decades and this has made many people landless. Now Gabtola has only a small amount of cultivable land. Therefore, many people have become wage labourers, illegal tree fellers in the nearby forest and fishermen in the river or out in the Bay of Bengal.

The number of voters is approximately 1200 and the total population is double that. One tree feller informed me that nearly 300 residents of Gabtola are engaged in felling, which matched with the inventory survey of IPAC, a NGO mandated to conserve the Sundarbans. This village was also the hardest hit by Cyclone-Sidr in terms of death toll and destruction. 381 people perished in this single village, which is ten percent of the total for Sidr. Only four houses were standing afterwards, several hundred metres away from the riverbank and all brick and cement built. The village mosque was also a concrete structure but it was by the river and Sidr left no trace of its existence. Gabtola has a cyclone shelter which was under lock and key during the cyclone. Its CPP (Cyclone Preparedness Programme) volunteer did not himself go to the shelter to take refuge and died at home reportedly holding his 3 year old daughter. On the other hand, this is also the village that has received the most media attention and the greatest intervention by government and NGOs

for reconstruction. Gabtola has a well-knitted kinship network and local political power dynamics, which has facilitated access to development and rehabilitation resources.

Figure 3.1: Sarankhola Upazila, a General Orientation with my Study Area.

Sonatola Model Village was built on a newly emerged disputed sandbar, declared as *khas*[9] land by the Ministry of Land with a view to allocation to landless people, especially the victims of river bank erosion. It is important to mention here that 'landlessness' was not judged on the basis

[9] *Khas* land is common property acquired by the Ministry of Land to lease out among the landless poor community. This is further elaborated in Chapter Six.

of their level of destitution, but rather on their political connexions. The then UP Chairman seemingly exploited the process and installed his close allies in the model village project. The then opposition, who protested about these projects, are now in power, drove away the former leaders and their allies and took control of the resources of this project. While instigating the project, the ownership of the lands was fought over in court between the Ministry of Forest and Environment and the Ministry of Land. The settlers here did not receive any NGO or government shelter after Cyclone Sidr because of this dispute between the two government departments over their lands. As settlers here have all relocated from elsewhere, they do not have any close kinship ties with the local power brokers. Therefore, they are often ignored in governmental development schemes such as food/cash for work projects. There are about two hundred households in this model village who do not have any cultivable land. They mainly depend upon wage labour or trespass in the Sundarbans to collect timber.

Mazer Char is an offshore island overwhelmed with disputes over *khas* lands. This island has a tiny amount of cultivable land which is insufficient to support her inhabitants, who must explore alternative means of earning income, mainly fishing in the river. This Char community is generally made up of people displaced from the mainland, mainly because of poverty, and their kinship networks are weak. The char is home to approximately a thousand of people, which is just a quarter of the Union's population. They do not have any representation in the local government and, thus, are politically marginalised. Everyone, from the local council member, to bandits, the police, right up to the *Upazila* administration, takes a dim view of Mazer Char people. For example, a bandit gang took a hostage from Mazer Char and asked ransom from every single household. They paid off the money to get their loved one back and to lead a quiet life. Meanwhile, when the police were informed about this they asked for a bribe saying that they must have connections with the gang. After cyclone Sidr, the British Business Group took an initiative to make Mazer Char into a 'model village' through their partnership with Friendship. Therefore, Mazer Char has become a classic example of a single NGO intervention community.

I studied these three locations as they are from a similar cultural background, and have a close geographic proximity but also have contrasting features of control. In the field, I was interrogating the meaning and context of any reactions in their real life. For example, to understand the thrust of any interventions with regard to disaster preparedness, I engaged with fundamental questions, such as how was the intervention designed and for whom? Who participated in the design process? What was their political positionality? Who was excluded and why? What were the considerations in designing them? This analysis was very useful in engaging me with multidimensional views of my objects. I strove to grasp how my respondents experienced these phenomena and, thus, unearthed their essences. This approach gave me clues about how intricately different phenomena are connected together and presented before us as a whole system, or more appropriately, as an ecology.

Table 3:1: Emerging Themes from Three Field Sites

	Gabtola	Sonatola Model Village	Mazer Char
Distinctive Features	# Highest death toll in Sidr # Obtained attention from numerous NGOs # People develop political and kinship connections for access to resources # Change of political regime has strong influence on livelihoods # Livelihood options are less diverse compared to the other two sites.	# Developed on a newly formed char. # Emerged as a vote bank # Has constrained access to governmental development schemes # Does not have any strong kinship network # Ignored by the local government # People are dominantly wage labourers and quite mobile	# Off-shore island # Their financial involvement in fighting over land dispute cases is much higher than their property damage due to cyclone. # No strong kinship network # Ignored by the local government # Mazer Char people either harvest their agricultural lands or fish in the Boleshwar River.
Post-Sidr NGO intervention	# Most focused and highly overlapping # Substantial amount of resources drained away here although this did not make any noticeable difference in terms of building resilience. Rather, some interventions are posing future threats.	No significant NGO intervention but initial food support. Friendship has established a non-formal primary school but this is struggling to continue for lack of funds.	# Single NGO (British Business Group through Friendship) intervention # BBG wishes to make Mazer Char a 'model village' through Friendship.
Land Dispute	Not significant but exposed to riverbank erosion	# Dispute between two governmental departments # Politically emerged dispute since 2004	State sponsored dispute, has existed since 1965
Fishing net issue	✓	They do not fish in the Boleshwar River and, thus, do not have any issue around fishing nets.	✓
Resource Extraction from Sundarbans	Fishing and crabbing in channels inside the sundarbans and they collect *golpata* and honey. Many of them also trespass into the forest through strong political gangs to cut timber on a contracted wage basis.	On top of fishing and crabbing, they trespass into the forest quite frequently to cut timber. However, their purpose is not illegal trading, but rather to sustain their own livelihoods.	Do not have any direct livelihood link with the Sundarbans

Note: The tick (✓) denotes that further explanation will follow in the chapter on fishing nets.

Research Practicalities

Questions asked in the above paragraph help me to be critical about my research problem, but do not give any clue about how the question is being asked. My epistemological engagement with the problem needs to be well tuned with my theoretical framework. This is more about 'observations of the point that we are watching from when we observe what is out there' (Andersen, 2003). Who is asking the question? How is the question being asked? What is the power relation between researcher and researched? How can I deal with all possible biases? How can I avoid mediations of meaning? How am I going to engage with the community? Shall I live at the field site, on my own or as a paying guest? What about food and other matters? How can I deal with all these matters

while maintaining a neutral position? Many families showed an interest in adopting me as a member of their family. I knew about the culture of generous hospitality in Bangladeshi villages. But, I did not want to put up with any family who would have made it difficult to interact with any of the community members. For instance, there are many power dynamics that operate within a community. Living in a house is often perceived as taking sides and thus creates a position in that power thread, despite the researcher's honest intention of being neutral. Besides, living with a family would also create a situation where the host would have received relatively more attention. I lived in the cyclone shelter at Mazer Char and in a shop at the Gabtola bazaar. These places did not have electricity or a mobile network, which was not efficient because it disconnected me from the rest of the world. I had to do some reading and writing every day and had to depend on my laptop for that. Besides, if I lived at my field site straightaway I would have to breach some of my agreed responsibilities as mentioned in the University Risk Assessment Form before setting off to my field site. So, I stationed myself at Rayenda, which is the centre of the Upazila and very close to the main market, press club, police station, Upazila headquarters and other local centres.

Positionality

Being originally from Global South, I felt myself very lucky when I read about the troublesome experiences of White Caucasian researchers who intended researching in the Global South but went through the very hard process of minimising power gaps, understanding language, culture, intonations, appearances and so on. My research was in a country where I am originally from. So, I speak the language and also have an adequate cultural orientation. Arens and Beurden (1977) conducted a one-year ethnographic study in a Bangladeshi village to understand impact of a NGO intervention on poor peasants and women of that village. As they initially had some language barrier, they employed a research assistant. They eventually regretted employing him when they later discovered that he was from a rich family and so unlikely to understand the problems of poor peasants. This statement again problematises my identity. To my respondents, I am a city boy, having been based in the capital city, and moreover a researcher in a foreign university, which put me in a 'super elite' position for them. I received a lot of attention in the first few days. However, from my previous experiences of working in a rural setting, I was mentally prepared for the need for patience until the ice breaks. Despite having such a 'big' identity, my interaction with people made them feel that I was a part of them, which they mentioned on several occasions. I tried to be as simple as possible in regard to my dress and food, which Arens and Beurden (1977) define as 'shared austerity'. I will elucidate this further later in this chapter in the 'participant observation' section. It washed away the bar of power relation and let them to be quite frank with me. Besides, the remarkable engagement of NGOs, donor agencies and media with this community has also helped to draw attention away from me. From my point of view, it gave me enough space to engage with the community, to understand the local power dynamics and patron-client relations, to use my observations and to select respondents to interview and eventually to contextualise them in their livelihoods.

Research Assistant

I had a plan to employ a female research assistant, as I was not sure whether I would be able to interview female respondents in a comfortable environment. But I had some unease about employing research assistants for the risk of receiving some mediated meaning by not understanding the respondents' context (Arens and Beurden, 1977) and by engaging with the respondents beyond the role of a neutral note taker (Le Mare, 2007). After being in my field sites I was quite happy to see that females were quite extrovert. The below picture shows women working side-by-side men in a water tank digging project. Similarly Beurden (2007) was surprised to see a dramatic change in the visibility of women in the village he had first worked in 30 years before. So, it was easy for me to talk to women in my field site without harming any local social values.

Figure 3.2: A Water Tank Digging Work under a 'Cash for Work' Project, where Men and Women are Working Together (Source: Author, 10/11/2009).

Recording Interviews

The tape-recording of interviews and focus groups is very important in regard to maintaining the authenticity of data. But sometimes tape-recording can be a worry for the respondent in the suspicious climate of modern Bangladesh (Mandiyanike, 2009; Arens and Beurden, 1977). While interviewing a government official, for instance, I asked permission to use my recorder. The person expressed unease of being recorded and suggested not to record if I wanted to know something outside of the box. Again, some respondents asked me to pause my recorder when they felt necessary. So, I was very careful about using the recorder, and always informed my respondents that they would be anonymous despite being recorded and I did not record anything without their verbal consents. To be frank the inconvenience was minimal because: i) I was taking enough notes and ii) as I was living in the community, I always had chance to go back to respondent for clarification. I am still in touch with several of my respondents and have contacts numbers of all my respondents. Therefore, I always had the opportunity to contact them if I had any query while compiling data.

Table 3.2: Categories of Respondents on the basis of emerged themes

Themes	Experts/Civil Society	Local Government	NGOs	Government	Community	Politician	Comments
Land Dispute	Local journalists, e.g. Faisal Mahmud, a national TV reporter who reported on the Mazer Char land dispute	UP Member-Betmore and Sonatola UNO of Mothbaria and Sarankhola	Friendship BELA Uttaran	Station Officer-Bogi Station	4 focus groups and 14 in-depth interviews at Sonatola and Mazer Char	2 Ex-Chairmen-Sarankhola Chairman candidate-Sarankhola Mr. Farukuzzaman-Chairman of Cooperative Bank and brother of present MP	I conducted four focus groups at Mazer Char and Sonatola which gave me initial insights about the matter and let me determine the areas I needed to spot light on and respondents I needed to approach.
Resource Extraction from Sundarbans	Dr. M M Hassan-former Director of Bangladesh Forest Research Institute Prof. Ainun Nishat – IUCN Asian Advisor Research Database – Department of Forest	UP Chairman – Southkhali UNO-Sarankhola	Chief of Party-IPAC CODEC Ashroy Foundation Pradipan	2 SOs-Sarankhola Forest Range OC-Sarankhola Thana Deputy Director – Social Forestation	Fishing community inside sundarbans Trespassers into the Sundarbans Bandit	Chairman candidate-Sarankhola Upazila Chairman	Resource extraction from the Sundarbans comprises both legal and illegal access to the forest. Legally, they access to the Sundarbans for fishing all the year round and for collecting *golpata* at the end of January every year only for a month. Illegally, they trespass into the forest, collect timber and sell it on the black market.
Fishing net issue	I did not find any particular expertise in regard to fishing nets. The literature is more focused on science of fish breeding and shrimp farming with a few papers about traditional credit systems in fishing industry.	UNOs of Mothbaria and Sarankhola	CODEC Ashroy Foundation Friendship British Business Group	Upazila Fisheries Officer – Sarankhola OC-Sarankhola Thana OC-Coast Guard Station, Sarankhola	2 focus groups with *vasha jal* community 1 focus group with *dhora jal* community Interview with the president of the fishing community 10 Interviews with the *vasha jal* and *dhora jal* users	Mr. Farukuzzaman-Chairman of Cooperative Bank and brother of present MP Chairman candidate-Sarankhola Upazila Chairman	
Post-Sidr NGO intervention	Prof. Ainun Nishat Dr. Atiq Rahman Local Journalists	UNO and 6 other Upazila Officers UP Chairman Ward members	Pradipan, RIC, DSK, ADO, Care, Oxfam, SDC, Nirapad, Friendship	Deputy Director – Relief Director -CDMP Ministry of Disaster and Relief website	Interviews (10 male and 10 female) 4 focus groups	2 Ex-members and 2 potential member candidates	One of my respondents quoted his son's comment, "Father, Sidr didn't inundate us as much as the relief flow will do".

Methods

I neither seek to uncover universally scientific knowledge nor wish to explore ontologically necessary structures of causation (Crang and Cook, 2007; Hoggart et al, 2002). Instead, my primary objective is to understand the rhythms of life at my field site. Rather than being guided by a list of predetermined questions, I preferred to be a part of the setting to be studied with an objective of participating in the wider detail of the subject matter (Mathbor, 2008). I engaged with the community in an interactive way to smell, taste, and feel the meaning of risk from their daily events, interactions, experiences and so on. I do not wish to come up with any one-size-fits-all solution or silver bullet (Leach and Scoones, 2006); rather I want to push theory forward through grounded evidence. I gathered data in three different ways: a) as a participant observer (Arens and Beurden, 1977), b) learning through talking to people (Crang and Cook, 2007), and c) archival research. I already mentioned in an earlier section about some unfavourable practicalities to tape recording interviews and focus group discussions. Therefore, observations and informal discussions were the main tools of this research. Formal interviews and focus groups were not attainable at the community level, which I elaborated in a later part of this section. However, living with the community for a relatively long period of time, working as a school teacher, understanding the local power dynamics, participating in their social and familial events, having been distinguished (as harmless) from other 'outsiders' such as NGO workers, government officials, journalists and philanthropists, I had tremendous opportunities to use my observations and work as a mediator to draw a quotidian picture by translation of their words.

Observation

Despite many critiques of Malinowski's participant observation, he made a huge contribution to convince others to do intensive studies by living with the subjects of his research and understanding their culture. Participant observation is the core means by which ethnographers seek to appreciate the worldview and ways of life of their subjects in the context of their day-to-day lived experiences as an inquisitive insider (Cloke, et al., 2004; Crang and Cook, 2007). Cloke, et al. (2004: 169) mentions six characteristics of participant observation: firstly, it considers the researched as knowledgeable and situated agents. Secondly, this is an extended and inductive methodology intended to understand the grounded social order. Thirdly, it can involve a 'shamelessly eclectic' and 'methodologically opportunist' combination of research methods. Fourthly, it studies what people say to do, why and what they are seen to do and what say to others about this. Fifthly, it involves tricky negotiations between the researcher's words and deeds. Finally, it recognises the researcher and the way s/he acts and learns to act in an unfamiliar circumstance as the main research tool. These characteristics are echoed in my discussions all through this chapter.

When I first went to my field sites, I told them that I wanted to learn how they live (Arens and Beurden, 1977). Some thought it a luxury, some thought that I was doing a secret survey for relief distribution and some gave no thought to it. In the first few weeks, I was not in a rush to

collect data. I used to go to the tea stalls, the UP office and local bazaars, and also to the training sessions organised by different NGOs. I tried to make my appearance as ordinary as possible. I ate locally available foods and wore simple clothes. I never hesitated to sit on a dusty bench or an earthen floor. The best thing I found about people was that they were not very demanding. A little smile and greeting made them more than happy. One compliment I heard from many people is – 'you are so educated and dignified, but how beautifully you smile while talking to us'! These words of praise also tell us how my respondents perceive 'educated and dignified' people. They had many questions about my family, life and me. This was good for initially breaking the ice. I wished to work as a school teacher at Gabtola and this was cordially accepted by the committee. I observed dispute resolution through the village court, which also introduced me into the local power dynamics. I saw many people, who often prayed to God and asked for His justice, bribing to improve their fortunes. My observations and interactions with the community helped me immensely to understand the local facts and contexts and to recruit my key informants for in-depth interview and focus group discussions. This preliminary knowledge was also useful in reviewing the interview schedule, incorporating the emerging themes and necessary adjustments of the research strategies.

Interview and Focus Group

'All social research involves learning through conversation' (Crang and Cook, 2007: 60). Along with participant observation, interviews and focus group discussions were the primary means to gain insights on my subject. In particular, detailed examples, individual experiences and rich narratives can be best gained through in-depth interviews (Hoggart et al, 2002). As a part of an intensive qualitative exercise, asking questions is a part of wider research strategy, interlinked both with research questions and data analysis (Cloke, et al., 2004). Despite commonalities between the process of conducting in-depth interviews and focus groups, the latter can replicate social relations and interactions because of its multidimensional, intra-personal, interpersonal and transpersonal nature (Hoggart et al, 2002). Thus, during conversation, one set of ideas can stimulate others' cognition. Macnaghten and Myers (2004) stress the need of a focus group in a context where multiple arguments, conflicting beliefs and disputed framing exists. As a patron-clientele society exists in Gabtola, poor communities are fragmented through their networks of patronage and thus have disparities in their arguments and interests. But, mixing such a diverse group for knowledge generation can end up with confrontation. The picture is very different in my other two field sites, where political divides are not as visible as Gabtola. Therefore, I did not conduct any focus group in Gabtola, but did so in the other two field sites.

There were some practicalities which I had to address while conducting in-depth interviews and focus groups and I have already mentioned a few of them earlier. In Mazer Char, I intended to conduct a focus group of eight people in a room, which had adequate privacy, but I was not able to make them talk. They talked of course, but not in the usual lively was that I knew. After the

meeting was over, I invited them to the tea stall, which was already crowded. We sat round in a shed and others joined in. The discussion then automatically evolved from their chitchat and almost everyone participated. This discussion was about their land dispute. I quickly took my notebook out, noted down important points which I explored later through in-depth interviews and informal chats. In regard to focus groups, I found it essential to look forward to design of the group, to plan the topic guide, recruitment of participants, facilitation and conceptual scheme, and to look back at transcript, analysis, why a statement was made, performed interactions, and so on (Macnaghten and Myers, 2004; Cloke, et al., 2004; Crang and Cook, 2007; Hoggart et al, 2002). My approach may not meet all of the criteria usually considered vital for focus groups, but I had to be pragmatic and flexible in order to obtain the best result.

Data Manipulation:

I used triangulation and crosschecking methods to increase the trustworthiness and credibility of my data. I partially adopted some aspects of the grounded theory approach, where data collection, manipulation and analysis are a circular feeding process (Mathbor, 2008). I transcribed every single interview and discussion. These transcripts are a synthesis of the interview-notes, audio recordings and head scratched cognitions. Interviews where I was unable to record were primarily transcribed from field notes and memory with the help of respondent verification later. Transcripts were then coded, organised and conceptualised, which gave me some more queries to think about. Therefore, I went back to my respondents to clarify my queries. Though it is two and half years since I returned from my fieldwork (April 2010), I am still in touch with many of my respondents. The tidal surge in October 2010, updates on candidates for the upcoming local government elections, the extrajudicial death of several bandits, the withdrawal of Friendship from Mazer Char, a respondent's new job in the ship breaking industry in Chittagong, are all updates from my respondents after my return from field visit. Mobile phone technology has shrunk the distance between us. At every step, I discussed my transcript with my respondents to ensure that I had not misunderstood anything. This eventually will help me to reduce the risk associated with mediation from informal to formal language and from Bengali to the English translation.

Limitations of the Study

One important limitation is that, while exploring marginalisation, I was not able to focus on agriculture, as – i) I did not have enough time to conduct extensive research on agricultural marginalisation and to do so I would have had to reallocate time from researching other themes; ii) people who own agricultural lands are regarded as well off and my focus was not on the whole marginalisation process but rather on those marginal at present. Of course, the broader marginalisation process also contributes to the number in the marginal group, which is worth researching. This required more time than I had available to me but it could be part of a future research agenda.

Ethical Issues and Risk Analysis

This study is conducted in accordance with the ethical principles set forth by the Graduate Committee of the Geography Department, Durham University. I neither hid my identity from the community, nor did I make any inappropriate promises to them. I briefed my respondents about my project beforehand to make them aware about what I sought to know. All of those respondents who wished to have their identity protected have been given new names. I have not quoted anything from my respondents without their consent; neither will do in any future publications from this research. Any respondent who holds a position that makes her/him identifiable despite being anonymous has been informed in advance about this. No-one is quoted if their words would attract a potential threat to them. Altogether, these precautions helped me to gain respondents' confidence and, eventually, to obtain more valid information (Hoggart et al, 2002). I was all through very careful to avoid any mediation while translating my transcripts from Bengali to English. I employed another bilingual colleague to translate them back in Bengali to crosscheck if there is any mediation.

Conclusion

This chapter has looked at the research methodologies employed to address the objectives outlined in Chapter One and tuned them with the theoretical framework in Chapter Two. Given the diverse socio-economic settings of my field sites, combined with the landscape of cyclone devastation and my positionality, I have chosen methods which would give me a depth understanding of the problem. The most challenging thing was to obtain the trust of my respondents and I was quite successful here. In the middle of my fieldwork, I came to Dhaka to attend a workshop and to interview some experts. I received several phone calls from my respondents during that time. The most interesting call was from a respondent involved in illegal felling inside the Sunderbans. I will call him Ponu in the whole thesis. Ponu said, 'Brother, I have not seen you for two weeks and I am very excited to see you soon'. I asked, 'Ponu, where are you?' Ponu replied, 'I am in the forest now and will be back next week'. Ponu knew that I am in touch with the local police station and forest office and he could very well suspect that I would inform the respective authorities. But he was well aware about my objectivity and trusted what I said to him. Such facts certainly enrich the credibility of a research project. The next chapter engages with development of cyclone knowledge in Bangladesh and examines their relevance at the community level.

Chapter Four

Knowledge Framing of Cyclone Disasters in Bangladesh

Chapter Four: Knowledge Framing of Cyclone Disasters in Bangladesh

Introduction

Although Bangladesh has been exposed to multiple natural hazards since time immemorial, the range and depth of research, particularly on cyclones, has been disappointingly limited. A 16th century cyclone was described in Abul Fazal's *Ain-i-Akbari* (Haque, 1992), which is assumed to be the first written account. Since then, there have been many records of deaths and suffering. In terms of the knowledge base, a universal consensus has not yet been achieved. Researchers have striven to understand the nature and causes of cyclones from a physical perspective in order that adequate measures can be taken to withstand them. Advances in science and technology have added new attributes to their enquiries, but these have eventually falsified their previous hypotheses (Landsea, et al., 2006). Besides, because of an ever-evolving pattern of scholarship, any cyclone forecast produced by technocrats was a function of the relation between probability and the real event; this gap was often wide, so the credibility of forecasting has been undermined and opportunities for alternative scholarship have opened up. Simultaneously, technocratic cyclone knowability has been challenged by social scientists, who have been advocating the building of bridges between the studies of physical science and human behaviour. Within social science, again an epistemological debate arose from different disciplinary, interdisciplinary and multidisciplinary scholarships. Challenges became apparent from different perspectives on participation, power and knowledge with regard to the question of comprehensive disaster governance (Leach and Scoones, 2006; Pelling, 2007). In addition, global climate change, sea level rise and other cross-cutting environmental issues gave the debate a new momentum, while the adversely affected global south tends to frame natural hazards as a consequence of global warming through carbon emissions by the industrialised global north (Dove and Khan, 1995). In reply, the global north outlines those hazards as incapacity of the global south in disaster governance. Eventually, different schools of thought have emerged and cyclone knowledge has split. For example, Professor M. Aminul Islam, the doyen of social science approaches to Bengal cyclone research, seems to have had been influenced by G.F. White (Islam, 1974, 1995), but he has neglected the emergence of other contemporary frameworks, such as those of Sen (1981), Bijker et al. (1987), Wynne (1995), Ingold (2000) and many others, which are equally relevant to the Bangladeshi context of extreme events. To address this knowledge gap, this chapter seeks to unpack different knowledge frames of cyclone disaster in Bangladesh, which will also form a background for the whole thesis.

In the *Bangladesh Climate Change Strategy and Action Plan 2008*, the government has emphasised six mitigating measures, which are the construction of cyclone shelters, building embankments, afforestation, early warning systems, and awareness building and communications. This spotlights the government's way of framing cyclone risk. The very idea is focused on technological and heavy engineering solutions for saving the lives of people who are already 'out

there'. This dimension of knowledge suffers from several major pitfalls: (a) the communities who are at the mercy of this knowledge are often alienated from this knowledge development process; (b) hi-tech and heavy engineering solutions are very expensive and a poor country like Bangladesh will be heavily dependent on foreign donations and loans to accomplish such projects; and most importantly, (c) the idea entirely ignores an understanding of why people choose to live in a vulnerable place and, more precisely, the context of marginality and livelihoods.

This chapter will elucidate cyclone-knowledge framing in Bangladesh in ancient times and the modern period. This discussion starts with cataloguing the most deadly cyclones (in terms of their physical attributes) in Bangladesh in the last 50 years and then tries to understand their links with the damage caused according to three different parameters (human death toll, number of the affected population, and economic damage). This helps us to understand cyclone devastation in Bangladesh and also urges us to explore how our various understandings have been shaped. Following this unfolding, the chapter explores formal printed artefacts of this debate such as journal articles, books, published and unpublished documents, archives, policy papers and so on. The aim is to unpack how knowledge has been produced, delivered, contested, challenged, and defended and how it has taken on different shapes through time. We can paint a general picture of cyclones, before and after the event, for the entire coast. However, the Bangladeshi coast is quite diverse in terms of culture, landscape and physiography. We cannot therefore be confined with artefacts only, but will rather endeavour to understand its context through observations, formal and informal interviews and focus group discussions with different actors at different levels of the society. The discussion is, thus, contextualised with my field site and this may be different from other parts of the Bangladeshi coast. The main debate of this chapter is, however, about the gap in the traditional framing, especially in regard to marginality and livelihood, which is hinted at in the conclusion and mapped out for the following chapters.

Cyclone Damage in Bangladesh

Bangladesh has been subjected to frequent natural disasters in many forms, particularly cyclonic storms and tidal surges. From 1797 to 1998, 67 major cyclone storms and tidal surges were reported, which gives an average figure of a three-year cycle for a major cyclone hit. Low-lying deltaic physiography, the underwater "bathymetry" (in this case a shallow slope of the Bay of Bengal which engenders a high surge of water), and the funnelling shape of the coastline, together exacerbate deadly cyclones associated with tidal surges, particularly in the pre-monsoon months of April-May and post-monsoon months of October-November. The low-lying coastal areas are particularly vulnerable, placing the population, infrastructure, arable agriculture, livestock and economic development in a high-risk situation. Cyclone disaster mitigation is a major concern in Bangladesh. From known history, there are eight records of a six-figure death toll from cyclone and tidal surges and five of them occurred in Bangladesh (Ali, 1999). The 1970-Bhola cyclone, which killed 300,000 people, is the single deadliest event so far. Cyclone Sidr struck Bangladesh on 15

November 2007 and caused severe devastation and loss of life. Sidr left 3,500 dead and thousands missing. 2 million people were displaced and 1.2 million homes were damaged (GoB, 2008). Sidr was the most powerful cyclone to affect Bangladesh since a storm of similar strength on 29 April 1991 killed 138,000 people on the Chittagong coast.

Table 4.1: List of major cyclones that made landfall in Bangladesh and associated coastal storm surges and casualties since 1960 (Source: Karim and Mimura, 2008; Khalil, 1992; Mustada, 1992)

Landfall date	Landfall at	Max wind speed (km/h)	Max surge height (m)	Death
9-Oct-60	Chittagong, Noakhali	185	3.1	3000
30-Oct-60	Chittagong-Cox's Bazar	208	6.1	5179
9-May-61	Bhola, Noakhali	160	3	11468
28-May-63	North of Chittagong	203	3.7	11520
11-May-65	Barisal, Noakhali	162	4	19279
15-Dec-65	Cox's Bazar	210	3.7	873
1-Oct-66	Noakhali, Chittagong	145	6.7	850
12-Nov-70	Barisal, Chittagong	222	10.6	300000
25-May-85	Chittagong	154	4.3	11069
29-Nov-88	Khulna	160	4.4	5708
29-Apr-91	Chittagong	225	6.1	138000
2-May-94	Cox's Bazar	215	3.3	188
19-May-97	Chittagong, Feni	225	4.6	126
26-Sep-97	Chittagong	150	3	155
16-May-98	Chittagong, Cox's Bazar	165	2.5	12
15-Nov-07	Barguna, Patuakhali	240	6	3500

According to the Saffir-Simpson Hurricane Scale[10], a cyclone strength and impact measurement tool, Bangladesh has experienced a few Category 4 cyclones in the last forty years and two of them are mostly referred to: Cyclone Gorky in 1991 and Cyclone Sidr in 2007. The Saffir-Simpson Scale is based on a five-point scale, with Category 5 listed as the most severe and destructive, and Category 1 the weakest. Wind speed is the determining factor in the scale, as storm surge values are highly dependent on the slope of the continental shelf and the coastline conditions in the landfall area. However, this classification does not signify the proportion of human loss, sufferings and economic damage as presented in Tables 4.1 and 4.2. For example, according to Table 4.1, the 1997 Feni cyclones should have been much deadlier than the 1985 and 1988 cyclones and almost similar to the 1991 cyclone in terms of the Saffir-Simpson Scale, but this does not match their human death toll. Hence, a cyclone's effect is not necessarily translated by its physical attributes; rather it depends on other geographic specificities of the affected area.

[10] Saffir–Simpson Hurricane Scale

Category	Wind speed		Storm surge	
	mph	(km/h)	ft	(m)
Five	≥ 156	(≥ 250)	> 18	(> 5.5)
Four	131–155	(210–249)	13–18	(4.0–5.5)
Three	111–130	(178–209)	9–12	(2.7–3.7)
Two	96–110	(154–177)	6–8	(1.8–2.4)
One	74–95	(119–153)	4–5	(1.2–1.5)

Bangladesh experienced its worst decade of cyclones in the 1960s and the deadliest year in 1970. At that date, zero infrastructure of cyclone shelters and embankments in particular, is believed to be the main reason for this heightened impact (Ahmed and Afreen, 1992; Shamsuddoha and Chowdhury, 2007; Haroon-Al-Rashid, 2001), and Bangladesh's political context at this time was not favourable: it was pre-independence under the regime of a hostile government (Wisner, 2007).

Cyclone damage has always been focused on three parameters, i.e. human death toll, and number of affected and economic loss. A massive human death toll often dominates the headlines

Table 4.2: Top Ten Cyclone Events in Bangladesh, 1970-2008

Year	No of deaths	Year	No of people affected	Year	Economic damage ('000 USD)
1970	300,317	1991	15,000,000	2007	2,300,000
1991	138,987	2007	8,923,259	1991	1,780,000
1985	15,121	1988	8,573,860	1995	800,000
2007	4,275	1970	3,648,110	1994	127,500
1974	2800	1997	2,792,738	1970	86,400
1973	1,900	1986	2,600,000	1977	50,000
1981	1,085	1995	2,250,000	1985	50,000
1988	1,064	1981	2,000,000	1989	16,200
1978	1,030	1985	1,319,000	1976	201
1989	815	1993	7,575,00	1971	Data unavailable

Source: "EM-DAT: The OFDA/CRED International Disaster Database; www.emdat.be - Université Catholique de Louvain - Brussels - Belgium"

more than the other two measures of loss, although Sidr is an exception in this regard. Prior to the Sidr event, cyclone research, particularly in Social Science, was focused on the iconic events of 1970 and 1991. However, if we rank the top ten extreme cyclone events following those categories, we will have three different measurements (Table 4.2). Here, damage and losses are estimated following the ECLAC (Economic Commission for Latin America and the Caribbean) methodology, developed by the UN-ECLAC and called Damage and Loss Assessment (DaLa) (GoB, 2008b). This was developed in the 1970s and since then has been strengthened, simplified and customised for application in different areas of the world. DaLa assesses disaster impacts on the overall economy at national as well as at the household level. This provides a basis for defining the needs for recovery and reconstruction following any disaster. DaLa estimates:

- Damage as the replacement value of totally or partially destroyed physical assets that must be included in the reconstruction programme;
- Losses in the flows of the economy that arise from the temporary absence of damaged assets;
- The resulting impact on post disaster economic performance, with special reference to economic growth, the fiscal position and the balance of payments.

Research Trends on Cyclone Disasters in Bangladesh

After a thorough search through different search engines like the Web of Knowledge, Google Scholar, and so on, 69 papers and books were found on cyclone research in Bangladesh. Further exploring the bibliographies of these references, finally a total of 107 contributions were assembled. The main selection criteria for this material were whether cyclone research on Bangladesh since 1970 was covered and whether papers had been through a peer review process. A total of 65 research papers were focused on numerical features of cyclones and the remaining 42 were on different aspects of social science, particularly on health research.

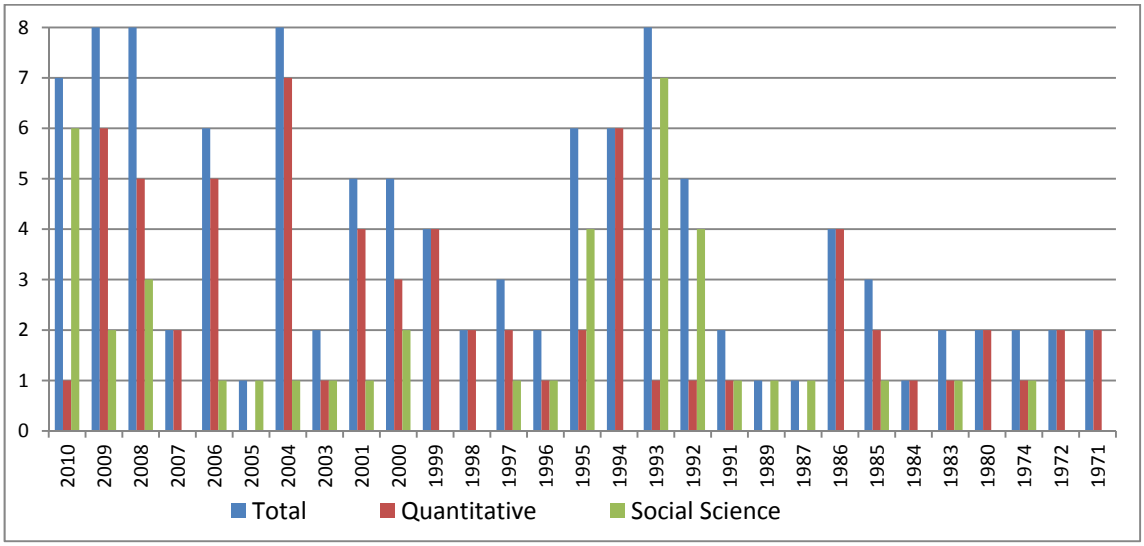


Figure 4.1: A Glance at Research Trends on Cyclones in Bangladesh

Figure 4.1 vividly represents a dominance of quantitative researches like statistical modelling, applications of GIS, and remote sensing in understanding cyclone intensity, tracking routes, predicting associated water surges and so on. This type of approach has been used to problematise cyclone disasters and study the possibility of early warnings but it has barely accounted for the human factors that are vital in a complete cyclone preparedness programme. Following the six-figure human death toll of the 1991 cyclone, there were improvements in warning dissemination, community awareness, and coordination, where human factors were incorporated, and social science research also seems to have been sparked. In 1992-93 there were eleven outputs from social scientists, seven of which were epidemiological studies on the outbreak of waterborne diseases, particularly diarrhoea and cholera. There were 263,079 attacks of diarrhoeal attack in the first five weeks after the cyclone struck (Haque, 1992) and the research was conducted by ICDDR'B, WHO and UNICEF teams, who were intervening in those diseases at field level. This also might have been a consequence of immediate past experiences of outbreaks following cyclones in 1985 and 1988 and floods in 1987 and 1988. But there has not been much post-disaster cholera and diarrhoea work since the mid-1990s. In the following paragraphs these research trends will be related to different knowledge paradigms.

Knowledge Paradigms

Despite having its own distinctive features, cyclone research in Bangladesh seems to have largely followed similar knowledge paradigms to those associated with floods. Following White (1945), Hewitt (1983) and Blaikie et al (2002), Cook (2008) identifies engineering, behavioural and development paradigms in the epistemological development of flood management in the country. In the same vein, Mercer et al. (2008) uncovered three approaches to disaster risk reduction research more broadly: a) traditional, b) dominant, and c) radical. The traditional approach ignores beneficiaries' participation and focuses on understanding, development and the application of engineering solutions. Since the pioneering work of Gilbert F. White (1945), the dominant paradigm has taken people's perceptions of and reaction to environmental hazards into account, but it has ignored the wider historical and social dimensions of hazards and kept its focus on their physical aspects (Wisner, et al., 2004). However, in the 1970s, purely technocratic solutions were heavily challenged by a radical approach in the quest of identifying root causes. This was a shift of focus away from framing disasters as the consequences of natural geophysical events to a focus that incorporates the social, economic and political forces that expose certain groups to devastating natural events (Lein, 2009). Sen's entitlement approach to analysing the 1974 famine in Bangladesh (Sen, 1981) is one of the pioneering works that shows disasters as products of the politico-economic role of the elites. He reveals that it was not food supply shortages that caused hundreds of thousands of starvation deaths but rather the loss of income-earning opportunities for wage labourers during a flood period. Sen developed his approach based on three different concepts: a) the endowment set: this includes all tangible (equipment, money, assets) and intangible (skills, knowledge, labour power) properties owned by a person; b) the entitlement set: a set of all combination of goods and services that a person can obtain by using (production, purchase and exchange) the resources of his endowment set; and c) the entitlement mapping: the rate (market price) at which the endowment set can be converted to the entitlement set. In addition, the political elite's ruthless corruption jeopardised subsequent food distribution to the needy. This radical approach has gradually gained a platform with the recognition that socio-economic factors are crucial in assessing hazards (Wisner, et al., 2004).

However, in the case of cyclone knowledge in Bangladesh the above-mentioned frames can be rephrased as four different sets of knowledge – a. Engineering led (building cyclone shelters and dykes), b. Meteorological (cyclone forecasting, climatic modelling), c. Behavioural (warning dissemination and risk communication) and d. Development focus (risk and rehabilitation programmes). These four sets of knowledge appeared separately over time and eventually merged together, instead of growing independently. In the pre-modern period, the first two sets of knowledge flourished systematically and remained within the elite group. The modern period began in the 1960s and was technologically more advanced than the pre-modern period, but still focused on the first two frames. From the early 1970s some components of the later two frames were

incorporated with the first two frames and ran as a comprehensive knowledge. Through time, these frames encountered challenges and strived for solutions. For instance, through the 1970s and 1980s a huge number of deaths were caused by epidemics of waterborne diseases like cholera and diarrhoea following a flood or a cyclone, which is reflected in several research projects in the early 1990s. Thereby medical aid became part of disaster interventions. The experience of the 1991 cyclone taught the importance of warning dissemination and disaster coordination, and so on. Accordingly, efforts were made in redesigning warning systems, especially in warning dissemination, and radio became an essential item in the relief distribution package around the coast. Thus, in the case of cyclones in Bangladesh, Cook's (2008) behavioural and development paradigms are inseparable from the very dominant engineering-led paradigm. Rather, they fed in to the main comprehensive disaster preparedness mechanism which is, and was always, very science-dependent (GoB, 2008a). Very recently, several institutional adjustments have been made and disaster policy papers have been adorned by the use of popular phrases like 'community participation', 'build back better' and so on. Therefore, this discussion is elaborated under pre-modern, modern and reformation of modern framing. Here, pre-modern framing is very distinct from the other two and discussion breaches the boundary between behavioural and development paradigms and flows between modern framing and its following reformation.

Pre-modern Framing of Cyclones

Deltaic-coastal settlements in Bangladesh do not have a very old story. Chandradvipa, a local principality during pre-Mughal period, moved its capital from Kachua (in the present day Patuakhali district) further north to Madhabpasha (at present Barisal District) because of coastal natural calamities and frequent raids from the Portuguese and Magh. Not much more is known about the communities that remained around the coast. However, *Ain-i-Akbari* tells of a land survey at Chandradvipa in 1599, where the forest area was separated from taxable lands and was marked as '*bazuha'* or a protected region. Three *parganas* (revenue units), called Selimabad, Buzurg Umedpur and Aurangpur, were then constituted in this region. The physiographic description of the area confirms that the coastal margin of this area was bounded by forest, and, as three *parganas* were declared, there must have been human habitation in this area. All the coastal districts, except for Chittagong, received administrative recognition in the 18th and 19th centuries and since then human settlement has grown in this region. However, the Mughal's late 16th century land survey hints at a mangrove shield around the greater Barisal region (central coastal region of present Bangladesh) which eventually disappeared through time (maybe because of human interruption) and changed the scenario of potential cyclone impact.

As the deltaic-coast was almost abandoned, cyclone knowledge has not flourished in this region until very recently. Besides, as the entire region grew under a feudal system, the peasants used to work as agricultural slave labourers for their landlords. Their main concern was to pay taxes to their landlords and any kind of formal education was simply an unaffordable luxury for them.

Besides, in essence, the ownership of the lands was vested in the landlords, who used in turn to pay rent to the king. State elites, thus, were more focused on saving their lands and properties from frequent flood water and they built embankments to serve their own particular purpose. Simultaneously, the peasants developed their own informal knowledge of predicting any natural calamity from their experienced observations on nature, such as abrupt changes in the movement of insects, abnormal behaviour of animals, wind direction and so on. Thus, cyclone preparedness, in the pre-modern period, does not seem to have appeared as comprehensive knowledge in this region.

Ostomashi Badh **(Eight-Month Dam Cycle)**

According to the 'Banglapedia', the earliest recorded embankment in the Indian subcontinent was built during the Sultani period (1213-1519 AD)[11]. Sultan Ghiyasuddin Iwaz Khilji built a series of embankments to protect his capital, Lakhnauti from floods. The Grand Trunk Road, which has a length of about 150 miles (240 km) and built during his time, also acted as a flood control embankment. The Mughal emperors constructed embankments along different large rivers. Mirza Nathan's *Baharistan-i-Ghaibi* has a very good account of maintenance of embankments as an essential part the agricultural practice in the Mughal period[12]. Following that history, the Cambridge History of India Volume IV (Burn, 1937) recalls a detailed elaboration of the agricultural system during the Mughal period, when flood and water surge management was embedded as an administrative arrangement. It mentions that, seeing the high embankments, the then British Engineers had a feeling of being in a Dutch riverside. These embankments were extended up to the central part of the basin. The coastal belt was not populated and was a complex of depressed swamps and water bodies. The Sundarbans region delta, in particular, was dominated by water bodies and further east (the present Barisal district) there was more flat, dry land.

Local people used to maintain the embankments. They cut through them in October-November every year to drain the water from the inside to dry their lands. In the June-July season, they then used to let water in through those channels, which brought a huge amount of sediment in, stabilised and raised their land. They used to block the channels again by August when they felt that they had enough water to grow paddy. As this embankment had an eight-month cycle, it was called '*ostomashi badh*' (eight-month dam cycle). Once water was in, they used to cultivate *Aus*[13] on very low lands, mixed *Aus* and *Aman* in the medium low lands, and *Aman* in the higher lands. *Boro* was not cultivated at that time. Farmers did not have any ownership of land and they used to rent it from the *Jamindars*, who were responsible for monitoring and maintaining these dams for the sake of an optimum harvest. After the emergence of the independent state of Pakistan in 1947, the old

[11] (http://www.banglapedia.org/httpdocs/HT/E_0049.HTM)

[12] See Karim, A. 1992. *History of Bengal, Mughal Period*, I, Rajshahi.

[13] *Aus*, *Aman* and *Boro* are there major local varieties of paddy.

Jamindari system was abolished under the East Bengal State Acquisition and Tenancy Act 1950. Under the new law, the government became the only landlord. Despite receiving rents, the Pakistan government did not do anything in regard to previous embankment maintenance practice, nor did it set up any new institutions to replace the old. Thus, the maintenance of embankments was ignored at the state level.

Indigenous Knowledge on Climatology

As mentioned before, other than the Chittagong coast, the rest of the coastline of Bangladesh was not much populated and was dominated by forest. Chittagong was a different case because of its distinctive growth as a port. The Arab merchants had used this port for trading in the region and they had the knowledge of the changing pattern of monsoon winds. The term 'monsoon' is derived from the Arabic word *'Mausam'*, that means 'season'. The monsoon phenomenon was mentioned in the holy *Ramayana* and *Mahabharata* and other Vedic books. In the book *Artha-Shastra*, Chandragupta Maurya's (321-296 BC) minister, Kautilaya, mentions about the amount of rain at different places of the kingdom, which is an indication of their knowledge of rainfall measurements. The Banglapedia, the national Encyclopedia of Bangladesh, also mentions several astronomers like Barahamihira (505-587 AD) and Arya Bhatta (446-550 AD), who had knowledge of predicting rain and the monsoon. Even in literature contemporary to the Roman age this knowledge could be traced. For example, Kalidasa's poems like *Meghdut* and *Ritusamahara* have descriptions of monsoon clouds. However, this knowledge was apparently confined within the state elites with the exception of a legendary lady, Khona (between 9th-12th century BC), whose verses acquired the character of an oracle and still float around the Bengal farmers and appear in the Bengali textbooks, and made predictions on meteorology and agro-meteorology.

Ordinary people struggled with the challenges set out by the environment and embodied solutions through their observations and active engagements and movements in the landscape. Thus, they generated their own indigenous version of knowledge. Indigenous technological knowledge is based on unique local experience embedded in a given culture or society and passed on down the generations. Howell (2003) worked extensively on indigenous cyclone warning systems in four islands around Bhola in Bangladesh and revealed that they are more easily understandable to the local community than numerical systems. The colour, shape and position of clouds; the direction, humidity and temperature of wind; dogs' continuous whining; cattle restlessness; ant movements with their eggs; nonstop frog calling; increased numbers of flies, mosquitoes and insects; unusual bird movements; the abnormal appearance of fish in the upper water surfaces are all ominous signs and the people treat them as indicators of impending cyclone strikes (Howell, 2003). This knowledge certainly does not strive to quantify the level of cyclone, but essentially informs people about a future challenge so that they can act accordingly with available resources, such as restrengthening their house's base poles, raising the plinth and so on.

Two essential elements of indigenous knowledge are time and space. This is because, people in a particular geographical setting harmonise and engage with the environment, experience natural events for a long time and through generations. Their experiences inform them about particular kinds of knowledge, skills and knowhow of embodying the challenges that they encounter. But this kind of knowledge is not expected to exist in newly emerging settlements (Pelling, 2007). Islam (1974), following his empirical observation after the 1970 cyclone, mentions that a huge number of migrant agricultural labourers perished in the storm. They were from further uplands where cyclones do not strike with this magnitude. I have observed similar characteristics in my field areas. For instance, one of my field visit areas, *Gabtola*, has a very recent history of growing as a settlement. In my second field site, *Mazer Char*, people started settling forty years ago. All the settlers at *Mazer Char* have migrated from the mainland and they did not have any prior knowledge of living on a *char* before. My third field site, *Sonatola Adorsho Gram*, was officially allocated to landless people in 2004. Thus, people living in my field sites have had very little time to develop testified indigenous knowledge. For example, from all my interviews with the local people, it was unanimously revealed that 'a cyclone does not hit in *dala gone*[14]'. More importantly, Sidr was their very first experience of a super cyclone and they were not aware of how to deal with it, as the magnitude of Sidr was beyond their wildest nightmares.

Modern Paradigm

In the modern era, separate knowledge emerged and started combining together as comprehensive knowledge. Tracking cyclones and maintaining climatic data have been practised since the eighteenth century. The main purpose of this knowledge was to ensure the safety of ports and of ships. Cyclone and water surge modelling for a more common public purpose began about half a century ago. Since the late 1960s hard engineering protection works like the building of embankments along the riverbanks and coastal belts have been considered a pragmatic solution to storm surges and flooding. The 1970 *Bhola* cyclone was so devastating that it forced the prioritisation of robust cyclone shelters for people to take refuge during disastrous weather circumstances. It also necessitated other elements of cyclone preparedness. Therefore, immediately after that event, the Bangladesh Red Cross and Red Crescent Society (BDRC) built a few hundred cyclone shelters and launched the Cyclone Preparedness Programme (CPP). From 1970 onwards, cyclone knowledge started taking a more comprehensive shape through a realist framing of forecasting, evacuation and post-disaster interventions by building cyclone shelters and coastal embankments and developing a community-based institutional structure like the CPP and so on. In

[14] Generally, *dala* means a nadir situation and *gone* denotes to tide. *Dala gone*, together, stands for a particular state of tide. Coastal people normally experience highest peaks of both high and low tides during and around the full and new moon times. As the lunar phase changes, gradually tides flatten and reach at their lowest peaks in the first and last quarter of the lunar phase. *Dala gone* portrays the phenomenon of an almost flat tidal situation, which is a synonym of a neap tide.

recent years these components have shaped themselves through gaining new knowledge and experiences. The next few paragraphs of this section will explain this.

Coastal Embankment Project

Thus, after subsequent floods in 1954, 55 and 56, the Krug Mission Report of 1957 was published. One of the recommendations of this report was about flood prevention around the Bangladesh coast (then East Pakistan) to eliminate poverty and consequential famine. Every deadly famine came after a flood, because *Aman* was the main crop and, if that was damaged by flood, people starved. Therefore, a Water Development Board was created in 1959 and this designed a master plan in 1964 where they proposed that polders were the best means of flood management and a start should be made with the coastal belt. The entire coastal belt was not flooded, but if they could protect the soil from salt water at high tides, that would help with crop yields. The Coastal Embankment Project (CEP) was designed in 1966 on the basis of IECO (International Engineering Company Inc.) feasibility studies. The main objective was to reduce or prevent damage from cyclones and storm surges and the embankment project was extended to cover all coastal regions. Large scale construction work began.

Phase 1 of embankment construction was completed by 1970. But, it did not address the management system of '*ostomashi*' and natural soil renewal by silting was therefore severely threatened by the polderisation process of the Water Development Board. The IECO study hints at

Figure 4.2: A damaged and poorly maintained part of embankment in the Sarankhola Upazila

the derived problems from polder building and suggests further study on siltation, erosion and silt movements to promote the land building process. According to the design, they planned to develop a management framework in Phase 2 after calculating irrigation and water management requirements inside the embankment (Water Resources Planning Organisation, WARPO,

http://www.warpo.gov.bd/). However, maintenance has never been mainstreamed in the embankment building process.

Up to the present, roughly 6,400 km of coastal embankments and over 130 polders exist. The height of coastal embankments ranges from 5 to 6 m and they have sea and land side slopes of 1:7 and 1:3, respectively. Riverbank erosion, cyclone strikes, silt movement and base flow of stagnant water have caused tremendous harm to these embankments. So sluice gates were added to the designs. However, this was not only about engineering failure of the embankment. Rather, i) rampant corruption while building them, ii) lack of maintenance, and iii) shrimp cultivation along the embankments, are also held to be responsible for the collapse of some. Figure 4.2 depicts a partly damaged embankment which was built in the late 1960s under the CEP. This embankment was built beside the Boleshwar River from Rayenda Bazaar up to the edge of Surdarbans. One of my field sites, Gabtola, is situated by this embankment, a few kilometres south from the Rayenda Bazar. In the picture, the top earthen structure is entirely exposed to any erosive force. Yet a concrete slope is visible at the bottom part of the embankment. But, in Gabtola the main concrete embankment was washed away a few years after it was first built. Then a new embankment was built along the riverbank by piling up mud from adjacent agricultural land. However, the Gabtola riverbank was never stable and the river has gradually pushed half a mile laterally over the last forty years. The present embankment along the riverbank is its fourth relocation since the CEP began. Since then, embankments are often referred in government rehabilitation programmes; this discussion will be further elaborated in a following chapter where the 'relief and rehabilitation' of my field site will be discussed. In summary, the embankment in my field site has issues around feasibility, institutional bureaucracy, corruption, maintenance and so on. It is also worth mentioning that these issues must not be generalised with other common coastal embankment issues like shrimp cultivation because there is no shrimp economy around Sarankhola Upazila.

Unfortunately, poor maintenance and inappropriate management have put embankments in a very dilapidated condition, with numerous cuts and pores, or portions partially or completely eroded. Therefore, the government introduced a coastal afforestation project to defend the first strikes of the hungry tides and to buffer the embankments. Gradually, communities are being involved with this project in the name of 'social forestry', where the community are given a certain level of ownership. Coastal forests not only provide protection for residents and the environment against tidal and storm surges, but also act as a natural barrier that slows surge waves and stabilises coastal land. Thus, the importance of the Sundarbans is now recognised as a natural shield to weaken cyclones and storm surges. For instance, Islam and Peterson (2009) have followed the landfalls of 133 cyclones, 45 of which struck Khulna, 33 Barisal, 18 Noakhali, 28 Chittagong and 9 Cox's Bazar. Though Khulna has experienced more cyclone hits than any other coastal area, its death toll is way behind than that of Barisal, Noakhali and the Chittagong region.

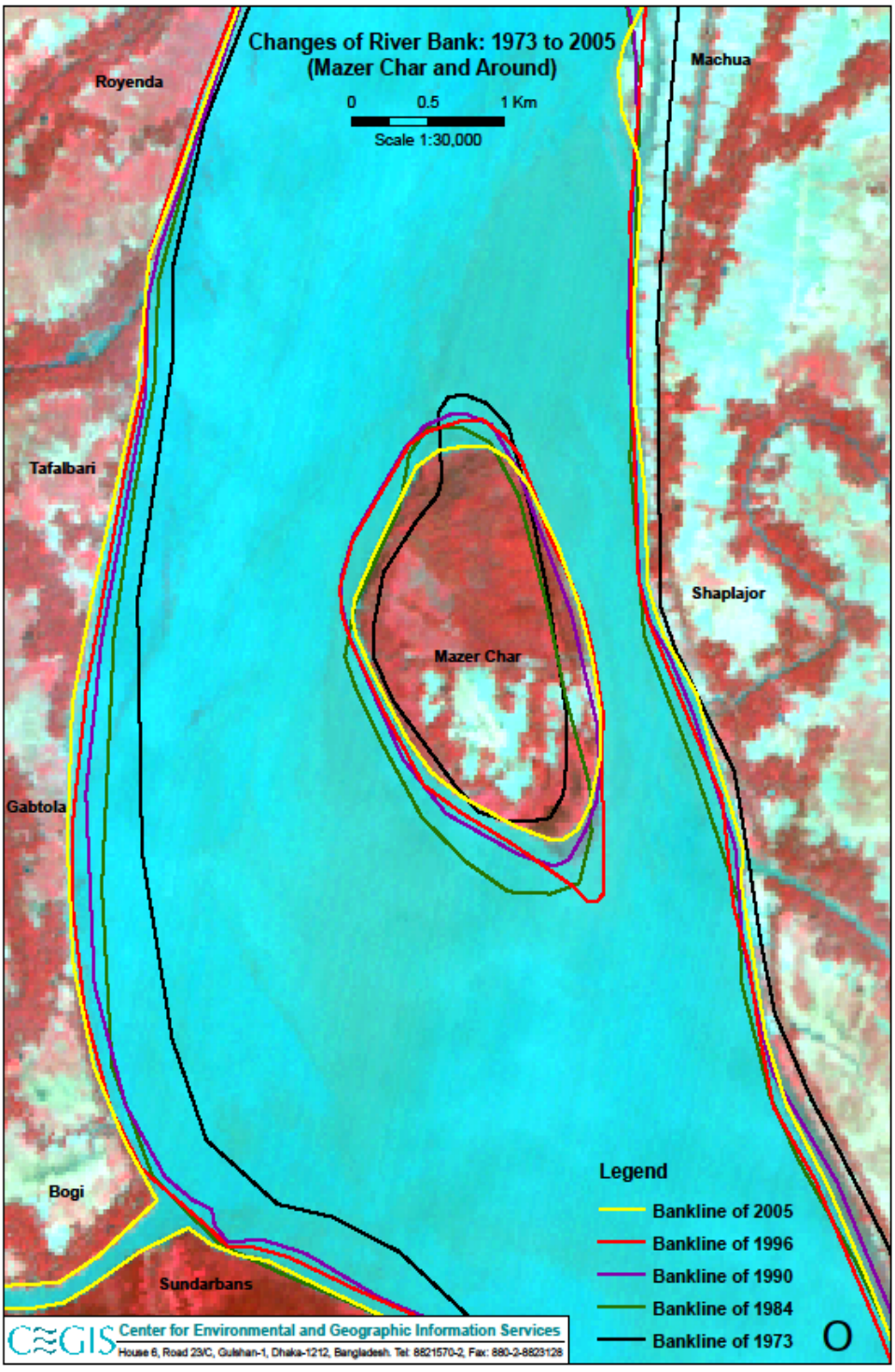


Figure 4.3: Riverbank shifting along Gabtola (Source: CEGIS)

Building Cyclone Shelters

The idea of building Public Cyclone Shelters came following the 1970 cyclone. If we consider a general rural picture in Bangladesh, people build their houses with locally available materials which are quite flimsy against heavy wind and water upsurge. People adjust their building structure to address local environmental challenges. For example, around my field site, people install their house's base pillars deep into the ground to make them stable against strong wind and water surge.

They also raise their house plinths above normal flood level. However, coastal houses, in general, were never robust enough to withstand a strong cyclone. Abdus Sattar (85), a retired school teacher, was in Barisal in the 1970 cyclone. He, with his other family members and neighbours, took refuge on branches of a big tree during that event. Even in my field site, a very common response against the increasing surge level during Sidr was going out from home and taking refuge in the branches of trees. This particular protection mechanism reinforces the necessity of emergency shelters around cyclone prone areas. Building public cyclone shelters was a governmental response to that need following the 1970 cyclone and this effort is still quite dominant through international aid support.

Figure 4.4: Gabtola Cyclone Shelter

An ideal cyclone shelter is a two/three-storied cement building on concrete plinths and capable of withstanding 240 mile/hour wind and substantial, high water surges. In the above picture (Figure 4.4), the ground floor is an open concrete platform for cattle and the upper floor is a big room for the community to squeeze in. This shelter has a 1650 square feet space on the first floor which can accommodate approximately four hundred people if we consider four square feet per person. The shelter looks like an arrowhead from the top view which is designed to reduce wind pressure on its sidewalls during a cyclonic event. This is one type of cyclone shelter which is used as a training centre by different NGOs in a normal climatic situation. There are varieties of designs and capacity of other shelters which address other local needs like primary school, union council office and so on in normal times.

After the 1970 cyclone 238 cyclone shelters were built in the Barisal and Chittagong regions but then the initiative stopped. Another 62 cyclone shelters were constructed after the Urir Char cyclone struck in 1985. Thus cyclone shelter-building projects always follow an event. There were no cyclone shelters on Urir Char until the 1985 cyclone. The Khulna region was always neglected, as it had not experienced a massive death toll and devastation before the landfall of

cyclone Sidr in this region in 2007. Before the event of Sidr, there were only two cyclone shelters in the entire Bagherhat District. Gabtola, the most Sidr-affected village in terms of human death toll, had only one cyclone shelter before Sidr hit. This shelter had a capacity to accommodate one-seventh of total Gabtola population. After Sidr, the government built a cyclone shelter nearby and a NGO is going to build another cyclone shelter in close proximity. In contrast, Bogi, the immediate southern village from Gabtola, where death toll in significantly higher than other affected villages but not as high as Gabtola, has not received much attention. Figure 4.5 shows the distribution of cyclone shelters along the coastline. This distribution of cyclone shelter is not necessarily compatible with population distribution or poverty indices around the coast. Though, this particular point stresses issues around regional inequality in cyclone shelter distribution, however, no one could ever claim that any region has near to sufficient shelters to evacuate all of its population in adverse weather.

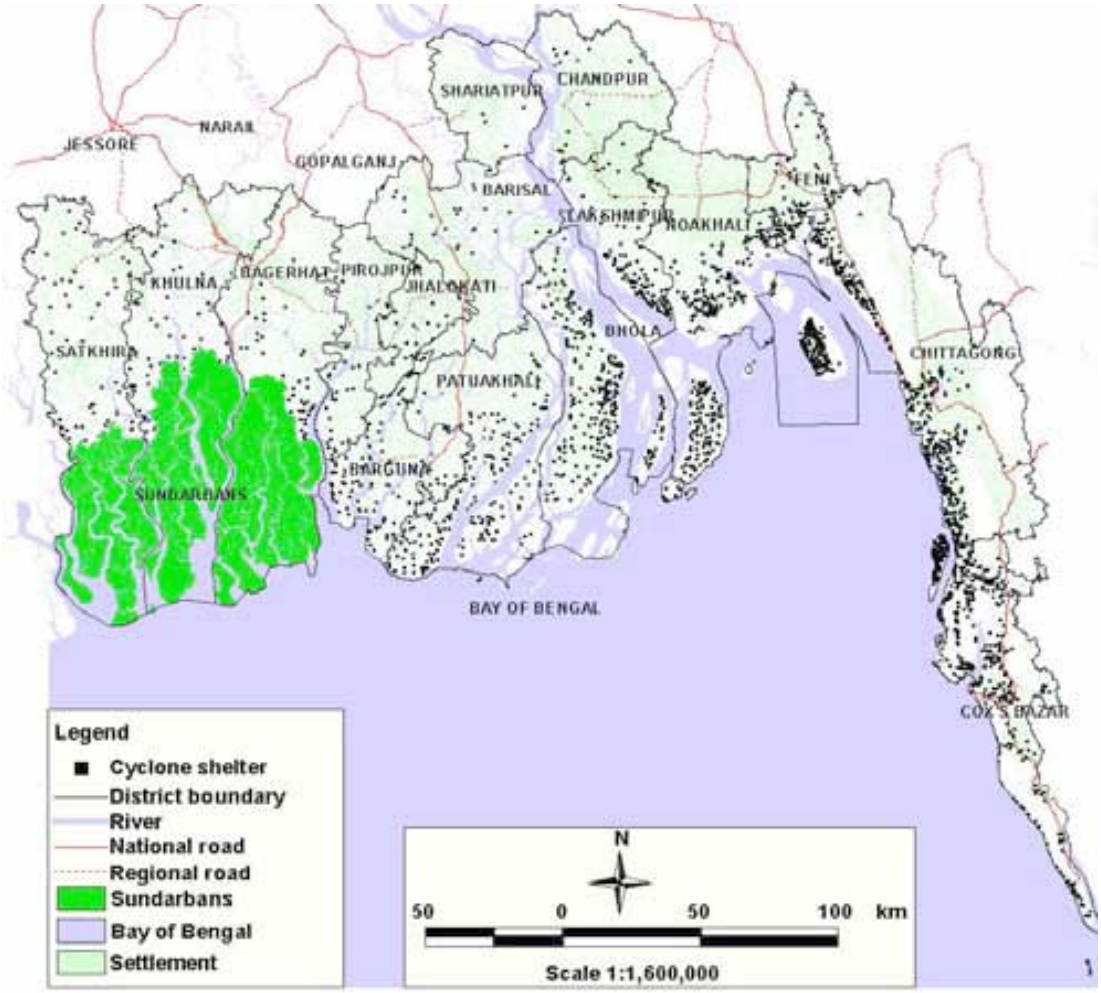


Figure 4.5: Spatial locations of cyclone shelters in the coastal area (Source: CEGIS, 2009)

Table 4.3: District wise Distribution of Cyclone Shelters, their Capacity and Threshold

District	Population (2009) projected	Useable Shelters		Unserved Population	Percent of unserved	Population/ shelter
		no	capacity			
Bagherhat	1791666	98	86159	1705507	95	18282
Barguna	1010525	147	147590	862935	85	6874
Barisal	2658166	37	41050	2617116	98	71842
Bhola	2055226	429	390050	1665176	81	4791
Chadpur	2714329	21	26350	2687979	99	129254
Chittagong	8657530	573	683010	7974520	92	15109
Cox's Bazar	2318343	504	607310	1711033	74	4600
Feni	1455142	57	61275	1393867	96	25529
Jhalokathi	899504	12	7650	891854	99	74959
Khulna	3079694	77	76541	3003153	98	39996
Luxmipur	1761806	106	118000	1643806	93	16621
Noakhali	3034143	245	266112	2768031	91	12384
Patuakhali	1794098	165	157675	1636423	91	10873
Pirojpur	1250245	36	32300	1217945	97	34729
Satkhira	2430898	65	55071	2375827	98	37398
Sariatpur	1280954	11	14375	1266579	99	116450
Total	38192269	2583	2770518	35421751	93	14786

Source: Compiled from CEGIS (2009)

At least 38 million people live in the cyclone-prone low-lying coastal belt and offshore islands of Bangladesh. Prior to the landfall of Cyclone Sidr in 2007 there were some 2,400 useable cyclone shelters in coastal Bangladesh, capable of accommodating nearly 2.5 million people. However, the number of cyclone shelters is insufficient in proportion to the population in harm's way and these shelters are also not sustainable in the active deltaic zone (Table 4.3). Even though from 1991 to 2007 the number of cyclone shelters increased five-fold, still most of the at-risk population remain directly exposed to the twin hazards of cyclones and their accompanying tidal surges (GoB 2008a). One little considered proximate risk is that of building collapse. Immediately after Cyclone Sidr, for instance, a BBC correspondent visited one of the cyclone shelters, which functions as a primary school. It had been locked during the cyclone and he expressed concern that its cracked walls made it fragile in storm conditions. He commented that if "a cyclone was to strike now, the school would be the worst place to come" (BBC 2007). In an informal discussion with a government officer who served in several post-flood and post-cyclone relief and rehabilitation programmes, he was informed that many cyclone shelters which have been washed away by river erosion still survive as functional in the government database. Paul (2009) reported that about 40% of all shelters have been washed away through river erosion.

Table 4.4: Summary of the safe havens surveyed (by district)

District	Killas (No.)	Shelter-cum-Killa (No.)	Total
Bagerhat	0	0	0
Barguna	2	0	2
Bhola	1	1	2
Chittagong	5	15	20
Cox's Bazar	5	16	21
Feni	1	0	1
Lakshmipur	2	0	2
Noakhali	13	3	16
Patuakhali	40	0	40
Pirojpur	0	0	0
Total	69	35	104

Source: CEGIS (2004) National Survey on current status of Shelters and Developing an Operational SYSMIS.

From the beginning of cyclone shelter building programme, along with rescuing human lives, saving domestic animals was also on the agenda. This is because the people have enormous economic dependence on their cattle for ploughing and milking. If they lose such a valuable asset, it will take them several years to recover. To address this issue the government took the initiative to build *killa* where cattle could be kept during cyclone events. *Killas* are plateaued earthen platforms, constructed to safeguard livestock from storm surges in the cyclone-prone areas. A *killa* can shelter 300–400 livestock (Paul 2009). A *Killa* has several issues in regard to its location in relation to the cyclone shelters: accessibility, security, maintenance and so on. Some of those issues were addressed by building shelters-cum-killa. However, like the distribution of cyclone shelters, *killa*s' distribution also suffers from regional inequality. In many instances politicians and government officials selected shelter sites for reasons of political favouritism rather than on the basis of safety requirements and local conditions (Talukder, Roy, and Ahmad 1992). Mazer Char was well known for milk production and as a supplier to the local market, Rayenda, where I was mainly based during my field visit. As Mazer Char does not have any *killa*, before taking refuge to the cyclone shelter, some people set their cattle free during Sidr so that they can survive by themselves. However, many others were not able to leave their animals alone and refused to go to the shelter.

Though the number of cyclone shelters was never even close to the population threshold, people's unwillingness to take refuge in the shelter appeared to be an issue. In 2004, the Centre for Environmental and Geographic Information (CEGIS) and the Government of Bangladesh (GoB) jointly conducted a survey to assess the quality of the cyclone shelters. A total of 1705 shelters were studied and their findings were as follows:

- The total number of shelters was not enough to hold the evacuated population.
- More than 65 percent of all shelters had no provision for the special needs of women.

- Almost 100 percent had no facilities for people with disabilities.
- 75 percent of shelters surveyed had no provision for the storage of water.
- 80 percent made no provision for the shelter of livestock.
- 87 percent of all shelters surveyed had some structural vulnerability.
- Little or no effort was made to provide drinking water.
- Preparedness measures for protection and restoration of power and telecommunications was inadequate.

Newly built shelters often accommodate the above findings. For example, the British Business Group (BBG) is building a cyclone shelter-cum-killa in Mazer Char. This killa is designed to be above the highest peak during Sidr and there will be separate rooms for males and females upstairs. It will also have rainwater storage and purification facilities and solar panels for basic electric supply. This place will also be regularly maintained as a school will run there in the normal situation. However, the entire discussion of cyclone shelters does pose a question of financial affordability and feasibility of building cyclone shelters to serve the whole coastal community. This question will be further discussed in a later part of this chapter.

Cyclone Prediction

Realist framing was not confined with building cyclone defence structures; rather cyclone prediction was an integral part of that system. Cyclone warnings are to provide people with adequate and understandable information so that they can take defensive measures to minimise loss. The science of hazard identification and prediction is far from achieving a scientific consensus in Bangladesh and elsewhere -- especially in the case of tropical storms. The Bangladesh Meteorological Department (BMD) prepares all weather forecasts and cyclone warnings. The BMD has collaboration with the World Meteorological Organisation (WMO) and, with the blessings of modern satellite technology, they can access more accurate data. The Storm Warning Centre (SWC), a specialist unit of the BMD, provides meteorological forecasting and issues warnings to seaports, river ports, and the general public, as well as user agencies such as health administrators, relief and rehabilitation authorities, nongovernmental organizations (NGOs), the media, and local administrative personnel (Paul 2009).

With relatively well equipped forecasting instruments and an upgraded telecommunication system, the BMD now has a 48-hour warning system in place that allows people to evacuate to cyclone shelters and other safer buildings usually hours before a cyclone makes landfall. Akhand (2003), however, maintains that, though the BMD is well equipped and upgraded its telecommunication system, their level of technical ability for operating the equipment and interpreting the data is actually rather limited. As a result, the BMD differs from other organisations in their forecasting. For example, regarding the cyclone that struck on 16 May 1998, the BMD predictions were correct. SPARSO (Space Research and Remote Sensing Organisation) predicted that the cyclone would make landfall at Khulna but it actually came ashore along the Chittagong coast, just as the BMD foretold, with wind velocity as high as 136 km/h, only a 35 km/h maximum

velocity was experienced in Khulna. However, for cyclone Sidr in November 2007, the SWC of the BMD forecast an impact at noon and, when nothing had happened by 6 p.m., the people who had heeded evacuation orders and were waiting in cyclone shelters decided to go home. Sidr eventually made its landfall around 10:00 p.m. at night, nearly half a day after the predicted time. Credibility of cyclone forecasting was challenged when government suffered a huge loss for not anchoring Navy ships and removing Air force helicopters and fighters to safe outlets.

Thomalla and Schmuck (2004) comment that scientific tropical storm models are neither fully developed nor infallible and it seems that knowledge regarding tropical storms is considerably contested. They claim the knowledge base is relatively good for extra-tropical storms, whereas evidence for the sudden change in direction and strength of tropical storms now and what might be the case in the coming century is still under discussion. This unpredictability of the exact landfall location results in false alarms. As a consequence, even if people are informed that a cyclone has formed and might develop, they are likely to take the appropriate action to save them only if they are in imminent danger. Chowdhury et al (1992) informs that a total of 59 depressions formed in the Bay of Bengal between 1980 and 1991 and of them five were 'great danger signals' and the first four appeared to be false alarms.

It is understandable that existing climatological knowledge and supporting satellite and computing technology cannot always make infallible predictions. But if their predictions do not work, they may appear to be false to the common people who do not know why they go wrong. Just one month before the Cyclone Sidr, a No-10 signal was issued assuming a potential tsunami hit. The Disaster Management Bureau (DMB) mobilised its people and networks to disseminate the warning and finally the tsunami did not appear. During my field visit, when I asked my respondents why they had not taken any measures despite receiving the warning about Sidr, they referred to the tsunami warning to justify their position of being doubtful about the Sidr warning. Here it is very apparent that there is a certain disconnect between a message and its receivers. If a warning does not appear to be true, people become sceptical because they do not know why it was not borne out.

Warning System

From a depression (wind speed 31 miles/hr or 50 km/hr) to the highest level of cyclone hurricane, the level of danger is measured according to the variable of wind speed and height of water surge and these are translated into a numerical scale of warning. Following the British colonial practice, the warning signals have two modes: one for seaports and the other for river ports. There are 11 signal numbers meant for seaports and four signal numbers for river ports, and none for coastal residents. To overcome this challenge, the latest *Standing Order*, published by the DMB in 2008, recategorised the 11 into four and gave some explanations that would make sense to the coastal community. Table 1.4 explains the conversion from numbers to narratives. According to the signal, the predicted landfall location of a storm is issued with a signal of No. 10 if the wind speed of the

cyclone eye is more than 170 kilometres/hour. The right flank of the eye is issued with a signal of No 9 and the left with No 8. If the magnitude and track change, signal levels are also reviewed. However, the community hardly know about these explanations. Dangers are represented by red flag signs. For signal No 1-3, the local CPP volunteers hang one flag on the top of the cyclone shelter and for signal No 4-7 and signal No 8-10, respectively two and three flags. One red flag means caution. Two flags are for preparations like storing basic dry foods and important stuffs in a bunker, putting expensive items and important documents together in a safe carrier bag and so on. Three flags are great danger signals for an inevitable cyclone which has potential to harm lives and property and, therefore, everyone must take refuge in a safe place. From my several observations and different formal and informal discussions with the community, it does not appear that the community know much or take note of the change of red flags. Rather it is the great danger signal 10 that seems to trigger concern. On several occasions, they told me that the number 10 is a metaphor of great danger to them. Therefore, rearranging signals from eleven to four categories does not promise any significant difference at the local level. Besides, the numbering puzzle also appears to be a matter of confusion to educated people as well.

Akhand (2003) criticises the existing numerical signalling system as this exists only for sea and river ports and does not indicate the precise location of a cyclone, its intensity, movement, the potential affected area, any estimate of the likely depth of inundation, and so on. This system confuses people who do not understand the meaning of these signals (Islam, Ullah and Paul 2004; GoB 2008b). As mentioned before, 11 signals are categorised in four groups – distance cautionary, local cautionary, danger and great danger. According to these categories signals 8, 9 and 10 pose a same level of threat to the community and these numbers signify the position and direction of the cyclone in relation to a place. However, researchers often seem to confuse this narrative and claim that some proportion of their respondents have refused to go to the cyclone shelter despite having received signal 10, which is the highest. While this level of confusion exists within academic circles, it is no surprise that the community misunderstands the signals and fails to act accordingly.

On top of unpredictability, risk communication is another important issue which is under-emphasised by science-led hazard intervention. Phillips and Morrow (2007) denote risk communication as a social process that requires receiving, understanding, believing and personalising forecasts and warning messages. Haque (1997) suggests incorporating human responses in warnings as a constituent part, as any cyclone warning system should. In a severe cyclone, safety options are few, however without credible and comprehensible warning systems, even the available options will be underutilised (Hossain et al. 2008).

Table 4.5: Cyclone warning Signals practiced in Bangladesh (GoB, 2008c)

For sea ports the following 11 (Eleven) kinds of cyclone warning signals are used.	
Warning Signal	**Number Explanation**
Distant Cautionary Signal No. I	There is region of squally weather in the distance sea where storm may form.
Distant Cautionary Signal No. II	A storm has formed in the distant sea.
Distant Cautionary Signal No. III	The port is threatened by squally weather
Local Cautionary Signal No. IV	The port is threatened by a storm but it does not appear that the danger is as yet sufficiently great to justify extreme precautionary measures.
Danger Signal No. V	The port will experience severe weather from a storm of slight or moderate intensity, that is expected to cross the cost to the South of the port in case of Chittagong and Cox's Bazar and, East of the port in case of Mongla.
Danger Signal No. VI	The port will experience severe weather from a storm of slight or moderate intensity that is expected to cross the coast to the North of the port in case of Chittagong and Cox's Bazar and to the West of the port in case of Mongla.
Danger Signal No. VII	The port will experience severe weathe rfrom a storm of slight or moderate intensity that is expected to cross over or near the port.
Great Danger Signal No. VIII	The port will experience severe weather from a storm of great intensity that is expected to cross the coast to the South of the port in case of Chittagong and Cox's Bazar and to the East of the port in case of Mongla.
Great Danger Signal No. IX	The port will experience severe weather from a storm of great intensity that is expected to cross the coast to the North of the port in case of Chittagong and Cox's Bazar and to the West of the port in case of Mongla.
Great Danger Signal No. X	The port will experience severe weather from a storm of great intensity that is expected to cross over or near to the port.
Communication Failure Signal No. XI	Communications with the Meteorological warning centre have broken down and the local officers consider that a devastating Cyclone is following.
The following four types of signals are meant for River Ports	
Warning Signal No. I	The area is threatened by squally winds of transient nature.
Cautionary Signal No. II	A storm is likely to stike the area (vessels of 65 feet and under in length are to seek shelter immediately).
Warning Signal No. III	A storm will strike the area (all vessels will seek shelter immediately).
Great Danger Signal No. IV	A violent storm will soon strike the area (all vessels will take shelter immediately).

Cyclone Warning Dissemination

Once a warning is being issued, the DMB circulates that warning to the media and other affiliated departments and disseminate to the community through their institutions, the CPP volunteers for example. According to the Standing Order (GoB, 2008c), a special weather bulletin is broadcast over the radio and by television channels, should contain the following information: current

position of the cyclone centre, estimated central pressure, direction and speed of movement of the cyclone, maximum sustained wind speed, radius of maximum sustained wind, areas likely to be affected, approximate time of commencement of gale force winds (speed > 52 kph), maximum wind speed expected, and estimated storm surge height (GoB 2008c). Unfortunately, special weather bulletins often fail to provide all of this information.

Box 4.1: An Example of Typical Special Weather Bulletin Issued Before Cyclone GIRI.

Cyclonic Storm "GIRI"

SPECIAL WEATHER BULLETIN SL. NO: 13 (THIRTEEN), DATE : 22.10.2010

LATEST METEOROLOGICAL OBSERVATION, MODEL PRODUCT, RADAR AND METEOROLOGICAL SATELLITE IMAGERIES INDICATE THAT THE SEVERE CYCLONIC STORM **"GIRI"** OVER NORTHEAST BAY AND ADJOINING AREA MOVED NORTHWARDS, INTENSIFIED INTO A SEVERE CYCLONIC STORM WITH A CORE OF HURRICANE WINDS **"GIRI"** (WITH ECP 974 HPA) OVER THE SAME AREA AND WAS CENTRED AT 05 PM TODAY (22 OCTOBER, 2010) ABOUT 190 KMS SOUTH-SOUTHEAST OF TEKNAF, 250 KMS SOUTH-SOUTHEAST OF COX'S BAZAR PORT, 340 KMS SOUTH-SOUTHEAST OF CHITTAGONG PORT, AND 500 KMS SOUTHEAST OF MONGLA PORT (NEAR LAT 19.5° N & LONG 93.1° E). IT IS LIKELY TO INTENSIFY FURTHER & MOVE IN A NORTH-NORTHEASTERLY DIRECTION AND MAY CROSS COX'S BAZAR-MYANMAR COAST SOUTH OF SITTWE (MYANMAR) BY EVENING/NIGHT TODAY. UNDER ITS INFLUENCE SQUALLY WEATHER MAY AFFECT THE MARITIME PORTS AND THE COASTAL DISTRICTS OF BANGLADESH.

MAXIMUM SUSTAINED WIND SPEED WITHIN 74 KMS OF THE STORM CENTRE IS 130 ABOUT KPH RISING TO 150 KPH IN GUST/SQUALLS. SEA WILL REMAIN HIGH.

MARITIME PORT OF COX'S BAZAR HAS BEEN ADVISED TO KEEP HOISTED DANGER SIGNAL NUMBER FIVE (R) FIVE.

MARITIME PORT OF CHITTAGONG HAS BEEN ADVISED TO KEEP HOISTED LOCAL WARNING SIGNAL NUMBER FOUR (R) FOUR.

MARITIME PORT OF MONGLA HAS BEEN ADVISED TO KEEP HOISTED LOCAL CAUTIONARY SIGNAL NUMBER THREE (R) THREE.

The Bangladesh Red Crescent Society (BDRC) and the Bangladesh Ministry of Disaster Management and Relief (MDMR) jointly run a Cyclone Preparedness Programme (CPP) to implement the execute cyclone warning process. The CPP involves 28,450 males and 14,225 female trained volunteers in 274 coastal Unions of Bangladesh (CPP and BDRC, 2007). A Union is divided into several Units depending on its population. Sarankhola Upazila has 32 Units where each Unit serves a threshold of 2-3 thousand people. Fifteen volunteers form a Unit, where females are half of the total male numbers. They are trained in first aid, rescue and evacuation and relief distribution. Volunteers are equipped with radio receivers, hand sirens, megaphones, microphones, signal lights, raincoats, gumboots, hardhats, life jackets and signal flags so that they can perform their responsibilities in severe weather. Though, since the beginning, the CPP was the only institution at local level to disseminate cyclone warning, now there are several NGOs who have their own volunteers trained to perform the same duty side by side the CPP volunteers. Involvement of NGOs in cyclone warning dissemination has triggered issues like overlapping use of resources, empowering local elites and so on, which will be elaborated in a following chapter where 'relief and rehabilitation' will be discussed separately.

The entire warning system follows a top-down hierarchy. A warning goes from the headquarters to the CPP office at the Upazila (the second lowest tier of local government). The Upazila CPP office contacts all of the cyclone shelters within its jurisdiction. Earlier the mode of communication was through wireless radio and nowadays a widespread mobile network has been added as a basic interaction tool. From signal I-III, they show one red flag on the top of the cyclone shelter and that does not come as a surprise in coastal areas. Generally, activity begins from signal IV when the unit team leaders meet at the Upazila CPP office and work out a plan. CPP volunteers use megaphones to disseminate cyclone warnings among villagers and by reaching house-to-house contacts. Besides, radio and television broadcast special weather bulletins when the signal goes to danger level. Approximately five million people benefit from the CPP's services out of the estimated fifteen million coastal area residents who are regularly exposed to cyclonic hazard (Akhand 2003). In my field site, there were two contrasting pictures of cyclone warnings. From the evening of 13th November 2007, Sidr was approaching along an almost straight line towards to Boleshwar River mouth and was generating power at every step forward. By the evening of the following day, the meteorologists were quite certain that a super cyclone was inevitable. This was very evident from responses at the Upazila level. The then UNO of Sarankhola Upazila had employed some of his staff with batons to force everyone around the Upazila headquarters to evacuate to a safe place. Only three people died around that area. Gabtola is towards a few miles south from the Upazila headquarters, but under this Upazila administration. At Gabtola, some people heard about the warning by word of mouth but many people did not believe the warning because, as noted above, they had experienced a tsunami false alarm only a month before. Many people went to the shelter after the cyclone had hit and discovered the shelter under lock and key. The local CPP volunteer himself did not take refuge at the shelter and unfortunately drowned at his home tightly holding his 3 years old daughter to his chest. These contrasting facts within a common administrative boundary tell us about how marginal spaces are ignored in cyclone warnings. Besides, this also questions the responsibilities and accountability of a volunteer.

The CPP was established in 1972, inspired by the idea of voluntarism among leftwing activists who were engaged in rebuilding war-torn Bangladesh. The essence of this voluntarism was enthusiasm and selflessness, which has decayed through time. A CPP volunteer holds a certain level of social network and power which attracts many people to fight over this position. An official from the Upazila CPP office told me that the CPP prefers to employ someone who is well regarded and listened to within his community. Of course, the CPP does not have any official resolution to maintain such discriminatory practice; however, evidence is very common in reality. For example, the CPP volunteer who died during Sidr was the youngest brother of an elected local UP member. Therefore, though the CPP volunteers have some important responsibilities to perform, it is not easy to make them accountable for any wrongdoing; because, firstly, they have strong networks to stand beside them and secondly, they are unpaid. Nadiruzzaman (2008) has questioned effectiveness and efficiency of unpaid voluntarism. His critique centres on the complexity of local

power networks and demonstrates the pervasive nature of patron-client relationships, for instance, between the UP chairman and any volunteer in a local development programme. An example was uncovered when a BBC journalist noticed that a cyclone shelter which had been locked during the Sidr emergency had been a store room for equipment used in the election campaigns of the local UP chairman (BBC 2007).

Reformation of Modern Paradigm

The above subsections under the modern paradigm describe how cyclone vulnerability is being framed in terms of physical exposure of humans. As a protective measure, much effort was given to predict physical characteristics of cyclone in advance and engineering structures were made to withstand a cyclone. These measures apparently failed for a number of reasons; such as:

i) Modern technological knowledge was not competent enough to predict a cyclone infallibly.
ii) People living in cyclone-prone areas did not have much integration with the knowledge process. Therefore, when there was a false alarm, people did not know why it went wrong, which eventually built up mistrust in alarms.
iii) Corruption was embedded in the process of building water surge defence structures, which, in one way, resulted in weak embankment design; and in another way, gave the community a false sense of protection.
iv) Cyclone shelters, despite many problems, could promise protection for a limited number of people.
v) Immediately after a cyclone people lose command over their essential entitlements, because their home, assets and agricultural products are being destroyed.

All of these issues have emerged through time and as a response to them, the modern paradigm has reformed itself without having a distinct shift from its way of framing the issue as a whole. Several institutional reforms took place within government structures (see pages 70-73) to coordinate an emergency situation and incorporate community with some processes. Besides, a rigid stand is often expressed by labelling the community as fatalist. In addition, within the governmental institutional structures, they ran a relief and rehabilitation programme to help the community get on their feet.

Relief and Rehabilitation Measures

The dreadfulness of tropical cyclones is well known around the world after storms such as Katrina, Sidr and Nargis, and very recently Yasi. Although a cyclone can indiscriminately make a path through any nation, its effects are unequal. For a developed nation, robust defence structures, well coordinated risk communication and evacuation, ensure protection of assets and so help the

community to get back to their normal life quickly. However, in a poor country like Bangladesh, where most of the rural community depends on a subsistence agricultural economy and natural resources, the picture is more challenging and harsh. Carroll, et al. (2009) discuss the 2005 Carlisle (UK) floods in terms of the disruption of people's lives, relationships, post-traumatic stress, and insurance and so on. In a contrasting phenomenological analysis of *char* life in Bangladesh, Lein (2009) finds that the main factor driving households beyond their capacity to cope - and therefore into poverty - is not disaster but rather the death of the main bread winner. Here the death of the main bread winner pushes the family to a knife-edge where the rest of the members of that family do not have any income earning opportunity, lose their command on entitlements and eventually have no choice but to starve. In another way, if there is no situation of the main bread winner's death, but a cyclone wreaks havoc with people's flimsy homes, destroys their assets, damages their crops, and so on; they seek income from alternative sources. But, when damage is widespread and indiscriminate within a community, employment opportunities also shrink. When such a scenario is pervasive, this could lead to a famine situation unless there is any intervention from outside the affected community. This was one of the pictures after the consequent drought and floods in 1974 around some parts of Bangladesh, which caused severe famine (Sen, 1981).

Distributing relief has been an integral measure of disaster intervention from the very beginning of the modern paradigm. Large Bangladeshi NGOs like BRAC, RDRS and many others have their roots in relief distribution programmes. They have been working alongside the government and were blessed by international donors. Food, drinking water, clothes, home building materials, medicine, cash money, income generating essentials like seeds, power tillers, fishing boats, fishing nets and other everyday essentials are distributed as relief. The idea of relief was been criticised for making people idle and relief dependent. Therefore, it has gradually been transformed to rehabilitation and spread into alternative interventions like micro credit schemes, food for work, cash for work and so on which have striven to engage people with various income earning activities so that their reliance on 'free' relief diminishes. Micro credit helps people to restart income-generating activities. Cash for work and food for work programmes employ communities for building and maintaining water tanks, roads, embankments and other infrastructures which are of common use of the community. Unfortunately, relief and rehabilitation initiatives are always supply driven and generalised from previous experiences and their transparency is often compromised by the influence of partisan politics (Dowlah, 2006). These issues will be elaborated in a following chapter where relief and rehabilitation programmes around my field site will be the prime focus. However, relief and rehabilitation has proven not enough while devastation was widespread and intense and economic loss was unbearable. To fill in the gap, concepts like adaptation, coping, capacity building and so on were introduced and to execute those ideas a new institutional setup has been arranged.

Institutionalising Disaster Preparedness

After independence in 1971, the Urir Char cyclone in 1985 was the first big shock in Bangladesh. This cyclone not only pushed the government to reinstate a cyclone shelter building programme, but also let the government realise a need to introduce a Standing Order on Cyclones (SOC), which later was replaced by the Standing Orders on Disasters (SOD) in 1997 and updated in 2008 and 2010. This document outlines specific duties and responsibilities regarding disaster management at different phases for all concerned public agencies, e.g., relevant ministries, regional and local administrators and the defence forces (GoB 2008c). These entities must follow SOD protocols during non-disaster periods, precautionary and warning stages, the disaster stage, and the post-disaster stage.

Despite having a clear outline of roles and responsibilities, the system did not work well after the 1991 cyclone as there was a lack of coordination among different actors. Alam (2005) explains his experience as a development worker in the 1991 cyclone affected areas as – '…NGOs received big amounts of assistance…beyond their capacity to control…a tendency to dump the relief materials in the easily accessible areas, whereas other places were not reached…'. Besides, following two consecutive 'once in a hundred year' events, the 1988 flood and the 1991 cyclone, the entire nation were shaken. This resulted in a new focus towards the adoption of a holistic approach that embraces the processes of hazard identification and mitigation, community preparedness and integrated response efforts. As a result, a short-term project titled Assistance to Ministry of Relief in Coordination of Cyclone Rehabilitation was launched, which took institutional shape by early 1993, and was endorsed as the DMB. The Bureau performs specialist support functions, working in close collaboration with District and Upazila level institutions and the concerned line ministries under the overall authority of a high-level Inter-Ministerial Committee (IMDMCC). The DMB is also responsible for creating public awareness on the severity and risks associated with natural and human-induced hazards. This formulates programmes and projects with a vision to better prepare at-risk communities and capacitises public officials to handle adverse situation efficiently. As a technical arm of the Ministry of Food and Disaster management, the DMB overviews and coordinates all activities related to disaster management from the national to the grass-root level. It is also entrusted to maintain an effective liaison with government agencies, donors and NGOs to ensure maximum cooperation and coordination in all aspects of disaster management.

As a continuation of the paradigm shift process, the Comprehensive Disaster Management Programme (CDMP) emerged as a long-term programme with the patronage of multiple large donors like the United Nations Development Programme (UNDP), the Department for International Development (DFID) and the European Commission (EC). The programme was launched in November, 2003 as a strategic institutional and programming approach that has the potential to reduce long-term risks and to strengthen functional capacities for responding against any adverse situation. The CDMP has been designed in two phases. The first phase, operated from

2004-2009, had five major agendas, such as professionalising the disaster management system, partnership development, community empowerment, incorporating broader range of hazards and operationalising responses. The first phase laid the foundation of the proposed shift as well as designed, formulated and mobilised resources of those components to let the second phase (2010-2014) have a good start. However, the main distinction of the CDMP from any previous approach is community empowerment, which has never been uttered in any disaster policy paper before. This component has four sub components which are: a) programme gap analysis for strategic partners, b) community risk reduction programme, c) community level disaster management programmes and projects, and iv) support for livelihood security and hazard awareness. To attain these components a disaster management committee has been formed in each Union, called the Union Disaster Management Committee (UDMC) and a general guideline of Community Risk Assessment (CRA) has been designed. The main inspiration behind designing CRA is to empower the community and local level institutions by mobilising them to assess their own community's risk. As the CRA of a Union will be the main guide to design future disaster plans, any engagement with developing a CRA is assumed to be an effort of incorporating them with their local decision making process (http://www.cdmp.org.bd/cdmp_old/Situation_report.html). This project sounds very impressive, but is perhaps overly optimistic. Since the Union, the oldest local government institutions in Bangladesh, do not yet function properly (Nadiruzzaman, 2008), how could UDMC work, which is quite new as well as at the same level? According to the resolution, the Union Chairman and Secretary will hold the same position at the UDMC. In my field site, none of them knew about their position in that committee. This observation is being echoed in the latest Poverty Reduction Strategic Plan (PRSP) where functioning Union and Upazila level committees are being considered as major challenges in disaster management (GoB, 2008d). This fact further raises questions about the objectivity and epistemology of the CRA at my field site.

The main objective of this CRA is to develop future short-term and long-term plans to fight back disasters better locally. The CDMP have prepared a CRA guideline, declared the Unions where CRA will be conducted and called different NGOs and academics to bid for them. According to the guideline a researcher or a group will have 4-5 days to observe a Union, conduct a series of focus groups with different groups considering employment, gender, affiliation and so on. After gathering all the data, they will come up with a complete report and three months is allocated for the whole research. ADO (Area Development Organisation) has conducted the CRA for Southkhali Union within the given time though they did not have any prior orientation about this locality. Given this reality, this timeline is overly optimistic to conduct 'participatory' research. The ADO conducted this research with the ordinary project staff who do not have any advanced training or experience in participatory research. Only the research coordinator of this organisation has received an orientation on the CRA guideline from the CDMP and then shared his knowledge on CRA with his colleagues. One of the risks the ADO team has identified is arsenic contamination at ground water level, though in page 4 and 7 of their report they mention that only 4 out of 250

tube wells are arsenic contaminated. In an interview with the project manager of ADO I inquired about some irrelevances and confusions that I had noticed. In reply, he said that they have conducted 20 CRAs at the same time and have not received enough time from the CDMP to conduct high quality research. Such time constraints has led them to depend on secondary data sources, for instance, Public Health Engineering Department (PHED) for arsenic related data. I cross-checked the arsenic data with the local PHED and revealed a record of only 148 data sets for the whole *Upazila* where nearly two-thirds of data are five years old or more. I then checked some other CRAs conducted by this organisation and noticed significant duplication among different reports. I interviewed two other NGOs who conducted CRAs and revealed commonalities of facts as of ADO. Frustratingly, the CDMP has accepted all these CRA reports, which will be their main basis of designing future disaster plans. One of many conceptual limitations of the CRA guideline is to understand natural hazard as a separate entity of risk from communities' everyday livelihoods, which is explained in the following paragraph.

In addition to such epistemological limitations, CRA guideline presumes hazard and risk as a natural hegemony and has no option to contextualise risk on communities' social, economic and political setting. For example, in coastal *char* lands, many communities have disputes over ownership of government *khas* lands. In many cases, these disputes appear to be a legacy of political clientism, governmental negligence and administrative corruption. Inhabitants of the disputed lands are living at extreme economic and political marginal proximity. They bet their every potential to survive on the last piece of land they have. Such efforts make them economically weak, and eventually their adaptive capacity dwindles and exposes them to hazards. At *Mazer Char*, Mannan (45) sold out his cattle and bought a piece of land for 80,000 taka (£700 approximately) for the sake of food security for his family. Meanwhile, as described in Chapter Six, when the British Business Group (BBG) began their post-Sidr intervention at *Mazer Char*, unconsciously they ignited the latent fire of land dispute, and Mannan realised that his piece of land is a part of the disputed lands. He spent 200,000 taka (£1800 approximately) in the last two years to fight cases on his land. He plans to move away to another *khas* land if he needs to spend more money to settle his court cases. Many people on this island have not received cyclone proof houses because disputes exist about their land. Unfortunately, the CRA guideline does not have any opportunity to address such social, political and economic contexts of vulnerabilities, which put the community at risk.

Conclusion

In reference to Table 4.1, it is next to impossible to draw a general picture which explains the impact of all the cyclones. Chittagong coast experienced two cyclones in 1997. Among them, the pre monsoon cyclone was almost of a similar strength to the 1991 cyclone and the post monsoon cyclone was closer to the 1985 cyclone in terms of power. However, the number of deaths significantly varied between these cases. There may be a question of advancement of science and approach between 1985, 1991 and 1997, as I have already described how disaster preparedness

programmes have incorporated medical aid, institutionalised coordination through establishing DMB (Disaster management Bureau) and clarified organisational responsibilities by publishing the SOD (Standing Orders on Disasters) after the 1991 cyclone. Development has progressed and institutions have become more efficient by seeking to address wider issues like participation and empowerment. When this is the case, why did the death toll jump so high after Sidr, in comparison to the 1997 pre monsoon cyclone? More interestingly, both the cyclones in 1997 had a minimal death toll, though they were of very different level of strength. Most of the research we has been about the three major cyclones of 1970, 1991 and 2007. Thus, what we all know is 'what went wrong'.

According to the majority of the literature, the lack of cyclone shelters and strong dykes and incompetent warning systems are seemingly the main causes of large scale devastation. The government also believes this (GoB, 2008a). While the death toll was minimal in both the 1997 cyclones despite the fact that existing shelters could meet a very minimal threshold of total demand, there is certainly some room to explore other probable factors. Islam (1974, 1995), Hossain et al (1992) and many other researchers and development practitioners have suggested that many of those killed were migrant workers and they have described this as one of the dominant features in cyclone affected areas. I considered this as a starting point of my research. Who are migrant workers? Where are they from? Why do they migrate? Who pushed them? How are they pushed to the margin? Answering these questions could lead us to a different way to frame cyclone vulnerabilities. This effort is certainly not to undermine the importance of hi-tech and heavy engineering measures as a safeguard from cyclones. Instead, we consider cyclones as one of many disruptions in people's livelihoods and stresses in exploring how these events affect one another and, thereby, shape everyday life.

Shamsuddoha and Chowdhury (2007) reveal that 53.4 percent of coastal households are functionally landless and own on average less than 0.5 acres of land per household. This majority of people together own only 17% of the total land; on the contrary, the richest 12 percent of households own 47 percent of total coastal lands. This picture is similar to that in my field site. If anyone is asked about their general livelihood options around this area, the most unanimous proverbial answer will be *maas r gaas*, which means fish and timber. Insufficient employment opportunities and off-peak economic season for both the farmers and fisherman leave little option for them to earn their livelihoods. This discussion will continue in subsequent chapters. The following chapter, for instance, will explore relief and rehabilitation programmes operated in my field site after Sidr's devastation.

Chapter Five

Relief, Rehabilitation and Their Distribution

Chapter Five: Relief, Rehabilitation and Their Distribution

Introduction

In the previous chapter I talked about how our experiences with cyclones have shaped our views on cyclone preparedness in Bangladesh. This also explains how different strands of knowledge, like climatology, fluvial morphology, hydro thermo dynamics, civil engineering, epidemiology, and various strands of social science scholarship have historically been married together to develop the existing cyclone preparedness in Bangladesh. At present, cyclone preparedness is more a comprehensive programme comprising primary defence mechanisms (building cyclone shelters and embankments, early warnings and their dissemination), disaster time evacuation (securing valuable goods, livestock and basic foods in a safe place, and taking refuge in a shelter) and post-disaster interventions (first aid, rebuilding, relief and rehabilitation). The first two phases are meant to protect people from fatalities and the last part of the comprehensive package is to bring back the rhythm to their lives. Metaphorically, this could be mouth to mouth resuscitation and pumping the heart to revive a drowned person. Such an intervention needs to follow a particular manoeuvre, a carefully planned scheme involving certain knowledge and skills. If we situate this metaphorical instance in the context of a cyclone-wrecked poor community, first we require an understanding of their needs and potentials so that we can help them – with resources available to us – to recover their lives. However, putting experiences of the post-Sidr interventions, particularly relief and rehabilitation efforts, into this context, 'what should have been' and 'what has happened' may not always overlap perfectly, but the former question can bring out a positive result to any future disaster interventions by scrutinising post-Sidr endeavours.

By the time I started my fieldwork, every family at Gabtola and most of the families on Mazer Char had received houses from the Saudi government and the British Business Group. A few families on Mazer Char and all in the Sonatola Model Village were refused because of land disputes, which I will elaborate in the following chapter. However, they managed to make new homes by themselves. Most of the relief work, such as the distribution of basic foods, accessories for the home, the cleaning of water tanks, the rebuilding of infrastructure, distribution of new livestock, seeds, fertilizers, boats, fishing nets and so on were accomplished before my fieldwork. When I first arrived, I saw that many of the NGOs who had intervention programmes after Sidr had already moved off and several more were preparing to close their programmes. I had to learn about these programmes by talking to the beneficiaries and to the NGO officials at their head offices in Khulna or in Dhaka. There were a few NGOs still working in the area and some new ones were appearing with intervention programmes. Moreover, the Relief Department of the government had some regular aid packages such as old age, widow and orphan allowances, test relief (TR), general relief (GR), Vulnerable Groups Development (VGD), Vulnerable Group Feeding (VGF) and so on to help vulnerable rural communities all over the country. A relatively

longer engagement with the communities and their power elites gave me an opportunity to understand how resources are drained away. I was particularly interested to learn how resources get trapped within a power network.

In this chapter, I will set out with the first-hand experience of Sidr from the very night of its landfall, people's accounts of how they survived and later how they received the relief and rehabilitation packages that allowed them to get on with their lives. This discussion will portray people's helplessness before the storm surge and show why outside aid was so essential for them. Overall, the chapter will strive to answer the following three questions:

I. How was the relief distributed?
II. How were decisions about specific items of relief made?
III. How was knowledge from previous experiences used?

Discussion of the first question dominates the whole chapter as its particular emphasis on power dynamics and patron-client relationships inevitably encompasses aspects of the other two questions as well as the following empirical chapters of this thesis. This section initially engages with Sen's 'entitlement approach' to conceptualise relief as an entitlement and then attempts to contribute to this approach by unveiling how the complex dynamics of local power networks dictate the distribution of this relief entitlement and, through this delivery process, marginalises people outside of the loop.

We will attempt to answer the second question by reflecting on housing schemes implemented in my field area. I take housing as a case study as it is the most visible aid product locally, not only changing the landscape but also representing different aspects of relief decision-making. This section recognises the power dynamics component from the previous section, and also explores the power relations between aid agency and beneficiary in regard to deciding what qualifies as a relief item and what does not. Acknowledging the fact that the beneficiary communities have little or no say in what it is decided they need, I try to reveal whether and how the aid agencies consider local practicalities, culture, weather, and so on, before an item qualifies as a relief product. Finally, I complete this section by questioning whether in the selection of anything as a relief item there is any consideration of its potentially adverse and unintended consequences.

The third question will be answered by extending the final clue, from an earlier paragraph, of probable future threats from relief products. This section, inspired by Atkins and his colleagues' (2007) paper on 'environmental irony', reinvigorates the issues of creating a potential future threat through a well-meaning intervention that has not been fully thought through. It is interesting to learn, for instance, that some of the serious damage caused by Cyclone Sidr in 2007 was by the relatively newly introduced trees whose method of cultivation, with their tap root severed, meant they were not well anchored in the soil. Although this knowledge came up repeatedly in my

interviews and was well reported in national and local dailies, the different perception of experts ignores or devalues local experience. Thus trees destroyed by the cyclone were once again replaced by the nursery-grown trees, which will in turn no doubt cause the same problem in another cyclone. Thus the final section reveals another aspect of power, vested with knowledge-beholder, i.e. donors, experts and policy makers, in understanding post-Sidr relief and rehabilitation schemes.

Terror of Cyclone Sidr

In the middle of November 2007, the coastal communities around the Boleshwar River were devastated by a gigantic storm surge. In one of my field sites, Gabtola, only four houses survived out of thousands. In all of my three field sites, there was not a single family that did not sustain a huge financial loss. The people were quite familiar with cyclone alarms, both real and false, but they never imagined such a high magnitude of storm. On 15 November 2007, the weather was pretty normal like any other ordinary monsoon day and was bearing no symptom of what was happening a few hundred miles out at sea. Even when the weather became worse in the evening and turned to thundery squalls, they thought that this was a tropical storm such as they experienced every year, and they decided to stay at home. Many of my respondents were in bed, sleeping or trying to sleep, when the cyclone struck their village, sometime after 10 o'clock at night. People who were still awake gave a vivid description of the night as winds roaring like a hungry monster, trees swishing down to the floor as if bowing before a monster, broken branches, pieces of wood and other loose materials flying to and fro. Such a furious appearance of nature made them feel that they had underestimated the warning. They became puzzled. Some people made their way to the cyclone shelter but others came back home after being obstructed by flying debris and uprooted trees on their way. At Gabtola those who reached the cyclone shelter had to go elsewhere as it was under lock and key.

When water started pouring into their houses, people had no other choice but to find another, safer shelter. They started running to the nearest big houses, cyclone shelters and other places, which they thought safer. They were again proven wrong when a gigantic wall of water crashed down on those houses. None of the big houses within 100 metres of the riverbank survived despite being inside the embankment. I was shown several spots where people perished together when they were trapped inside collapsed big houses. Inside a cement single storey primary school 26 drowned when the surge overtopped both the embankment and the school's rooftop. People who made their way to cyclone shelters were apparently lucky. Those who failed spent the whole night floating, holding on to tree branches. The following morning they stood in the wreck of their houses, trees and boats with tens of thousands of dead bodies of their relatives and livestock. They had no clothes other than the ones they had been wearing, no food to eat and no money to buy anything. Sidr had swept away all they had. Intruding salt water had contaminated drinking water ponds. Crops and seeds, fishing boats and nets were either destroyed or washed away. The cyclone indiscriminately affected every single family at all my field sites. Southkhali

Union suffered 709 deaths, one-fifth of the official Sidr total for the whole country. Gabtola, one of ten villages of Southkhali Union, alone lost 381 people. There were no casualties in Sonatola Model Village, another one of my field sites in the same Union, far inland and quite well protected by the Sundarbans from the South and the West. Despite being within close proximity of Gabtola and being situated in the middle of Boleshwar River, my third and final field site, Mazer Char, had only four deaths. In fact, three adjacent villages in Southkhali Union, all in the same line along the Boleshwar River, North Southkhali, Gabtola and Bogi, counted more than ninety per cent of the total human loss of life in the Union, mostly in close proximity of the riverbank. Other than significant differences in their human death toll, all three field sites experienced similar loss in terms of their homes, livestock, assets, and so on. Two years after Sidr, when I started my fieldwork, its terror was still visible in every single pair of eyes that survived that nightmare.

Post-Sidr Relief and Rehabilitation Schemes

Sarankhola Upazila, the main resource hub of all four Unions, despite being a few miles away from its most devastated Union, did not have any clue about the level of destruction in Southkhali until the evening after the event when a small team of Upazila officials physically verified Sidr's impact. Meanwhile, the BBC Bengali Service was running a boat trip called *Nodipotha Bangladesh* (discovering Bangladesh through rivers), hosting more than twenty international journalists, intended to explore 'global warming and climate change' effects in Bangladesh. Upon Sidr's landfall their boat was a few hundred miles inland in the middle course of the Brahmaputra river system. They immediately headed south and, as a result, Southkhali received media coverage and humanitarian assistance started pouring in from different sources, both national and international. As I mentioned in the previous chapter, all of the relief went through the Upazila headquarters to ensure coordination and effective distribution of aid items.

In Bangladesh, any major disaster relief comes from the government through the Prime Minister's relief fund. NGOs also raise money from individual philanthropists and international donors. However, the Bangladesh Army is often the key player in coordinating relief in a disaster-wrecked region, as they are believed to be neutral, incorruptible and well equipped. So it was when Sidr swept across the south-western coast of Bangladesh. The army established a base station near the Upazila Headquarters and coordinated relief distribution for a year afterwards. On 9th July 2008, eight months after cyclone Sidr, the Sarankhola Upazila published a report on the accomplished and ongoing rehabilitation projects within its jurisdiction. According to that report, around Taka 111 million (approximately £1m) of cash had been distributed among affected families. Besides, they had been provided with emergency relief, such as dry foods, children's food, water, water purifiers, garments, blankets, tents, kitchen items, and so on. Parallel with this emergency relief distribution, they also received seeds, power tillers, irrigation pumps, draft oxen, livestock, sewing machines, trawlers and nets to enable them to start involving themselves in different economic activities and restart their lives. Of course, the amount of relief received is no

way matched their economic losses. To bridge that gap, government agencies and NGOs have been running several rehabilitation schemes like old-age and widows' allowances, VGD, VGF, food for work, vulnerable child funds, elderly education programmes, and vocational training schemes from the very outset. However, it is important to explore the distribution mechanisms of these resources.

Entitlement to Economic Relief and Rehabilitation Schemes

In an earlier part of this dissertation, I mentioned my review of published scholarship on cyclones in Bangladesh since the devastation of the 1970 Bhola Cyclone. As mentioned before, much effort has been given to understanding cyclones through numeric modelling. Even qualitative work has been guided by this quantitative framing, for instance on warning dissemination, evacuation to cyclone shelters, the prevention of waterborne diseases, and so on. Overall the emphasis has been on interventions to reduce the human death-toll from the direct impact of cyclones. Relief and rehabilitation efforts have followed each disastrous event but we have surprisingly little formal knowledge of their operational efficiency and effectiveness. What we have are some figures assessing the sum of economic loss and thereafter a total of humanitarian assistance but disappointingly little on post-cyclone relief and rehabilitation. Thus, we only know the financial sum of aid relief spent under some categories and sub-categories following an event. But, what we do not know is whether relief was achieved by dint of dire need or through any agency of kinship or affiliation with a power network. For example, Asiya, a widow at Gabtola, is living in a 10x15 square foot single-roomed house with six children. Her eldest son is only fourteen years old but he is the main bread earner for this seven person family. Asiya's husband was severely injured when cyclone Sidr struck and was hospitalised the following day. The family could not afford to keep him in hospital for more than two days and he died at home a week later. However, Asiya has not received any money from the emergency relief fund meant to be distributed among the households who lost any of their family members in the cyclone. Nor have her children received any money from the Sidr orphan scheme. But the scrutineers were very reluctant and sympathised in the case of an influential person's granddaughter, Moushumi, a 12-year old girl. She has lived with her grandfather, a few doors away from Asiya, since her mother's suicide six months before Sidr. Despite Asiya's husband being injured in Sidr, and this being the probable cause of his death, Asiya did not qualify as a recipient of these two funds. Moushumi, on the other hand, was nowhere near meeting the criteria to be a beneficiary but was so from both.

I once asked Moushumi's grandfather why she should receive funding. His reply was quite bold and straightforward: 'Moushmi's father absconded after her mother's death. I am bearing all her costs. Besides, she is quite grown up now and I need to arrange the costs for her wedding. And,

you know, *Haulader Bari*'s[15] wedding needs to be a little lavish, which others (within the village) would notice.' By contrast, Asiya explains her future plans as – 'you see, I had to borrow a *pira*[16] from my neighbour to offer you to sit. My eldest son is only fourteen and he works as a labourer in the forest and out at sea. If he falls sick, we will starve, so I am sending my second eldest son with him, who is only twelve, to increase our income and build some savings. If everything runs smoothly over the next four years, I will buy a small boat and some fishing nets so that they can go fishing in the river.' The two contrasting stories of Asiya and Moushumi bring the question of objectivity, intention, morality and governance of relief distribution to the forefront. Their stories hint at how power, not humanitarian impulses, plays a paramount role in the allocation of relief distribution. At this point, I felt an urge to turn back to Sen to understand his thoughts about entitlement.

Sen's entitlement approach came as a brilliant scholastic thrust against the theory of Food Availability Decline (FAD) (Atkins, 2009), where he strived to pin down the issues of food distribution and lack of entitlement, which eventually triggered all four of the famines he studied. Sen has never disputed that famine is often triggered by sudden loss of endowment and that then the whole system eventually collapses by entitlement shifts. Rules of entitlement, according to Sen (1981), have their roots in market economic functions and their legal aspects are overwhelmed by the basic principles of transactions in an open market economy. As Sen (1981:155) notes, entitlement is 'a person's ability to command food – indeed to command any commodity he wishes to acquire or retain – depends on the entitlement relations that govern possession and use in that society'. Here, entitlement can refer to money, assets, labour, or anything that has a market value and any damage to them is defined as endowment loss. Both entitlement and endowment loss, which refers to individual's or household's capacity to access to any commodity of their choice, are determined by a range of factors, like a price hike, disruption, failure of distribution, and so on. These can lead to a famine situation. Sen (1981: 94) backs up this argument by exemplifying the Ethiopian famine of 1974, where food entitlement shrinkage was accelerated by food being moved out of Wollo to neighbouring cities because of prices not representing the actual demand. Rubin (2009a), reflecting on the case of the 2005 Niger famine, also finds relevance in Sen's thoughts today even in modern day famines when price hikes of staple foods cause more starvation than a food availability decline. However, state interventions to supplement households' entitlement, relief

---

[15] *Haulader* is a surname and *Bari* means house. However, when these two nouns sit together, it connotes a *gusthi* (Bode, 2002), generally a patrilineal kinship network. Despite its members living in different houses and maintaining separate individual household accounts, they are connected together through the communal essence of their kinship. The oldest parental home of a kinship lineage, despite being split among its decedents, as a whole is often being referred as a physical entity of that kinship. For example, *Haulader Bari* (Figure 1.1) refers to a family kinship which dominates the power network at Gabtola, although it does not have any definite spatial location because the main compound was washed away by the adjacent river many years ago and since then its members have lived on their own lands discretely plotted within the village. The house of the oldest influential member of that kinship is now considered as the new icon of the *Haulader Bari.*

[16] A flat wooden plinth offered to guests to sit on.

and rehabilitation schemes for example, can help to avoid any impending famine. In the earlier two sections, I already drew a picture at my field site of post-Sidr endowment loss and distribution of entitlement bundles, particularly in the form of humanitarian aid.

Nevertheless, it is quite problematic to fit my research into Sen's framing, because his work is devoted to understanding famine causation, not cyclone vulnerabilities, and his main focus is on food entitlements. As I compiled personal accounts of the affected communities' experiences during Sidr and the immediate aftermath, loss of individual and household assets, damage to crops, the death of livestock, reduction of economic opportunities and so on were left behind as a legacy of an extreme event which degrades the 'entitlement bundle' of an affected community for a number of reasons: i) the tidal surge and intrusion of saline water reduced homestead grain production through damage to crops; ii) the need for people to use their own 'endowment set' to buy food grains for subsistence until the next harvesting season; iii) the destruction of tangible assets like livestock, home, money, boat, and fishing nets; iv) their intangible endowment sets, most importantly fishing skills and labour power, did not have any use as equipment for the application of these skills was wrecked and consequently the two most dominant economic opportunities of making use of their labour power, particularly harvesting and fishing, declined. Thus, post-Sidr practicalities had the potential for the development of a Sen type pre-famine situation. Sen (1981:45) mentions, 'it [entitlement] concentrates on those means of commanding food that are legitimised by the legal system in operation in that society'. Different relief commodities are among essential means, to disaster-affected communities in Bangladesh, of commanding food and their distribution is guided through several detailed governmental policies.

Since introducing the entitlement approach in 1981, Sen was subject to several critiques from both his disciplinary fellows and scholars from other corners of social science. Sen (1981: 162) himself has never considered the entitlement approach as a hypothesis or philosophy, rather he has regarded it as a general way of analysing famine. However, at the beginning of his book, Sen (1981:4) hints some possible explanations of entitlement shifts embedded in the mode of production and class structure, which put him in effect in a left wing position (Elahi, 2006, 2009; Rubin 2009a, 2009b). At the early stage of developing this landmark contribution to the *entitlement approach*, he ignores practical aspects of how legal rule works and how socially enforced moral rules constrain and enable entitlement (Gore, 1993). This approach has followed several critiques, notably Rubin (2009a), Gore (1993), Rangasami (1985), Devereux (2001), Sohlberg (2006), Dowlah (2006), Watts (1993), for being reluctant to incorporate wider political issues, particularly corruption, as determinants of individual entitlements. Following these critiques of Sen, this chapter will contribute to this approach by exploring the significance of understanding power dynamics in relief distribution as an entitlement to disaster-affected communities.

Power Networks and Relief Distribution

Relief means assistance provided in various forms like food, money and so on and is meant to help those in need. The idea of relief oscillates between two extreme metaphoric spectrums – one portraying the receiving end as negative, relief-dependent and helpless (disaster pornography[17]) and the other views them as very determined, optimistic and resilient people who wish to return to prosperity with little assistance from outside. Both of them are of course very donor-centric notions. Instead of being prejudiced, I was keen to learn people's experiences of the whole relief process. How are relief items determined? By whom? How do the power groups operate, compete and negotiate, locally, regionally and nationally within this process? How does a power group form? Who are eliminated from this loop? How do they cope?

Henry Kissinger, the former US Secretary of State (1973-77), is infamous among Bangladeshi people, and he is often referred to, for labelling Bangladesh as 'a bottomless basket case' for failing to use international aid efficiently and transparently. Certainly, given the global political climate during the cold war, the US stand against Bangladesh over the 1971 liberation war and its aftermath under the Mujib regime is fuel for many debates linked to this quote. However, Arens and Beurden (1977), in a rather powerful way, have shown how poor rural marginal groups are trapped within tightly knitted patron-client networks. This research has been echoed in Hartmann and Boyce's (1983) *A Quiet Violence* and BRAC's (1983) *The Net*. All these researches have focused on power structures within a rural setting and have inspired Bode (2002) and Lewis and Hossain (2008ab), who later contributed to the idea of the 'patron-client network' by portraying the flexibility and evolution of the network in terms of its structural rigidity, extent, the philosophical positionality of the researcher and other geographical attributes. Thus, though until the 1980s, local power elitism were thought to be inherited, well-knitted and confined within a few families, later scholarship has revealed how traditional local leadership can be challenged by newly emerged power networks, which evolve through their affiliation with the wider institutional networks of partisan politics, NGOs, businesses and so on. In the following paragraphs, I will discuss the local power networks in my field area and their influence on relief distribution.

Local Political Power Dynamics

Lack of knowledge on local political dynamics may often marginalise the ultra-poor. Government and NGOs drain down rehabilitation funds under different schemes and try to address all levels of vulnerability but strong patron-client relationships, a paucity of accountability, and inefficient and insufficient monitoring systems block up the ideal flows of these schemes. Here, power includes agency in a decision-making environment with respect to activity, dispute resolution, resource allocation, or the practice of social norms, which expresses a *samaj* as a being. This agency can come informally through social networks and formally through institutional affiliations.

---

[17] http://www.medialit.org/reading-room/disaster-pornography-somalia#bio

Power through Formal and Informal Agencies

Kinship is one of the fundamental building blocks in a wider social order and is primarily expressed through the male family line (*ghusti* is the local term, related to *bari*, as pointed out in an earlier footnote). The *ghusti* often has some physical expression in a residential neighbourhood, called a *para*, where people from the same family tree inhabit composite dwellings. Marriage within and between *ghusti* or *para* often plays a big role in extending *ghusti* networks and strengthening social capital (Bode, 2002). Thus, big farm households are likely to retain an elongated joint structure; in contrast, poorer households are likely to have a segregated nuclear structure. The headman of big farm households usually exercises power within the household and its threshold[18], which altogether makes a *samaj*. Again, factions of interests among several powerful individuals within a *ghusti* can clash, split apart, and different factions from previous rival *ghusti*s may merge together. This factionalism in leadership eventually divides former *samaj* into several parts. Islam (2002) suggests that ten Muslim *samaj* in 1947 divided into 17 in 1975-76 and further separated into 34 in 1985.

As mentioned in the last paragraph, disputes over control of resources drive the *samaj* to breakup but these may be resolved through a *shalish*, a constitutionally endorsed rural version of the judicial system, represented by a panel to adjudicate over disputes. *Shalish* also has its formal and informal versions. Formally, *shalish* was first accommodated at the UP level judiciary system in 1961 by the '*Shalish* Court Ordinance', which was then replaced by the 'Village Court Ordinance' in 1976. According to the act, after a case is filed in the village court, the UP Chairman calls the *shalish* and asks both groups/persons to attend. In addition, s/he asks both of them to appoint two jurors, and one elected member of that UP, making a jury of five members. If the UP Chairman refuses to chair the court or if any confusion arises over her/his neutrality, the UNO will appoint another elected member of that UP to conduct the *shalish*. If the verdict is a 4:1 vote majority there will be no chance to appeal, but at 3:2 an appeal can be placed in the formal lower court within 30 days of the verdict (Chaodo, 2006). However, the act has never been implemented successfully, resulting in a long queue of formal court cases (ibid). An informal norm of *shalish* is, however, widely accepted in practice. Generally, in any dispute situation, both the groups call upon a few local elites to talk on their behalf. Such an advocate is called a *salishdar*. The *salishdars* sit together, argue in favour of their clients and agree upon a final decision which the disputed groups abide by. Again, the wave of politicised local government institutions has eventually weakened the reputation of the *shalish*, though this act legally brought the elected body to prominence instead of just wealth. These dynamics of local power have a reciprocal relation with the formal local institutions like the Ward, UP and Upazila.

[18] Here 'threshold' means the neighbouring households, which directly and/or indirectly depends on the big farm household and obey its decision.

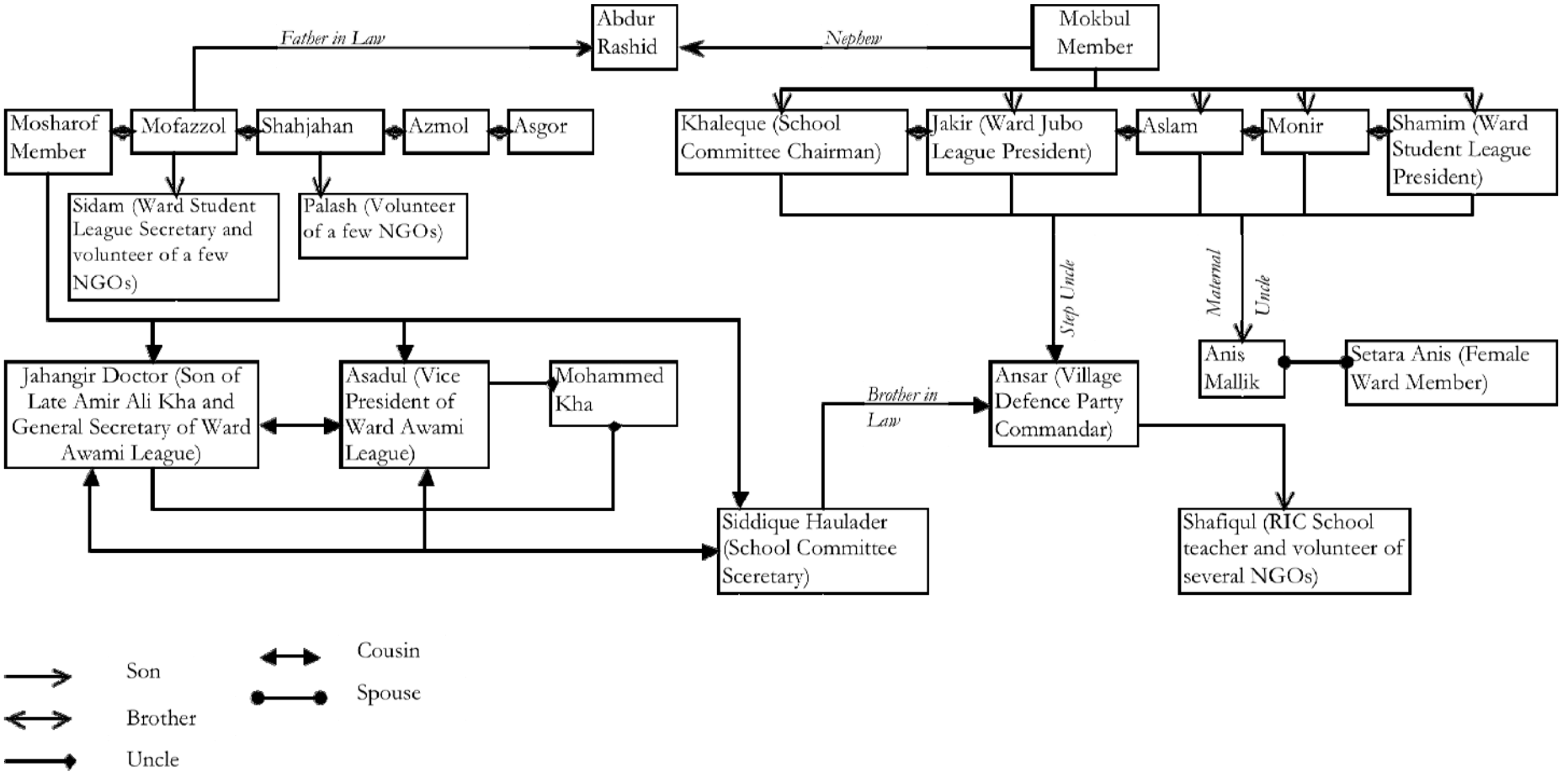


Figure 5.1: A model of kinship network at Gabtola

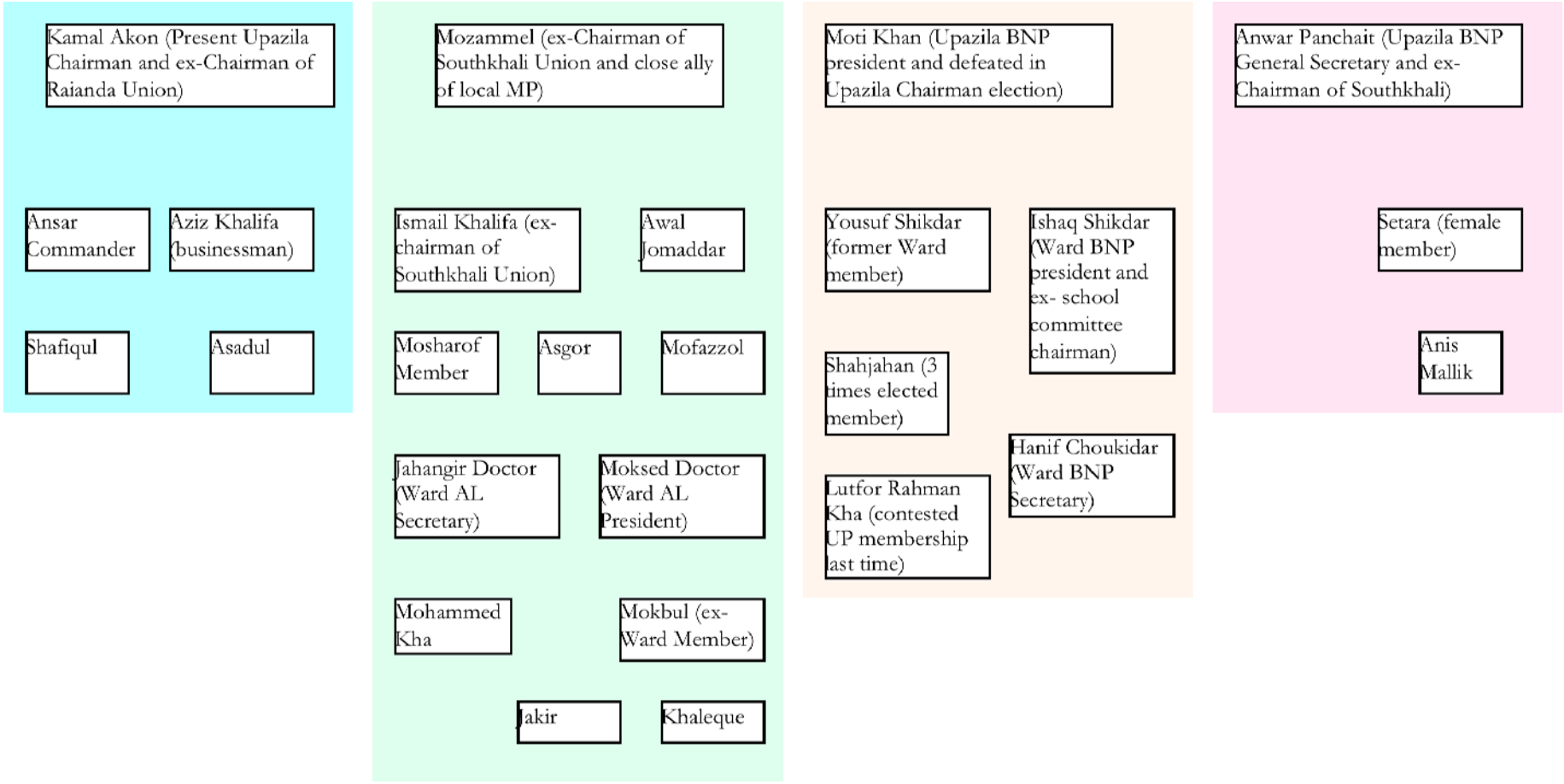


Figure 5.2: Wider Power Network at Gabtola after the 2009 Upazila Council Elections (coloured columns refer to different patron-client clusters)

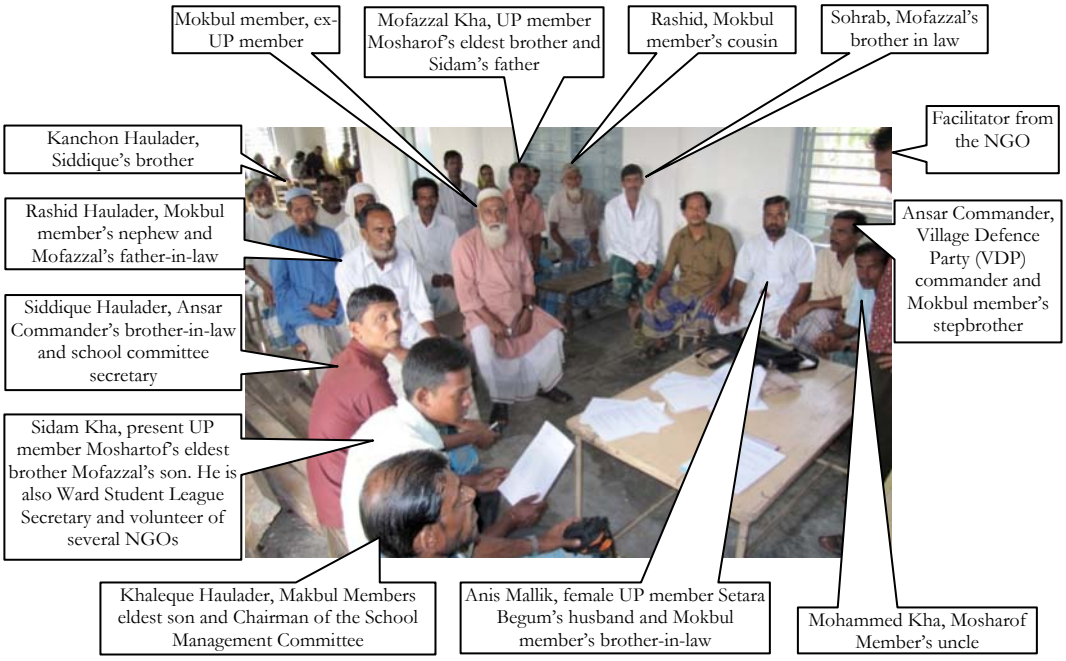


Figure 5.3: Community Risk Assessment Meeting facilitated by a National NGO, before launching an intervention programme at Gabtola. (Source: Author)

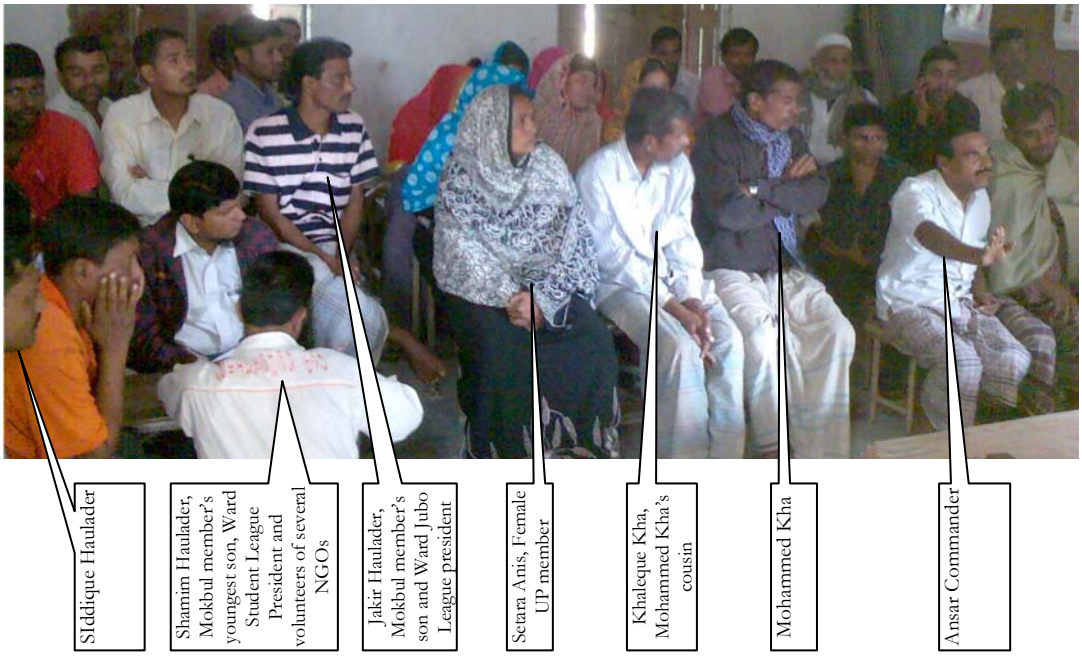


Figure 5.4: Meeting on Rehabilitation Support by an International NGO. People who are present in this meeting, but out of focus on the moderator's row, are Mokbul Member, Mosharof Member, Sidam, Asgor and Khaleque Haulader. (Source: Author)

The main reason for labelling formal and informal institutions as reciprocal is embedded in the history of local leadership in rural Bangladesh (Nadiruzzaman, 2007). In short, both the formal and informal institutions have mutually shaped each other and leadership has changed mainly through individuals' command and control over particular resources, which were the key driver of the then economy. For example, since the beginning of cooperative cultivation, cooperative managers, model farmers, tractor drivers started emerging as new leaders in the late 1960s and the early 1970s. Promotion of partisan political activists, of different political regimes, at the local level of reformed local government institutions, while being in power, brought new faces to the forefront and, where convenient, also engrossed existing *ghusti* leaders (Nadiruzzaman, 2007), making local power dynamics very complicated to grasp. It is important to mention here that the issue is not why power is moving from one hand to another, but rather how this shift of power is only helping those within the power loop, at the expense of the grassroots' entitlements.

Role of Development Agencies in Local Power Dynamics

It is not only the government or the political parties who patronise the rural elites; NGOs often contribute to the biased system. NGOs recruit local volunteers to help them in implementing their projects, for instance the selection of beneficiaries and information dissemination and, thus, they empower those volunteers with information, new connections and access to resources. These volunteers predominantly come from the affluent section of the community. Figure 5.3 and 5.4 show risk assessment and rehabilitation meetings of two different NGOs. Interestingly, the dominating faces in these pictures nearly overlap with Figure 5.1, which helps to explain the local power dynamics of Gabtola. It is not true that NGOs exclude volunteers from marginal groups but poor people do not have much choice to 'spare' their time for volunteering when their main concern is to earn their next meal. Again, NGOs have limited opportunities to work independently and the upper strata of the beneficiary community consume a proportion of their service deliveries. The story of Asiya and Moushumi was an example of this earlier in the chapter. Besides, NGOs are strategically forced to compromise their objectivity because of both informal political pressure and formal obligations to the Upazila administration. Thus, the local political dynamic is often reflected in NGO operations even though, strictly speaking, relief operations are outside the administrative jurisdiction of local authorities.

Role of External Power Network in Development Schemes

Like any typical rural political setting, Gabtola's power network and development decisions are highly influenced by Sarankhola Upazila. Figure 5.2 gives a brief picture of different power networks on the basis of 2009 Upazila election. In the UP election 2003, Anwar Panchait, Mozammel and Ismail Khalifa contested the chairmanship of Southkhali Union, and it was Anwar Panchait who assumed power. Mosharof was elected Ward member in the same election, against four others – Shahjahan, Awal Jomaddar, Lutfor Rahman and Ishaq Shikdar – from the then ruling

party (BNP). Being an activist of the then opposition (AL), Mosharof had to maintain a liaison with Anwar. Even the chairmanship of the school committee changed from Ishaq Shikdar (BNP) to Khaleque Haulader (AL).

In the 2009 Upazila council election, a majority of local elites at Gabtola supported Mozammel but he was defeated by Kamal Akon, who, as a result, cannot expect a warm welcome from the AL-centric elites in Gabtola. These local leaders have a network with the local Member of Parliament (MP) through Mozammel. It is important to mention here that MPs and Upazila Chairmen have traditionally been rivals, from the very outset of the Upazila system. The local MP is an advisor of the Upazila council, and at a certain point he has to negotiate with the Chairman for the sake of their mutually assured survival. In such reality, the number of their clients increases according to the number of beneficiaries who they have recommended to receive from various governmental rehabilitation schemes. Eventually, marginal people who do not have access to them and/or have voted for a defeated group, particularly the opposition, become alienated from those schemes.

Resource, Dispute and Resolution: A Practical Example

My observation of a local dispute at Gabtola will give some insights on this issue. I arrived at Gabtola bazaar in the morning (24/10/2009) and found the UP chairman, the ward member and several social elites there. They had come to settle a local dispute about a potential location of an informal adult education school. I took the opportunity to observe the *Salish*. I thought it would be wise to sit with the common people so that my appearance did not harm the natural setting of that *Salish*. However, like other rural settings elsewhere in Bangladesh, being a stranger I drew attention from them. Everybody was asking about my identity, which affected the natural flow of the *Salish* for the first few minutes. When the discussion started, both the groups were so concentrated over their claims that they forgot about me until the *salish* was over. It is important to mention here that all the participants, other than the UP Chairman, were from the political party (AL) who are in the chair at the central government at the time of writing.

As I said, the *Salish* was over a disputed location of a RIC (Resource Integration Centre) which implements informal adult education programmes. The RIC gives all of the materials to build a school to execute their programme. They also employ a male and a female teacher from the community, who are respectively the son of Ansar Haulader and daughter of Moksed Sardar, two influential persons of this community, as I will describe in the following paragraphs. The RIC has a provision to donate the building materials to the landowner of their establishment once they close their programme which appeared to be the main reason for the dispute.

In one group, Moksed Sardar[19] was for the school to be at his premise on the plea that his daughter will not be able to teach if the school is too far from his house, even though his daughter goes to college regularly several miles away. Moksed constructed the basement at his premises without discussing it with the community, especially the local elites. He made a connection with the RIC correspondent and brought the piles and tins to his house. His interlocutors believed that he had bribed the RIC correspondent to deliver the building materials to him. This RIC correspondent was also accused of ignoring two other potential teachers, neither of whom had a strong network, by manipulating the teacher selection process. It is important to mention here that the RIC correspondent was eventually sacked after clues of corruption were revealed in performing his job.

Ansar Commander, the main accuser at the *Salish*, is a Village Defence Party (VDP) leader and also has a strong kinship with the local power network, as shown in the local power network map (Figure 1.1). Through his network, Ansar proposed the premises of the government primary school and cyclone shelter as a potential location of the new school, which is also adjacent to Moksed's home. Meanwhile, Ansar has appealed to the RIC authority about a potential location of the school and all of his close allies put their signatures on the application.

In reply, Moksed has applied to the authority with a recommendation from Kamal Chairman, a high ranking politician who is the elected Upazila Chairman of that area. It is important to remember that from the present ruling party, the Awami League, Kamal and Mozammel, two former UP chairmen, contested the Upazila Chairmanship in 2009. Ansar and his allies supported Mozammel and Moksed supported Kamal in that election. Therefore, Ansar and his allies cannot enjoy full freedom in local decision making if at any point they undermine Moksed's interest. On the contrary, Moksed cannot walk against the wind when a third party, like the RIC, is beyond Kamal Chairman's control. However, in general, elites fight to take control of any resource and have-nots merely receive the left overs. In this case, the school was finally established at the primary school premises, which is on *khas* land. Both Moksed's daughter and Ansar's son are now working as instructors in that school.

The above example is a tiny model of an engendering anomaly in social power network where *samaj*, *ghusti*, local power networks, partisan politics and an NGO play a very complex role and marginal people play the role of passive observer. This, however, does not give a full picture of the power dynamics of that small community. It is important to know the power networks of the whole Upazila and beyond. Because, power is vested around resources and, because of the administrative nature of resource allocation and distribution, a UP needs to depend on an Upazila to get access to them. Both political identity and poverty make a person marginal and accordingly economically vulnerable, and eventually affects their resilience and adaptive capacity. However,

[19] Locally known as Moksed Doctor, who is the President of the Ward Awami League. He has a very strong link with the local Upazila Chairman.

does this mean that the poor remain utterly ignored? Blair (2005) draws a pattern of the relationship between different poor groups and the local power holders. He categorises four groups of poor and defines different types of relationships with their 'patrons'. He notices that the poor have two major concerns: for security (Destitution, Disaster, Crime and the State) and for development (Agriculture, Human Capital, Family and Infrastructure). In reality, he observes, the 'poor' (43 percent of his sample) rely on their 'patrons' for their survival and development. My observations support his qualitative unpacking.

Entitlement to Housing Scheme

The right to housing is one of the five basic human rights endorsed by the constitution of Bangladesh. Home happens to be an assured commodity right, protected by the fundamental state law, to every household. However, while distributing housing materials to the affected community this constitutional right seems to have been forgotten. At Gabtola, there were several dozen landless families living in small flimsy huts on the embankment, all of whom had lost land either due to riverbank erosion or the distress sale of their assets in a time of hardship. Despite their homes being destroyed by Sidr, they would only qualify under the housing scheme when they were able to purchase a small piece of land inside the embankment. This would be at a much higher rate than the usual market price, from the land owners who were generally from the elite. All of my landless respondents used any petty cash as a relief package, intending to help themselves by engaging in some income earning activity or other. But they received no aid due to a lack of care, vision, surveillance and forethought. None of the landless in Sonatola Model Village or the eighteen households on Mazer Char on disputed land has received any housing benefit. Here, access to housing was judged not on the basis of their legitimate constitutional right but rather the legitimacy of their possessions. Optimistically, landless dwellers on the embankment at Gabtola now hold their homestead land. Unfortunately, this was not always the case for many people at Mazer Char and Sonatola which I will describe in a following chapter on land disputes.

Aid money, intended to rebuild the devastated community, has not only slipped into the pockets of members of the local elite; it has also leaked outside. For example, Gabtola people have received housing from the government, donated by the Kingdom of Saudi Arabia (Figure 1.5). For a 10x15 square feet size and nine feet high house, 41 tin sheets and 8 concrete pillars were provided. The Government used external suppliers to buy tins and make concrete pillars. A total of taka 62,875 (approximately £630) was allocated to build each house, which includes a budget of taka 10,000 (£100) for developing an earthen plinth and installing a house on it. From this construction cost, taka 6500 was given to the recipient of the house and remaining taka 3500 went to labours hired from outside, though a labour force was available locally. Moreover, a substantial amount of my respondents, particularly those on the margin of a loop or with no connections, had to pay a minimum bribe of taka 1000 just to keep their name on the list of recipients. I was not

quite convinced about this spontaneity of bribing, as every single household in this most devastated of villages should have been entitled to at least one house. So, I wanted to find out.

Figure 5.5: A Saudi government sponsored house. The background house, at the right top, is owned by an elite person and, although three times larger than the one in the foreground, was built at the same cost. (Source: Author)

One day, a few people in my hearing at a tea stall were discussing who they have given bribes to on different occasions. I enquired of them why they needed to bribe anyone for housing when every household was listed as a recipient of this service. One person, pointing his finger to a local elite person sitting in a corner of that stall, asked him outright, 'did I not give you taka 1500 to put me on the housing recipient list'. The man in question seemed very calm as if he was confronted such accusations quite often. He replied with a bold smile, 'you know very well where I passed on your money to make you enlisted'. He was the same person I approached about arranging a meal when I first moved into the village. He had taken me to an old couple from whom I could buy dinner. When he introduced me to them and asked if they would like to cook my dinner, he whispered and there was no urgency in his body language. I did not want to invade the couple's privacy, but I could hear what they said. The old man said to him that, according to the age on his national ID card, he was two years too young to be eligible to claim elderly benefit and asked if anything could be done about it. My introducer replied very cautiously, 'I will take you to the Upazila headquarters next week, but it will cost you some money [a bribe]'. So, when the issue of bribery came up at the tea stall, this previous event clicked in my mind. This was one of several incidents of bribery that I came across in my fieldwork. From such events I was able to figure out that in this housing scheme, although every single beneficiary had an official entitlement of taka 62,875 to build a home, they had to share a proportion of it with local powerful people and with outsiders.

To have an idea of how this housing project could be accomplished cost efficiently and, thus, to gauge how much money was needed to help the community, I explored schemes with other agencies. Anecdotal estimations from local builders, tin sheet traders, and elected local representatives and members of the community suggested a maximum of taka 35,000 to build a house similar to those in the government's housing scheme. This is a very rough valuation and there is a fair chance of it being undervalued by the local community as a whole, as there was widespread frustration over this housing scheme around my field site for several reasons: i) Despite suffering the highest death-toll, Gabtola people were only provided with houses at the end of the scheme; ii) Other NGOs who provide housing, like Muslim Aid, CARE, DSK, BRAC, Friendship, MCC and so on, had Gabtola at their top priority, but they were diverted to other villages following a promise of a foreign diplomat to build a model village in this badly affected area; iii) there were whispered promises of delivering much better quality houses, particularly more spacious, with brick and cement walls; iv) the houses they got were no way near what they had hoped for; v) a substantial amount of the budget went out to vendors and builders; vi) in many cases, particularly for big families, space was an issue, as one house was allocated to a single household[20] unit, not in regard to family size; vii) people with insignificant affiliation with the power loop complained about having to squeeze into a small house while relatively affluent families' unmarried sons were declared as separate households and received a house each; viii) the design of the houses was severely

Figure 5.6: Abundance of abandoned houses – the construction cost (excluding material costs) for every single house was Taka 10,000, which make no sense now. All of the houses in a row in the bottom picture are now abandoned. (Source: Author)

[20] A household comprises all members of a family whose meals are cooked together. Though the term resembles the meaning of family – a group consisting of two parents and their children living together as a unit – is better explained as a combined family. It is a very general in Bangladeshi culture that brothers form the same parents, despite having independent incomes, wives and children, will maintain and share a single catering service until their parents pass away or, in some cases, when their parents become financially dependent. According to the Bangladesh Bureau of Statistics (BBS), all people of a kinship sharing a single catering service are called a household.

criticised for being culturally insensitive and having no foresight in terms of their liveability. This particular point about cultural sensitivity and liveability was seemingly shared by all of the recipients. Normally, they maintain a separate chamber and/or back door to assure the women's privacy from any outsiders who are not close relatives. Having only a single-roomed house with no door to a backyard, the socially valued practice of privacy became trapped in that one room. Besides, the tin sheets, made of corrugated iron, are a great conductor of heat, which makes those houses very warm in the summer and very cold in the winter. On top of that, just one door and two small windows are not sufficient to keep inside temperature at a tolerable level by ventilation with fresh air from outside. Therefore many recipients rebuilt their houses or left them abandoned. For them, the budgeted construction cost of taka 10,000 for each house was simply a waste of money. Now, if we reflect on all the aforesaid complaints, we can sense a large disconnect between the government and the beneficiaries. This is a very top-down relief mechanism, with a lack of accountability or hands-on participation by the villagers, causing widespread dissatisfaction among the beneficiaries and depriving them of a decent house that is value for money.

Figure 5.7: An abandoned relief-house is now being used as a cowshed (Source: Author).

The issue is not only financial value, however, because these houses pose health risks. Their extreme thermal variations and lack of ventilation are associated with colds and pneumonia, particularly for toddlers. Before returning from my fieldwork in April 2010, I saw several cases of measles and chicken pox, which spread in overcrowded conditions. My respondents reported an increased rate of those diseases after Sidr, although I have no firm evidence to confirm that. A doctor at the Sadar Hospital, the only hospital of the Upazila, confirmed the trend, but the hospital

authorities do not compile any statistics, so again we cannot draw any conclusions. It is interesting to note that those people who can afford it had their houses rebuilt with a wood or bamboo fenced wall all around and a high tin-roof with a soft ceiling of bamboo fence, plywood, hardboard and so on underneath. Some reused the relief tin sheets and pillars, some left them abandoned and others recycled them as sheds for their livestock. Only the truly indigent continued to squeeze into their inadequate houses.

DSK (*Dushtha Shasthya Kendra*) is a national NGO, which has had a different approach in helping people to rebuild their homes from ruin. This has been involved with the community more. Their budget was taka 27,000 per house, less than half of the government's budget. They informed their beneficiaries of this limit and asked their advice on how to accomplish the project within these constraints. They also considered the issue of extreme temperatures, both hot and cold, prompted through the excessive use of tin sheets. Their solution was to have walls made of traditional bamboo matting with corrugated iron only on the roof. They also used a house plinth height that was above the last flood mark and clamped the tin sheets with deeply anchored concrete pillars in order to withstand future cyclones. To assure transparency, the DSK took their beneficiaries to the market where they bought the tin sheets at a bargain price. In the same way, they bought iron rods, cement and other building materials to make the concrete pillars. They mobilised family members, relatives, neighbours and other beneficiaries to help each other to build their house. This had two impacts – (i) as they were building their own house, they built with care, and some added their own tin sheets and other materials to extend their home. (ii) They were earning wage income for the construction and this prevented wage money from draining outside their community. Finally, they had a house which they were part of from the very beginning and do not have too much to complain about other than envying others who were being served by other NGOs who provided cement floors and concrete walls. When I discussed the DSK housing scheme with the UNO (the chief government executive to oversee any governmental and non-governmental development activities within the Upazila's jurisdiction), he simply replied that 'the government has certain rules to follow and does not enjoy as much administrative and management flexibility as the NGOs do'.

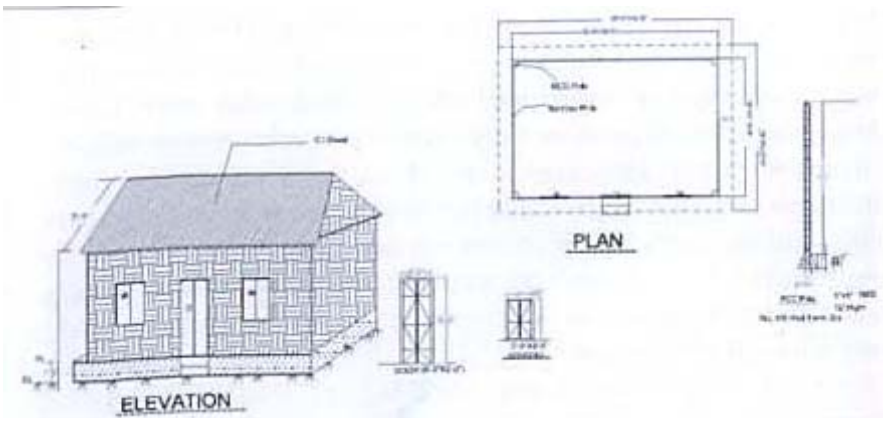


Figure 5.8: A generic model of a DSK-supported house (Source: DSK, 2009:62)

In short, although every household in Gabtola had an official entitlement of taka 62,875, a substantial amount of this was compromised by sharing with vendors and builders and many of them eventually abandoned those houses only because of bureaucratic red tape restricting participation. About 4000 houses were distributed under this scheme, which really makes the total of this compromise a significant sum. Thus, the entitlement is not only backed by law, but also breached by it. We are left with the question as to whether this exacerbates the potential disruption of future climatic change.

The government have been popularising a slogan of 'build back better' since committing themselves to rebuilding Sidr's ruins. In the case of their housing scheme, they were interpreting that slogan as building stronger houses, which can withstand future cyclones. If the government is right, there can be great hope. But, if the hypothesis fails, there might be further devastation. Every single tin could be a killer blade in a stormy situation. Unfortunately, this is not idle speculation. Cyclone Aila,[21] which was only one-third of the strength of Sidr in terms of wind velocity and surge height, struck a few months after the housing programme had been accomplished and partially damaged every single house in the scheme. Everybody under the scheme received a small grant for repairing their houses but if these houses were so vulnerable to a weak cyclone like Aila, how could they withstand another super cyclone like Sidr? Are we inviting potential new risks to the community?

Do We Learn from the Past?[22]

Throughout my fieldwork one overwhelming observation I heard from all corners was about obstructions by uprooted trees on the roads preventing outside help reaching some areas. This issue was encountered from the outset when nature became wild and dissuaded many people from leaving their homes to take refuge at their nearest cyclone shelter. Falling trees and flying debris killed and injured a substantial number of people. Paul (2010) complements my data through a cyclone-induced injury survey of 132 Sidr-survivors in 12 extremely affected villages. He found that 55 per cent of injuries were from falling trees and the remaining 45 per cent from flying debris. It was really a great irony that, while the whole world is campaigning for a greener world, the implementation of such ideas at Gabtola, the village most affected by Sidr, unintentionally created additional risk.

Interestingly, most of the uprooted plants were not local species. They were imported from different parts of Bangladesh more than two decades ago as a part of a social forestry programme.

---

[21] Aila is a tropical cyclone that hit on 25th May 2009, with 80-100 km/hr wind velocity, on the high tide, which escalated inundation for a longer duration.

[22] A comprehensive version of this section was earlier published in Nadiruzzaman, M. 2011. 'Sidr – What Have We Learnt?', *Tiempo*, Issue 78, pp 17-19.

Linked with a poverty alleviation programme, this strove to inspire peasants nationwide to plant timber trees like *chamble*, *mahogony*, *shirish*, rain tree, and so on, so that the peasants could have petty cash from selling mature timber. Several small and medium entrepreneurs responded to this campaign, which gave rise of a significant number of plant nurseries all over the country. These nurseries tried to maximise their profit by increasing their productivity in a limited space. In particular, they cut the main root of the growing plants so that they could be grown on compost in a small plastic container. There was also a demand by farmers to have the plants at and above a certain height so that their cattle could not reach the top of the plants to browse the leaves. However, while these plants grew bigger, their roots expanded only horizontally in the loose alluvial soil because of this severing of the taproot at a very early stage. It was these plants that were unable to withstand high velocity winds and they became deadly airborne missiles in the high winds of cyclone Sidr. Despite the Sidr-affected communities' unanimous endorsement in acknowledging the taproot issue as the main reason for big trees being uprooted, as shown by their lived experience, the experts rejected this local 'perception'. For example, a high ranking officer from the Department of Forestry disputed it, arguing that in the Sundarbans, the Forest Department practices traditional plant nursery methods. He was not, however, able to answer my further question about how practices in the Sundarbans are relevant to a rural settlement where trees are not densely planted, and nor would it be practical to do so. As a result, trees are not resilient against high force winds through obtaining support from their neighbouring plants. My personal observation from the remaining legacy of the Sidr is portrayed in Figure 5.9, which shows how a plant with its main root intact has survived while another without a taproot, was blown away.

Figure 5.9: Local plant, at the left, is tightly anchored with the soil through its taproot, but foreign plant, at the right, collapsed through a high velocity wind (Source: Author).

After Sidr, there was direct and indirect support from many International NGOs and donor agencies. Despite knowledge of the potential risks of growing plants without roots, exactly the same types of plants were distributed to the victims. By way of explanation, the NGOs blamed

their donors for allocating insufficient money to buy appropriate plants. But in my conversations with donors, they claimed a very good cooperation with their partners, especially in regard to funds. So, I enquired about this matter with the Upazila local government executive, the UNO, as the government runs a monitoring device by empowering local government executives to authorise and approve any development project, before and after the project implementation and accomplishment. Giving several examples of the on-going plantation programme during my fieldwork, I asked the UNO why he would approve a project which would have fatal consequences during any cyclone event in future. His reply was quite strategic and straightforward. His former bosses, who are likely to have very good connections with the high rank government executives, have joined the NGOs as consultants after their retirement from the government service. Hence, any action by him against an NGO could jeopardise his career. Thus, he remains silent and despite having an institutional monitoring device to evaluate development activities, the issue remains unaddressed.

In the last couple of decades, natural hazard events have increased dramatically and in 2004-5 climate-induced casualties have increased by 18% in the world as a whole (Baumwoll, 2008). Statistical, satellite and observational data suggest that both the intensity and magnitude of storms will increase in the future as a result of further climate change. There are several issues like our engineered plants that need to be understood and addressed. Otherwise, what we have learned from our lived experiences will have no use. Besides, as I mentioned at the end of the last section, the government's 'build back better' slogan in regard to housing will suffer a substantial threat from uprooted trees and other flying debris. The houses might survive high velocity winds and a high water surge, but would they be able to avoid structural collapse due to fallen trees? Paul's (2010) survey shows that 61.54 percent of structural collapse was due to tree impact on those houses, which caused more injuries indoors during the Sidr event than outside.

Conclusion

The December 2009 Copenhagen Summit and the Durban Climate Change Conference 2011 were two successive attempts, which brought the whole world on to a common platform over negotiations to scale down the developed world's carbon emissions to a tolerable level and to claim funds for the losses of the affected poor and potentially vulnerable countries due to climate change. Certainly, this is a very good sign that such important issues are brought to the table where most countries, from the richest to the poorest, are acknowledging the risks and the need to act. Bangladesh, being hard hit by almost all sorts of natural hazards, especially cyclones and floods, is a leading voice as an ambassador of the have-nots. Though it is not yet certain whether the poor countries will be able to obtain their rightful claims or have some watered-down conditional offer from the developed countries, I often wonder if these poor countries have set sensible priorities for using any resulting investment. More important is whether the at-risk communities have any emancipatory participation in that governmental process. The first step of addressing the issue is to

understand the risk. In case of Bangladesh, cyclone risk is understood in a very simplistic and generalised way and efforts are vested around early warnings, building cyclone shelters, emergency relief distribution and rehabilitation programmes, which I elaborated on in the previous chapter. These efforts are so alienated from the at-risk community that they cannot bring change close to the promised level.

In contrast to the previous paragraph, community participation has become a gimmick word in GO and NGO interventions. To them, 'community' does not necessarily mean a group of people from all strata of the community. Here, the elite groups act and participate on behalf of the poor and influence development activities to serve their own interests. The government has sponsored several rehabilitation schemes, like partial house repair, freedom fighters' benefits, elderly allowances, widow assistance, disability grants, VGD and so on, to strengthen the capacity of poor communities. These schemes are fully controlled by the local elites, patronised by upper-ranked power elites. There are countless examples of rampant looting in several forms and I have described several of them in different chapters of this dissertation. Local UP members and the Chairman are responsible for making beneficiary lists under different schemes. A substantial proportion of the listed beneficiaries of those schemes are the elites themselves and their close associates. For example, after Aila, the government distributed 3000 taka per household for repairing partial damage of affected houses. This money was disbursed in phases. In the middle of January 2010, the government called for a list of 95 affected people at Gabtola. One of influential local supporters of the present party in power, who contributed to making that list, informed me that 42 cards were distributed through the influence of the Upazila Chairman, 9 through a local Member, 4 by the female Member and remaining 40 by other local leaders of the Awami League. This distribution did not serve government's objectives, nor did it address community vulnerabilities. People inherit vulnerability by virtue of their poverty and weak social networks. 'Justice' is a matter for the individual charity of the administrator and is certainly not promised or delivered on the basis of rights.

In this chapter I have tried to explain the post-Sidr relief and rehabilitation schemes through the lens of i) knowledge – philosophical essence of relief and rehabilitation service and its reflection on ground; ii) power - practical aspects of political agency and control over resources as well as implication of knowledge; and iii) marginality – how at-risk people lose attention through knowledge-power interplay. Relief and rehabilitation schemes were provided with an attempt to achieve three gross objectives – i) pumping in money through cash reliefs and other aid schemes to support livelihoods and to rerun local economy; ii) helping people to build their infrastructure like home, roads and culverts; and iii) promoting social forestation which will support income generation and, hand in hand, will work as a green shield against future cyclones. All of these three objectives promise financial benefits in some way and, thus, are likely to be quite helpful to the affected community. Though theoretically it seems to be a well-rounded scheme, it fails for two major reasons – i) the distribution of this resources are very much power driven, which, as

described earlier, eliminates the grassroots who are outside the power loop; and ii) relief decisions are very much top-down and often lose their connection with the local context, like climatic condition, geomorphology, availability of resources, and so on. The following chapter will focus on land disputes through the same lens.

Chapter Six

Khas Land: A Lyric of Retention, Anxieties and Renewed Hopes

Chapter Six: *Khas*[23] Land: A Lyric of Retention, Anxieties and Renewed Hopes

Introduction

My first appearance at *Mazer Char* was with Friendship, a national NGO who were operating a comprehensive rehabilitation project all over the island following the devastation of Cyclone Sidr in November 2007. It was an ordinary morning early in October 2009. I was accompanying a Friendship team, who intended to distribute fertilizers among the local farmers. Instead of giving equal amount of fertilizers to every beneficiary, Friendship allocated according to the area of cultivable lands they farm. After a one and half hour boat trip from Friendship's local office, when we arrived near the *Mazer Char* outlet, we had a very warm welcome from onshore with cheery waves and very informal exchanges of greetings. Being a new face to them, my details were enquired from my Friendship colleagues, whom they supposedly knew quite well after the previous two years of interactions. I was very happy to see such an informal donor-beneficiary relation, but my first impression was immediately upset when the Friendship list of land ownership was challenged by a group of their beneficiaries. Friendship had maintained a land ownership list according to the land registration record at the local land revenue office and they harmonised the amount of their fertilizer offer with the volume of land they had according to the local land revenue office record. But the recipients were now challenging that list and claiming enough fertilizers for the lands they have control over. Friendship's rigidity on their 'legitimate' land ownership list, as of the land revenue office record, fuelled the beneficiaries' anger. It was chaos – everyone was heatedly shouting to others to make sure that they were listened to, some were even louder to calm others down and, seemingly, no-one was paying any attention to what others were saying. Finally, after talking to their head office, the Friendship team postponed fertilizer distribution for that day and rescheduled the event for the following morning. What I glimpsed through that event was that land disputes were not a separate issue from disaster intervention; rather they seemed to have a direct connection with the post-Sidr rehabilitation programme. Through time, I started unwrapping this issue and how it had a huge impact on people's lives at *Mazer char* and Sonatola Model Village, two of my field sites.

As I was introduced as an independent guest who was researching the effects of the cyclone, I was not of any interest among the fertilizer recipients. So, it was possible for me to

[23] *Khas* land is common property acquired by the Ministry of Land to lease out among the landless poor community. This chapter only deals with a particular type of *khas* land formed through fluvial depositional processes. Under the amendment of the *Alluvium and Diluvium Land Laws* (PO Order no. 15/1994), a newly appeared *char* is brought under the ownership of the Department of Land. According to the *Policy of Distribution of Khas Land among the Landless*, adopted on the 1st July 1987, *khas* land can be allotted to extremely poor farmers who possess less than half an acre of agricultural land per household. However, the policy does not seem to be reflected in practice on the ground (Alim, 2009; Barkat *et al.*, 2000; Barkat 2000; Barkat and Roy, 2004).

observe the whole event without any interruption. Throughout my time there, I was naively trying to understand the mismatch between land ownership by registration and having practical control over it. To me, this was far more complex than what I learned about land disputes from anecdotal personal experiences and academic scholarship. It has been seven years since my father passed away and still my mother, me and my three brothers have maintained a combined family and I have never thought to explore my parents' property records to know what I would inherit from them. Though I saw many cases of the use of muscle power to gain control over land even within my neighbourhood, this tended to be over abandoned or unoccupied land. Apart from my personal experiences, I read about land disputes in the academic literature, notably, Alim (2009), Arens and Beurden (1977), Barkat *et al*., (2000), Barkat (2000), Barkat and Roy (2004), Hartmann and Boyce (1983), Lewis and Hossain (2008) and so on. All of them talked about the history and political economy of land management in Bangladesh, and how the power elites have legitimised their control over land. But, both at *Mazer Char* and Sonatola Model Village, the contradiction between *de facto* and *de jure* ownership of lands seemed to be unique and certainly different from any of my own readings and experiences. Moreover, this was the first time I felt some urge from inside to understand how different actors operate in a land dispute process. The more I started listening to them, the more it became complicated through revealing several facts; such as – (i). Though, on legal grounds, only a landless person is eligible to receive *khas* land, this is not always the case. Several *char* dwellers have other land assets on the mainland. Yet they moved to and are living on *Mazer Char* in order to maintain control over the land they have obtained. (ii). Some elites have *de jure* control over substantial amount of lands, despite living onshore, and are called absentee landlords. In many cases, their lands were occupied by landless char dwellers who tend to deny the absentee landlord's ownership and have striven hard to claim control for themselves over those lands. Both the absentee landlords and the *char* dwellers have been trying to find a suitable solution for a long time, but several of their attempts have failed as the middleman has always made some chaos. (iii). Many *char* dwellers have been offered and have received *khas* land on more than one occasion within *Mazer Char* and outside. Nevertheless, they are putting all their efforts into getting control additionally over the disputed land. (iv). Some people, who received *khas* land before, sold it off and have now registered themselves as 'new landless' and have been seeking to receive *khas* land again. (v). The land revenue office has received tax from two different persons for the same land and tenure which gave both of these taxpayers similar agency to claim that particular land. Thus, the government's carelessness, corruption, exploitation of power, along with a network of absentee landlords, and the *char* dwellers' helplessness, anxiety, greed, frustration, and so on, have together made the situation extremely complex. I was quite convinced that understanding this big puzzle in one visit was impossible. So, on that day, I only listened to them, as if I was trying to help some of them to release their anger and frustration. What I briefly gathered is their hardship through a long prevailing land dispute. I still can hear the deep sigh of Syed Munshi, who then went on to summarise one of my research foci in a few words – 'if I have to run the land dispute case in the court for another year, I will be bankrupt and will have to leave this place'.

Land Disputes and Disaster

Though land disputes have been discussed as one of the development constraints in the literature on Bangladesh, they have not to my knowledge been contextualised in a post disaster development scenario. After a detailed survey and review of governmental documents, Barkat and his colleagues (2000) estimate that there are 3.3 million acres of total identified *khas* land in Bangladesh, of which 0.8 million acres are agricultural *khas* land, 1.7 million acres are non-agricultural *khas* land, and 0.8 million acres are *khas* water bodies. There is also a huge amount of unidentified *khas* land, which is unpredictable as there are significant gaps and confusions within different government land record registers. A justified distribution of these lands to 2.2 million (according to the 1996 Household Survey) of landless people could change the development picture in Bangladesh. Unfortunately, more than half of those lands have not yet been distributed and most of the undistributed *khas* lands are under the direct or indirect control of power elites. In the case of the distributed lands, the *de jure* owners have partial or no control over more than half of lands. Barkat and Roy (2004) dismiss governmental claims of having distributed 0.8 million acres of agricultural *khas* land among 44 per cent of poor, landless and destitute households. Their study reveals that 20 percent of the distributed *khas* lands are legitimately under the control of opportunist powerful landlords. However, by virtue of their power, network and other social capitals, they have *de facto* control over 88 per cent of distributed *khas* lands, whereas the real landless control only 12 percent of the *khas* lands distributed so far. Again, maintaining control over possessed lands is not so easy for poor people. For instance, Mannan, a poor peasant at *Mazer Char*, had lost his home, crops, cattle, and everything in Sidr. He then has been provided with a home, petty cash, food, basic kitchen accessories, a cow, seeds, fertilizer and many other things as a free relief package so that he can begin his life again. Unfortunately, two years on from Sidr, he has spent about 200,000 taka (approximately £2000) to run a land dispute case in the court and the case has not yet been resolved. The money that he has spent in the last two years on this court case is triple his total financial loss from the cyclone Sidr and double the purchase price of the disputed land he bought. Still he does not know how much more he will have to pay. If he had not had to pay for the case, he would have been able to get back on his feet without having any relief, or with only a basic relief service to survive after the primary shock. But now he has stopped his teenage son from going to school in order to cut costs, he has sold all of his wife's jewellery, he has borrowed money from relatives and friends, and he still does not know if he will eventually win the case. Whether he wins or not, the burden he has already shouldered will linger for many years to come. Any natural hazard over this period of time will make his situation even worse. In addition, any endeavour of understanding his exposure to a would-be extreme natural event through the lenses merely of the natural hazard will give a partial and incomplete picture.

Land disputes and natural disasters, despite both having the ability to produce vulnerability, tend to be separately pigeonholed. As I mentioned earlier, land disputes have been dominantly

discussed from a standpoint of political economy (Arens and Beurden, 1977; Barkat *et al.*, 2000; Barkat, 2000; Barkat and Roy, 2004; Hartmann and Boyce, 1983; Lewis and Hossain, 2008). However, natural disasters like cyclones, floods and so on are framed through physical hazard measurements, which I described in an earlier chapter. Wisner (1993) strives to bridge the gap between the two by explaining how marginal people are ignored through disaster interventions and forced to live in even more vulnerable situations. Land disputes are one of several other causes, at my field site, responsible for producing socio-political, economic and ecological marginality.

Land disputes, as a drawback of building disaster resilience, have been ignored or often bypassed and discounted by development organisations working at this location. For example, after cyclone Sidr, Friendship brought in funds form the British Business Group in Bangladesh (BBG) to make *Mazer char* into a model coastal village. They stayed in the char for several months, conducted a detailed household survey and needs assessment and finally came up with a proposal for cyclone-proof housing, and the distribution of all possible agricultural and livestock support, improved water and sanitation situation, and medical support. They entirely ignored the issue of land disputes, which they were aware of from the very beginning of their intervention in *Mazer char*. They even failed to accomplish a significant bit of their housing plan because many people had settled on disputed lands and so homes could not be built for them. I was very inquisitive to know why resolving land disputes had not been in their priority agenda. Their reply to me was that the land disputes on *Mazer char* were a very complicated issue, which needed to be handled politically, and if Friendship had striven to take any initiative, they would have been politically constrained from providing all of the services that they had offered so far. In fact, there are several other NGOs in Bangladesh, such as, Uttaran, ALRD, etc., who are working on *khas* land rights and this issue was not of Friendship's focus. Moreover, as described in Chapter Four, disaster rehabilitation and resilience building are thought to be separate from everyday issues, such as land disputes. Friendship gathered some household details through a household survey, which helped them in constructing a traditional image of the socio-economic status-quo of the beneficiaries, but camouflaged their everyday challenges behind that illusion.

People who live in, or are pushed to, marginal places in Bangladesh often have a story to tell of being uprooted elsewhere by a natural, economic or political process. Hartmann and Boyce (1983) have drawn some accounts of such struggles, where impecunious people moved to abandoned lands to try to recover their fortunes. Their research was on a rural peasant society where no other economic opportunities were available. Nowadays, after being made destitute by a natural disaster, many unfortunate people move to the big cities for work. Attempts to stem this tide were reflected in the ruling political party's winning election manifesto in 2008 (Alam *et al.*, 2011), where it was promised that '*all measures will be taken to protect Bangladesh – including planned migration abroad – from the adverse effect of climate change and global warming*' (Awami League 2008 election manifesto, page 21, 2nd paragraph). But, what these politicians have not considered are six important points. (i) It is not only natural disaster that make people destitute, but also other

everyday vulnerabilities which have equal significance in making marginal people the ultimate sufferers; (ii) not all people can move – they need basic financial support, contacts at the new destinations and, more importantly, a push factor removing any ties with their old home, and their roots; (iii) I met many people who are temporary economic migrants. They go away to explore job opportunities for a time and then come back. Those who live far away for work always keep touch with their roots. Nasir, a *Mazer Char* habitant, became a very good friend of mine during my fieldwork. He accompanied me all the time while I was stationed at the *Mazer Char* cyclone shelter for two months. The main reason for choosing him as my main mentor at the *Mazer Char* was that he did not belong to any of the two disputed groups of the island, rather maintaining good relations with both. Also, Nasir is quite popular within the community for being very helpful to everyone. Once, in a discussion about the adverse politico-economic climate of this place, I asked him whether he would prefer to move out to a more promising place if he could afford to sometime in future. He replied very boldly, 'why should I? This is my home'. This kind of essence of 'home' was commonly echoed all through my interactions with my respondents. (iv) People, who stay put, run their lives through all sorts of exploitations, disputes, deprivations, power struggles, ignorance, neglect and so on. (v) Coastal people are heavily dependent upon a subsistence agricultural economy and thus land is a very precious resource to them. (vi) Everyday sufferings through land disputes make a person mentally and economically weaker and any natural hazard, on top of that, makes the situation even worse.

Alam *et al.* (2011) hint that eliminating people's everyday vulnerabilities helps the policy makers to follow the new fashion of framing natural events within the knowledge paradigm of 'global warming'. My fieldwork tells a different story, which, rather, echoes Michael Watts's (1983) contribution, '*Silent Violence'*. In this important book he mentions that '*all climatic phenomena have social referents which are historically specific forms of society*' (p. XXII). His main focus was on understanding social dimensions of drought, which eventually helped him to reveal the process of the social production of famine. He shows how rhythms of peasant's subsistence consumption started missing beats through the unfolding of capitalism and, as a corollary, famine out broke. Ingold (2000) explains such issues from an ecological stance. He thinks that human beings simultaneously play dual roles as biophysical and socio-cultural agents, as organisms within systems of ecological relations and as persons within socio-politico-economic relations. In short, I would contextualise the theme in the present chapter as – land disputes emerge as a socio-cultural challenge; affected people engage with it, lose their strength by confronting it and are left with little power to withstand a cyclone.

In the previous chapter, I explained how patron-client networks, which are widely linked with national partisan politics, marginalise and deprive people from outside their loop. This chapter will elaborate another form of marginalisation, through land disputes and the distribution of *khas* land resources. Following a dreadful cyclone like Sidr, while NGOs and government agencies are putting in tremendous efforts to get devastated people back on track economically, they often

ignore land disputes as important pitfalls, holding people back and providing an obstacle to their development. Therefore, this chapter will explore how a piece of land became the centre of a squabble. In addition, it will demonstrate how land disputes are linked with other means of development and it will draw upon examples from two field sites, both plagued with land disputes. Between these two sites, *Mazer Char* has a several decades' long history of land disputes. In contrast, Sonatola Model Village is quite newly set up, but sadly contaminated with land disputes from birth. Following Wisner *et al.* (2004), Bankoff (2003; 2004), Watts (1983) and Ingold (2000), I think, understanding doggedly recursive phenomena of land disputes in these two field sites needs to adopt a historical perspective. Therefore, I begin with a historical account of land disputes at my two field sites and then explain how the disputes have emerged and sustained and their links to other development efforts, particularly after cyclone Sidr.

Mazer Char – A Limbo of New Dreams, Struggles and Renewed Hopes

The famous Bengali writer Manik Bandapaddhay (1908-1956), in his great novel *Padma Nodeer Majhi* (Fishermen of the Padma River) (1936), gives a very detailed narrative of everyday life of a fishing village by the River Padma. The central character of this novel is Kuber, a poor fisherman. The novel tells us how poor fishermen are exploited by loan sharks through an account of Kuber's life, loves, sorrows, social relations, complexities, struggles, exploitations, agonies, renewed hopes and so on. Kuber, being strangled by everyday sufferings, eventually gives up his hope at this location and strives to seek his fortune by moving to a utopia, a new island further down the delta. Almost all the 170 families living in *Mazer Char* have a challenging past like Kuber. They or their parents moved to this island with new hopes.

I do not have any hard evidence to say when the *Char* emerged as dry land. I talked with a few elderly villagers at Gabtola, situated at the western bank of the Boleshwar River, who saw the island rising when they were kids. From such anecdotal evidence, it is about 50-60 years old. At the beginning, the *Char* surfaced at low tide and was submerged at high tide. This game of hide-and-seek ran for years and gradually a vivid grey scar of landmass become prominent above the water surface. Slowly primary mangrove grasses and wild bushes wrapped themselves around the entire island. At that time, *Mazer Char* was popular for grazing cattle. Rich families used to hire cowboys to graze their cattle. The hard, sharp and spiky edges of grasses were very unwelcoming and resisted any human invasion. Chan Miah's father was injured and his left eye was damaged by a poke from one of these mangrove grasses. Gradually the cows' strong hooves made tracks through the thorny vegetations and let humans push in. Chan Miah's and Sattar's fathers were the first two persons to move in. They cleared a portion of the land and prepared homes and agriculture.

Somed Mollah moved in to this *Char* in the late sixties when there were only seven families living here. He and two of his two younger sisters lost their mother when he was only six years old. Their father got married to another woman soon after that. They were not welcome in their

stepmother's new family and soon became separated under different surrogate parents, who were distant relatives from their mother's side. Somed's life became no better than drift wood, floating from one place to another without having any clue of its end. He finally anchored at *Mazer Char*, at his father-in-law's place after getting married.

Somed's father-in-law, Bablu, moved into this village just a couple of years before Somed got married to his eldest daughter Jomila. Before coming here, Babul and his wife, Nosimon, with four daughters and two sons, had lived in a village about 50 miles to the south. Babul had worked as a day labourer and Nosimon and Jomila had earned wages by working as maids at rich farmers' houses in their village. Babul and Nosimon had no agricultural land but they had the enormous mental pressure of wondering how they would save some money to pay dowries for their daughters' weddings in the near future. They did not have their own house and had lived in a rich farmer's abandoned place. One day Babul met a close relative of their landlord, Sultan Chowkidar, who lives in a mainland village very close by the *Char* and has very good connections with his local administrators and politicians. Sultan Chowkidar offered them a small piece of land at *Mazer Char* for a little amount of money and thus they came over to this place with many hopes.

For the first few years that people started settling on the *Char*, these were common stories amongst the unfortunate incomers. But their extremely resilient determination and enthusiasm to reverse the wheel of fortune has given new lyrics to their lives. They had land to grow crops, fields to range cattle, water tanks and river to fish, and so on for their living and selling the surpluses. But the *Char* soon came to the attention of the land mafia, who live safely onshore and have substantial economic and political capitals to increase their assets through invading newly emerging lands. There soon began a number of struggles.

In 1965, the government decided to lease out ninety acres of land in thirty small plots of three acres each. The fee per plot was determined at 1500 taka, which ought to have been paid in equal instalments. People living at *Mazer Char* hardly knew about this. The Mridha group took eighteen plots and the Mosleh Uddin group took the remaining twelve plots. I will focus more on the Mridhas as their eighteen plots of total fifty-four acres of land eventually became the centre of all the disputes. The Mridha group was locally very powerful. Out of eighteen landholders, eight were from Mridha siblings and their cousins, eight were from their power elite network loop and only two were landless peasants from *Mazer Char*, namely Chan Mia and Sattar Pottor. In the following year, another ten plots were leased out but none to people from the *Char*. Other than the two settled leaseholders at the *Char*, everyone used to sell naturally grown *sone*[24] of their lands on a seasonal basis. A few of them also let poor peasants to move into their land as sharecroppers. Until

[24] *Sone* is a naturally growing long grass used for making walls and roofs, after being dried. Still there is a huge demand and it is a very common feature in rural parts of Bangladesh, especially for building the kitchen, which is separate from the main house. As they are very light, *sone*-made roofs and walls are easily portable and useful for protection from the sun, particularly in summer.

independence in 1971, all of the leaseholders paid two instalments of rent, except for the Mridha group. In 1972, by dint of a government ordinance, known as the 552 *bhusha*, the new administration of the newly independent Bangladesh cancelled the land settlement registration of tax defaulters, who had paid in only one instalment so far. Thus, the Mridha group lost their *de jure* ownership over those lands. However, this was not the end and the Mridha group did not give up. They kept looking for an opportunity.

During the latter part of the 1970s the number of landless immigrants started rising significantly, which coincided with the post 1974-famine migration. Barkat et al (2000) finds 22.5 percent of landlessness was created through the 1970s. But I do not have any authentic evidence to say if this was the cause for them to move into *Mazer Char* during that period. The Population Censuses of 1974 and 1981 did not cover *Mazer Char*, so we have no clue of migration trends over those years. However, I already mentioned a few of their stories of being uprooted from their previous place, which certainly explains the level of their desperation. They might have had diverse reasons for migration, but their commonalities emerged through a general consensus of deep-rooted rights over the piece of land they had been holding. This land gave new hope of forgetting their devastating past and new inspiration to look forward to a new life. Their rights over land on *Mazer Char* have not been documented in any policy précis; rather there developed an aggregated connection between people and the *char* derived through their lyrics of life on that land.

Life on the *Mazer Char* is full of challenges, obstacles and struggles. Any appearance of a hurdle in their lives seems normal rather than a distraction. The Mridha group were apparently silent, waiting outside for opportunities to sneak in, since the 552 *bhusha* ordinance in 1972, which cancelled all their land registrations in *Mazer Char*. However, the *jotdars* (big land owners) emerged as new challenge to the settlers. These *jotdars* had substantial money and power, which they often used to evict others. The *jotdars* used to appear on *Mazer Char* at harvest time with a gang of musclemen and took away all the crops. The settlers were small in number, scattered and very weak against the *jotdars*. They often used to seek refuge on a nearby mainland, Betmore, where many of them originally came from. The power elites on Betmore thought to install more people on *Mazer Char* to increase their strength and they often chose their poor relatives. In one way, this strengthened their power base on the *char* and, in another way, increased the number of *char* dwellers overall, which gave them strength to resist the *jotdars*. Once the problem of the *jotdars* was over, the Mridha group again came back. It was in 1986 when the Mridha group appealed against the 552 *bhusha* and won. This time they came with *de jure* ownership over 18 plots. As the *char* dwellers were more united than before, they filed a case against the 1986 injunction at the District Commissioner's court, where a decision was given in favour of the *char* dwellers. Both parties focused on a legal solution and the case flowed from District Judge's court to the Supreme Court through the Divisional Land Revenue Court and the High Court. This went on for another 5-6 years. On top of this legal battle, the Mridha group also used the police administration to harass the *char* dwellers on several occasions. Meanwhile, there were several attempts to resolve the dispute

through a *shalish*[25] settlement and distribution of *khas* lands among landless peasants but none of these worked because they were just for temporary reconciliation. For example, in 1989-90, the then administration distributed new *khas* lands among the landless peasants to persuade them to withdraw from fighting over the disputed lands. Other than four of these distributed lands, all were in the forest or low-lying marshlands and the poor peasants never had control over those lands as they were under the jurisdiction of the Forest Department.

Up to 1992, 14 cases were filed against the *char* dwellers. It was very difficult for them to cope with this legal battle as they had already spent a huge amount just to stay in the fight. Nor were the Mridha group keen to go to law, as that was not value for money. Besides, until 1996, all the court verdicts were in favour of the char dwellers. After the decree from the District Court in 1996, the District Commissioner's office carried out a detailed land survey on *Mazer char*. But they did not have an old map to cross-reference those plots through overlaying, which is a must-do bureaucratic procedure before registering any land. The Mridha group grasped this opportunity and they came up with a win-win proposal – from every single plot, which consists of 3 acres each, one acre of land would be given to a landless family and the other two acres were to belong to the individual from the group. The *char* dwellers bargained that the Mridha group would have to make a deal only with the *char* dwellers if they want to lease out or sell their two-thirds share, which the Mridha group accepted. Everybody welcomed this proposal. This was settled in a *shalish* where everybody agreed and Sultan Chowkidar was given the responsibility to distribute the lands. For the *char* dwellers it was a getaway from a worthless losing battle, for the Mridha group it was an easy compromise and for the government administrators it was a relief from some extra hassles. Unfortunately, the proposal appeared as a spark of hope but that was very short lived. Though the rest of the members of this group, including two from the *char*, willed one-third of their *khas* lands; the main eight members of the Mridha group, six siblings and two of their cousins, only verbally agreed, but never put pen to paper. Rather, they sold off two-thirds of their *khas* lands to people both from outside and inside *Mazer char*. Above all, the agreement had given the Mridha group a legitimate ownership over those disputed lands.

Until this resolution, the whole of *Mazer char* was united against the Mridha group and *char* dwellers shared their sufferings together. But the resolution turned into a divide-and-rule policy to them. In one phase, the Mridha group favoured some people by giving one-third of their lands informally and allowed them to lease control over the rest of the land. Syed Farazi, who fought against the Mridha group for several decades, thus became their main beneficiary as well as a representative of the *char* dwellers. In another phase, Sultan Chowkidar, having much unmonitored

[25] *Salish* is a local court system, legitimated by the constitution, where elites settle local disputes. Generally, in any disputed situation, both the groups call upon a few local elites to talk on their behalf. These people are called *Salishdar*. *Salishdars* sit together, argue in favour of their clients and agree upon a final decision which the disputing groups abide by.

agency of distributing the willed properties, deprived several landless peasants by giving a few of those lands to people in exchange for bribes. This fuelled their anger and Emadul Haque took this opportunity to mobilise their frustrations. Thus, *Mazer Char* became divided into two groups – in one group Farazi represents the Mridha group's interests and in another group Emadul speaks for the landless *char* dwellers.

Though the land dispute began on 54 acres of land, which is almost one-third of the total agricultural land of *Mazer char*, it spread like a cancer and contaminated the whole community and fragmented them into these two groups. People assumed that the dispute would be over after the resolution, and they happily bought land and so stepped into a fire. Though they were fighting for decades for their rights over these khas lands, now they had to merge with the Mridha group, under Farazi's leadership, to hold on to their rights over the lands they had just bought. Other groups, who received khas land at the same time as the Mridha group, had a certain trepidation over the legitimacy of their land-ownership being questioned and thereby losing their land. Therefore, they felt safe on the side of Farazi. On the other hand, people who felt they had been cheated went to Emadul's group. Emadul, who worked in the Forest Department and now moved to his father-in-law's place on *Mazer char*, is very vocal and quite educated in comparison with others on the char. In contrast, Farazi never went to school. He and Emadul were close allies and before they parted company, like many other of this char, he used to get help from either Emadul or Sultan Chowkidar to read documents. After becoming rivals, those people who sold off their land to address other practicalities and became landless joined Emadul's group. Now the dispute moved from court premises to the char land, between siblings and close kin. For example, Halim supports Emadul, but his father-in-law is with Farazi. It often became violent and sometimes created overwrought situations. For instance, Syed Munshi secretly moved to a relative's home and was falsely said to have been murdered. Thus, anxieties and challenges are part of daily life like the tidal phases. The landless group in a way had accepted their fate until cyclone Sidr washed through the char.

After cyclone Sidr, Friendship received funds from the British Business Group to make this char a model coastal village. This effort brought the then British High Commissioner in Bangladesh, Anwar Chowdhury, to the char. When he talked to the char dwellers, Emadul told him that the char dwellers were landless and if they had died in Sidr, they would not have had any place to dig their graves. The High Commissioner was so touched by this plea that he asked the District Commissioner, who was present in that meeting, to resolve the land dispute issue. Being pushed by such a high profile diplomat, the district commissioner immediately became alert to this suppressed crisis. He declared the disputed 54 acres of land as *khas*. This time, Farazi challenged the District Commissioner's decision in court on the following points:

1. As lands were redistributed following a *shalish* decision, that gives Mridha group's lands unquestionable legitimacy;

2. He and many others who received one-third of lands from the Mridha group and bought from the rest have paid land revenue on those lands. They also received loans against those lands from different micro credit enterprises. How could the government legitimate its revenue collection without de jure ownership of the land? How could their loans get sanctioned if they had fake registration of lands?
3. Farazi refers to a few of Emadul's group who received one-third of lands from the Mridha group, including Emadul's father-in-law, who then sold off those lands, declared themselves as landless and received *khas* land from elsewhere on the mainland. How could they claim land again?

In counter of Farazi's argument, Emadul responds as follows:

1. Though everybody agreed upon the *shalish* decision, this was not implemented properly and as a result Sultan Chowkidar had to pay 65,000 taka (approximately £650) as a financial penalty. The full implementation of the *shalish* decision was breached which undermines the *shalish*'s authenticity;
2. Two persons from the char, who are also among the 18 members of the Mridha group, received *khas* land at Volmara, on the main land. Besides, Farazi and a few of his present allies have been enlisted as new recipients of *khas* lands. Eligibility to hold *khas* land is only possible where the person holds no more than 1.5 acres of agricultural land.
3. The *khas* lands they received were either forest domain or unusable marshlands, which makes no sense to them.

Once the case again went to court after the High Commissioner's intervention, the local Member of Parliament stepped in and tried to resolve the issue through a *shalish*. Nine members of the *shalish* team, headed by Mr. Farukuzzaman, the Chairman of the Mothbaria Cooperative Bank, led attempts to resolve the land dispute of *Mazer Char*. From the team, three were nominated by the Farazi Group, three by Emadul Group and the remaining three were neutral. This *shalish* began at around the time of cyclone Aila, in May 2009. The *shalish* committee suggested deposits of five thousands taka (approximately fifty pounds) per acre to them for each harvesting season until the case has been resolved. The plan was to give the money to anyone who the *shalish* decides to be the legitimate owner of a disputed plot of land. When they began, they also promised to settle the case before the following harvesting season, which they failed to do. Accordingly, parties were asked to deposit money at the previous rate if they intended to harvest in the forthcoming season. Over two seasons, approximately a quarter million taka (around £2500) were deposited with the *shalish* committee. When I first arrived here in October 2009, northerly wintry breezes were swishing over ripened bunches of paddy, the second harvesting season was passing by and farmers were anxious to hear some result from the *shalish* committee. This was because with every day of delay they were losing some ripened grains as they were dropping off the plants. It was not only the grains that they

were losing, but they are also being delayed in preparing their fields for the following cash crop season. As the developments of crops require different climatic condition at different stages, it is essential to sow them at the right time. Otherwise, the farmers cannot have optimum production from their lands. In this case, therefore, every day of delay had an effect on the following crop. It took the committee a month to declare their failure to come to any conclusion and they ordered the farmers to deposit money if they wished to cultivate in the cash crop season.

Many people from *Mazer Char* believe that the *shalish* committee did not resolve the case intentionally. But none of them feel able to challenge the committee even they did not have any control over the money they deposited. I asked one of the depositors what happens if he does not get his money back from the *shalish* committee. He replied with a big sigh, 'I do not have any power to fight against them'. At the time of writing (July 2012), the deposits collected from the *Mazer Char* farmers have not been repaid despite the lack of resolution, in the third year. My identity as the student of a British university gave them hope that I might have some connection with the BBG and perhaps access to the British High Commissioner, who they think has substantial agency to resolve this issue. Recently (September 2011), through a mobile phone conversation with my respondents I came to know that the whole char community had united under Emadul to support him winning a seat as a Ward member in the latest Local Government elections held in July 2011. Emadul's promise was that, if he won the election, he would settle the issue between the two groups on *Mazer Char*. Despite fully-fledged support from the Char, he lost by a few votes and the dispute continues.

For now, I want to draw two theoretical implications from the history of land dispute at the *Mazer Char* – (i) the idea of community, and (ii) legal liability. From sparse groups of a few individuals to more than one thousand people, communities are ever-evolving and changing shape like an amoeba and going through both a constructive and a destructive metabolism. As Bennett (2010) describes, individual bodies are pulled together in response to an emerging problem, which is contingent and fluid, and very much related to the evolving challenge. Similarly, abjectly displaced people from different locations have drifted to the char when this place was far below the canon of habitability. They hardly knew each other and have not had any sense of kinship or community among themselves. Firstly, they were united against the absentee landlords and *jotedars*, again divided for their survival and reintegrated for their continued existence. The char dwellers together form a shape, split into more than one portion and reappear as a different shape with a new combination of individuals. Each shape, here referred to as a community, appears and dissolves to serve the purpose of survival. They have survived through the land dispute saga as a result of being resilient. Their continuous engagement with the problem has given them socio-cultural skills to get by through continuously reorganising among themselves. During my fieldwork (10/2009 – 04/2010), I saw that people at *Mazer Char* were sharply divided between the Emadul and Farazi groups, while in the 2011 local government election, Emadul contested for a Ward membership, where the whole char was united behind him. This was not because *char* people wanted Emadul to

represent them necessarily but rather because Emadul insisted that the Farazi group support him if they wanted Emadul's cooperation to resolve their land dispute. Emadul lost in the election and the split between two groups reappeared. As the story unfolds, they are getting by such a complex dispute on a quotidian basis, which they are not responsible for. That responsibility is to be found in the upper strata of the local power pyramid, amongst actors who usually remain invisible. Instead the people who bear consequential pains are made responsible for everything. I observed such reflection in two former UNOs (of Mothbaria) voice, who had affiliation with this land dispute case, and both of them refused to talk about these 'worthless' people. If we reflect back on the story, we will see that the entire scenario would have been very different if the governmental agencies had strictly enforced the 1972 verdict, where all of the former settlements in favour of absentee landlords were abolished. Thereafter, government-sponsored disputes went on and on. Instead of resolving the issue or making any real effort to understand local disputes, government distributed new lands from different governmental departments' jurisdictions, lingered over court decisions, and never stood by the char people when they needed support, all of which has jeopardised and deteriorated the situation. In short, *Mazer Char* is an example of a persistent land dispute triggered by the agency and incompetence of the institutions of governance. By way of contrast, the following section will illustrate how partisan politics have been controlling resources by influencing the agency of *khas* land.

Sonatola 'Model' Village: Another Emerging Land Dispute

The emergence of the land on which the so-called Sonatola Model Village now sits, followed similar fluvio-geomorphological processes to that of *Mazer Char*. It is a depositional feature in a meandering river bend of the Bhola River, which falls into the Boleshwar River near the south tip of *Mazer char*. The Bhola River draws the boundary between the human settlement and the Sundarbans. Previously the very last visible human footprint was the earthen embankment at the eastern riverbank but over the last two decades the river has shifted several hundred metres to the west. The newly emerged land between the embankment and the eastern riverbank has been gradually rising above the water surface. Ruhul Amin was one of first to move to this place 15 years ago. He had been evicted by his uncle after being orphaned at the age of seven. He drifted around many places and finally settled on this land through marriage. There are now about 30 families on this newly emerged land who share of some of the common past difficulties described in the *Mazer char* section.

Like on *Mazer char*, the people who moved to this new land set out on their journey with a dream of altering their lives. However, the power elites also sought to capitalise on this new land for their own interests. Instead of grasping the landed property, they sought to use it to strengthen their political hold, in order eventually to give them more control over resources. The battle was between two power groups. The first group was headed by Anwar Panchayat, a former UP Chairman from 2001-2008 and the Upazila BNP General Secretary. Ismail Khalifa was his

opponent, who is also a former UP Chairman from 1991-96 and a senior AL leader at the Upazila level.

In 2004, when the BNP was in the government and the AL was the main opposition, Anwar Panchayat came up with a proposal to develop a model village on the alluvium. According to the proposal, as he mentioned in an in-depth interview I had with him, two hundred landless families would be rehabilitated on that land and there would be six fish tanks which would generate income for those families. Under the alluvium diluvium land law (see footnote 23, page 100), the Department of Land (LD) was the owner of that land and the Assistant Commissioner of Land of the Upazila held the executive authority to maximise the output of that land. By virtue of both political and administrative agency, it was much easier for Anwar to portray potential in his proposed project. But, in reality, his selection of the landless households would be only those likely to support him to win the next election, particularly his party activists. In total, 210 families were rehabilitated by the Sonatola Model Village project, a total of 453 voters, almost one-third of those in a standard size Ward. Therefore, eligibility of having a plot at Sonatola Model Village was not judged on the basis of landlessness and extreme poverty situations, rather it informs the present inhabitants connection with the then power elites during that time. Thus, Aziz Mollah, Anwar's own brother-in-law, became one of the recipients, who does not live locally and has substantial landed properties in different part of the Upazila. Besides, although the six fish tanks were meant to support income generation of the inhabitants of the model village, all of them were leased to Anwar as a means of increasing his wealth.

Ismail Khalifa was not sitting tight, though his party was not in power. He mobilised the Forest Department (FD) and Bangladesh Environmental Lawyers Association (BELA), to act against the implementation of this project. Both the FD and the BELA had some environmental concerns in regard to conservation of the Sundarbans, which I will elucidate in Chapter Eight. According to the FD, their jurisdiction is up to the eastern bank of the river, which was up to the embankment. Despite the fact that the river has shifted quite far to the west toward the forest and demarcation of a new riverbank line has not yet officially been made, they are sticking to the previous boundary line. Based on this argument, they filed a case against the LD. The BELA supplemented the FD by taking this matter to the court on the plea that the establishment of a model village within such close proximity the Sundarbans would endanger forest conservation. Though all the allottees moved into the model village in 2004, allegations from the both the FD and the BELA stopped them from receiving any de jure ownership of the land they live in. But this did not stop Anwar and his few close allies from exploiting local resources. The dwellers of this village have neither *de facto* nor *de jure* ownership of the land they have lived on now for many years.

Figure 6.1: The white line draws the boundary between the sonatola model village and newly emerged land through river shifting towards the west. The raised earthen bank signifies the agency of power elites who are the *de facto* beneficiaries of these lands. These lands are now being used for shrimp cultivation.

Figure 6.2: The Sundarbans begin from the sharp edge of riverbank at the top. The eastern edge of the river is hidden by a high tide. The mangrove plants and raised earthen plinths in the middle hint at the proximity of the human footprint to the Sundarbans.

After a landslide victory in the general election, the AL formed the government in early 2009. The change in government was very discernible in the power dynamics of the model village. All of the six fish tanks, which were under Anwar's control, are now in Ismail Khalifa's grip. Aziz Mollah was consequently removed from his holding. Meanwhile, the river has shifted further to the west and land enough for another model village has surfaced. A few plots have been allocated to freedom fighter's families. Several influential AL leaders and their family members took control of some of these lands. Neither the FD nor the BELA has appealed against this new occupation of land though they are in closer proximity to the Sundarbans than the model village. I spoke to the regional office of BELA and they have not even followed up the case since it was first filed and nor

did they have any update on the land acquisition. The FD has not taken any further steps to stop the new settlements; neither has withdrawn its previous case against the model village project. As a result, the people who live there are coping with uncertainty.

Conclusion

Uncertainty is a condition of the *khas* land dweller's life, which they inherit innately, and they grow up watching, listening, feeling and confronting such risks and developing the skills necessary to go forward. Though this statement is most relevant to the *Mazer char* people, but is also significant to people living in the model village. Their experience of living on *khas* land may not be new, but they have been living a marginal life for a long time. Marginality may have a connotation of spatial proximity to nature, especially when my research talks about a cyclone impact at three coastal sites. It certainly has some connection with spatial identity. For example, on many occasions I heard people saying '*choura r jawra ek jaat*', a stereotype which labels char dwellers as mischievous. Such denigration resonates with the initial statement in this paragraph. People used to an uncertain lifestyle learn to be strategic and compromise their morality and ethics. For instance, in both the cases of *Mazer char* and the model village, people often hide their occupancies while striving to secure new opportunities, as they experience prolonged uncertainties over their possessions. Both the stories demonstrate evidence of continuously evolving 'transient reality' embedded in char dwellers' everyday life, which they solve with the options available to them. Such a spatial identity not only excludes them culturally from the mainstream of Bangladeshi society, but also politically they remain unheard.

In the *Mazer char* section, I described the people's sense of community, which is equally true in regard to the model village. At both the places, they form bubbles of community to engage with their 'transient reality'. These bubbles are short-lived, as are their everyday challenges. What they do not have is political representation within a power loop. Therefore, they engage with the power elites, like epiphytes, to serve their purpose. They change their membership of groups if the situation demands and they find another power elite serving their 'transient interest'. However, this is their tactic of everyday getting by. In return, they are often used by the power elites in their personal political and economic interests. For example, in Sonatola Model Village, Anwar Panchayat enjoyed tremendous political and economic prospects by providing many families with a piece of *khas* land. In doing so, the char dwellers step in as actors in the market.

Harris (2000) summarises peasants' economic role: '*the peasantry produces for a market, and is linked through patronage to the elites, and the politics of the system only recognises elite interests*' (p.22). In my case, if we consider *khas* land as a product, which only poor landless can claim for, we can begin to solve the landless-elite puzzle. The grassroots cannot challenge the system, as they do not have any political voice and the system is sustained by virtue of as the elitist effort to keep poor in the market system. Altogether this amounts to a vicious cycle. Cyclone Sidr was a drumbeat in that rhythm,

which created sudden uncertainty. Responses to the horror of Sidr connected wider actors, such as, donors, central politicians, media, diplomats and so on, with the local dynamics, and now previous issues, oppression, patron-clientism, the absence of rule of law and the unruly influence of power came back again. The *char* dwellers' land dispute as well as their marginality persists. Therefore, five years on after the cyclone Sidr, while many people of my field site have recovered from cyclone damage, *char* dwellers are still struggling because of land dispute. This has not only obstructed their coping from the previous cyclone event, but is also hampering their future economic potential to withstand any cyclone to come. I discussed the example of Mannan in Chapter Four (p. 73), whose economic loss in Sidr is significantly higher than his damage due to land disputes. In Sonatola, the picture is much bleaker. None of 210 households has received any housing assistance because of being on disputed land. The same has happened to 24 households of *Mazer Char*. Thus, ignoring knowledge of this specific aspect of marginality is prolonging their sufferings from both cyclone impacts and future responses to them. The following chapter will elucidate another case of marginality, this time in the fishing community.

Chapter Seven

The Tapestry of the Fishing Net: a Tale of the Boleshwar Fishing Community

Chapter Seven: The Tapestry of the Fishing Net: a Tale of the Boleshwar Fishing Community

Introduction

Liton is a 25 year old born in Mazer Char, a tiny island near mouth of the Boleshwar River and at the edge of the Sundarbans. His father lost their home and land to riverbank erosion and came to this new island soon after it formed as a stable sandbar. He watched his father fishing in the Boleshwar River, accompanied him since his boyhood, and has grown up as a fisherman. He has never gone to school and has no skills of cultivation. But he has enormous fishing experience both in the river and out to sea. Like many survivors of Sidr, Liton was aware of the forecast. Cyclone warnings are not new to him and he anchored his boats in a safe inlet at Mazer Char and took refuge in the cyclone shelter. However, it was beyond his worst nightmare when a twenty feet wall of water surged through his village. When the cyclone was over, Liton, along with the other survivors, found himself in the wreckage of a living hell. He did not find even a small piece of wood from his boats that he could recycle as firewood and he did not have any savings to reinitiate his fishing business. So he was fortunate to receive a boat and a net from an NGO and he managed a small amount of *dadon*[26] from his previous *mohajon*[27]. He started his business again with these small grants. Within a year, he had lost some of his floating nets when they became tangled in fixed fishing net structures. This loss was one and a half times the money that he had taken as *dadon* and it now became very difficult for him to sustain his activities while the fixed fishing nets (locally known as *dhora jal*) grew bigger and his losses become a regular event. Here, Liton represents almost ninety percent of the fisherman in the Boleshwar River. This chapter portrays their lives and strives to tie their stories up with the theoretical framework discussed in Chapter Two.

The above paragraph is a plain portrayal of a very complex picture of Boleshwar fishing community's everyday struggles and cyclone experience, which is unpacked in the following paragraphs through the lens of resilience. As I discussed in the main theoretical chapter (Chapter Two), disaster resilience encompasses the three major concepts of vulnerability, adaptation and sustainable development (Folke, 2006; DFID, 2011; Pelling and Manuel-Navarrete, 2011; IFRC, 2012), which unfold as – i) the ability of an individual or a group/system to absorb disturbance/change; ii) by maintaining or transforming living standards in the face of shocks or stresses; and iii) without compromising their long-term prospects. Here, vulnerability is one's exposure to risk and risk is a probabilistic expression of known-unknown threats. This is a game and a balance between exposure to, capacity against, and magnitude of unfavourable conditions.

---

[26] *Dadon* is a traditional conditional loaning system, particularly appropriate for the fishing business around the Bengal delta, which is explained later in this chapter.

[27] A *Mohajon* is a rural investor who gives *dadon* to poor fishermen in the form of cash, fishing nets and boats.

Triangulation of these three conditions explicates one's vulnerability. If I translate this idea into a natural calamity, risk is a likelihood that a hazard will turn into a disaster. Thus, risk becomes a function of vulnerability and hazard. This means, at a similar magnitude of hazard, that, if we can reduce the vulnerability, we will eventually lessen the risks. Vulnerability can be social, political, economic, infrastructural or even governmental, produced from incapacity. It also has a temporal dimension. On a short-term basis, when the level of impact is overwhelming and beyond local capacity to cope, relief and rehabilitation packages from outside, i.e. state and NGOs, enables them to return to their own life by generating income, which also depends upon the state's resilience to react to a local problem. Unless the intervening community understands the root causes of vulnerabilities, no rehabilitation package can be sustained for long. Again, on a long-term basis, infrastructural measures, structural adjustments, and other necessary precautions help us to cope with any future event as well as reduce the burden of relief-dependent livelihoods. This strategy is sustainable as long as we refrain from doing anything that causes environmental degradation or exhausts human ecology. Now, applying the concept to the context of the Boleshwar fishing community, their resilience following the cyclone Sidr should be judged in terms of their capacity:

i. To withstand Sidr's shock (overall preparedness enabling saving of useful assets and lives);
ii. To regain livelihoods (begin livelihoods with using entitlement bundle, i.e. assets, savings, aid, etc., taking lessons from the past experience and be better prepared for the future); and
iii. Without undermining self or other's interest as well as environmental degradation (avoiding overexploitation and helping reproduction of fishing resources, respecting others' legitimate rights to use resources).

These three elements of resilience are very much interrelated and the erosion of one can exacerbate the others (Folke, 2006). However, it is more problematic how the meaning of vulnerability, adaptation and sustainability is imagined and framed in a particular context. In Chapter Three, I gave the example of Anwar, one of my respondents, who had gone fishing despite knowing about the cyclone (Sidr) warning and understanding the associated risk, because assuring the next meal for his family had been his priority. An extreme economically challenged situation, such as Anwar's, may not be coherent with the bio-economic modelling (Hardin, 1968; Kibria and Ahmed, 2005; Mome, 2007) of sustainability. Jentoft et al. (2010) use two case studies of Bangladesh and Tanzania to explain the vicious cycle of poverty, vulnerability and resource distribution. They explain a gradual shrinkage in individuals' livelihood options, which leads poor people to dependency on nature and then to over-exploitation of it. Such a situation can create a collapse in the existing socio-ecological system and a new adaptive relation is created among different actors in that system (Folke, 2006). Pelling and Manuel-Navarrete (2011) identify four phases of an adaptive cycle and call it 'transformation'. From my ethnographic account, which involves living in a coastal fishing village interacting with the community, talking to fishermen, elected local representatives, local elites, NGO workers, associated government officials, political leaders and local journalists, and observing social, political and economic dynamics in regard to fishermen's livelihoods, this chapter

will elaborate 'transformation' through answering the following questions – who chooses fishing as a livelihood option (Ellis, 2000; Deb, 2009)? Is fishing a livelihood choice from many alternative options (Alam, 2001; Allison and Ellis, 2001; Béné, 2003)? Who are the actors operating in the local fishing economy and what are their power relations (Alam, 2001; Shamsuddoha, 2007; Deb, 2009)? How do those power relations affect fishermen's livelihoods? How do they respond to any adversity? How is the concept of sustainability linked to power relations, livelihoods and challenges (Jentoft, et al., 2010)?

This chapter challenges the bio-economic framing of sustainability by problematising the use of a particular fishing net, called *dhora jal*, in regard to its material effect on ordinary fishermen's livelihoods, their responses, and environmental loss.

Sustainability and Fishing

Fishery resources have a tremendous human-ecological and economic significance in Bangladesh. Fish contributes 63 per cent of the animal protein in the nation's dietary requirement (DoF, 2003; Hussain, 2010). About 1.2 million people are engaged full-time and another 10.2 million are engaged part time in this sector for their livelihoods (GoB, 1998; DoF, 2003; Hussain et al., 2006). It contributes 5 per cent of the national GDP, 20 per cent of total agricultural production and 5 per cent of export earnings (DoF, 2003; Hussain, 2010). Any degradation of this natural resource will have a catastrophic effect on national income, the livelihoods of tens of thousands of people, and possibly on nutritional health. Therefore, it is very important to understand the processes of fisheries degradation so that they can be addressed.

Hardin (1968, 1998) is widely cited for his phrase, 'freedom in a commons brings ruin to all', where he urges strict governmental involvement as well as international regulations for the management of common resources. Hardin's 'tragedy of the commons' has inspired researchers and practitioners around the globe to assume that limiting the freedom of access to and operation of the fishery commons is key to sustainable resource management and poverty alleviation among small-scale fishers (Jentoft et al. 2010). In Bangladesh, Hardin's idea has been echoed in conceptualisation as well as in policy. Mome (2007) calculates the optimum level of *Hilsa* yield and calls for sustainable practices as that is consistent with the biological capacity of *Hilsa* stock. She framed the problem of *Hilsa* resource depletion in regard to the seasonal catch of mother, larvae and juvenile fishes and suggests a ban on fishing during the breeding and juvenile seasons. In the same vein, Kibria and Ahmed (2005) identify some of the fishing gear that block fish reproduction by catching immature fry and they emphasise the raising of awareness on restricting harmful gear. Such a bio-economic view is even reflected in the governmental policies and legislation (GoB, 1998; Hussain, 2010). Such an understanding of sustainability views livelihoods as what they lack rather than what they have (Harris, 2000; Allison and Ellis, 2001). They do not ask what alternative

livelihood options people have; how people will survive if seasonal restrictions on fishing are imposed; and why people use harmful fishing gear.

This chapter strives to answer these questions and focuses on unveiling the links between individual and household assets and the activities that households can engage with, given their economic capability (Allison and Ellis, 2001; Béné, 2003). As a critique of Hardin's (1968, 1998) 'the Tragedy of the Commons', Jentoft et al. (2010: 352) says that

> *'The Bangladesh case study is as much about vulnerability as it is about poverty. Both are closely linked but not exactly the same. Natural disasters are frequent and hard to escape. When their assets are destroyed, small-scale fishers have to rebuild their lives, but entitlement and capability deprivation, the lack of support or alternative skills to fishing, keep them trapped in a resource dependency that lead them to increase the pressure on the marine ecosystem, often by using destructive gear or targeting protected species. New entrants into the fishery add to this problem. But small-scale fishers' vulnerability is also exacerbated by social mechanisms, such as underperforming institutions and lack of the security that ownership to land provides.'*

Hardin's (1968, 1998) understanding of 'freedom' is very different from that of Sen (1999) – the former advocates limiting freedom and the latter perceives 'freedom' as an agency, an opportunity, the last free space of manoeuvre for marginal fishing communities (Jentoft, et al., 2010). Moreover, being socially, politically and economically marginal and the firsthand users of fishery resources, small-scale fishermen are often the main subject of policy and socio-ecological adaptation debates and this overshadows other major issues, such as the *dhora jal*, which are discussed in this chapter. Shamsuddoha (2007) unpacks how the primary producers of dried fish are exploited despite inputting the highest labour and time in the whole marketing chain. Nabi (2001) also looks at the institutional arrangements of inland fisheries management in Bangladesh and reveals that the *ijaradars* (investors in inland water bodies leasing system) maximise their profit through compelling *jeles* (fishermen) to overuse leased water bodies. As he describes:

> *'any production 'decline' or 'over-fishing' occurs in open fisheries in Bangladesh, this should be attributed to the combined effect of the leasing arrangement of the state and fishing access distribution of the ijaradars. The number of jeles (or non-jeles) seeking entry did not appear to influence the arrangements. Entry or exit in leased fisheries is not a collective choice but a decision of the ijaradars drawing on their ability to meet leasing cost and transaction cost' (Nabi, 2001: 112).*

Nabi (2001) mainly points out the issue of control over fishery resources in the light of power and property rights. This issue has drawn attention to both policy (Hussain, 2010) and to development research (Toufique, 1997, 2000; Shamsuddoha, 2007). For example, *The New Fisheries Management Policy 1988* made provision for leasing fisheries to genuine fishermen (Hussain, 2010), so that they could escape from exploitation by non-fishermen elites (*ijaradars*). But Toufique (1997, 2000) argues that, despite having proper legislation in place, it was never implemented to establish fishermen's property rights and thus had no practical outcome. Allison and Ellis (2001) note that

conventional, top-down fisheries management policies, in developing countries, intend to raise income by increasing the efficiency of fishing efforts and, at the same time, frame threats of the depletion of fishing resources from a Malthusian viewpoint. Toufique (1997, 2000), Nabi (2001) and Shamsuddoha (2007) elaborate components of power relations, networks, politics, social disempowerment and resource struggles and show how they are tightly linked with the access, control, and thereby depletion, of fishery resources.

Blaikie (1985) and Fairhead and Leach (1996) are critical about bio-economic equilibrium models and seek to view environmental problems through the lens of a non-equilibrium framework. This is because equilibrium models are based on *a priori* assumptions that are not backed by sufficient spatial data, and which uphold the interests of a specific group (Forsyth, 2008), so underpinning their political influence. How can we engage with an environment without making any footprint on it? Based on historical and empirical enquiries, non-equilibrium frameworks oppose the typical natural balance idea and campaign for a socially justified and responsible relationship of resource users (Nabi, 2001), which this chapter also acknowledges. This certainly promotes marginal voices both ecologically and developmentally, as will be seen in the following sections.

In this chapter I am exploring the exploitation of poor fisherman dependent on borrowing a little capital (*dadon*). More importantly, I am also unveiling how a class, power and network-centric dominant (though illicit) fishing net practice is limiting poor fishermen's freedom (Sen, 1999), determining the distribution of the catch, depriving them of their entitlements and capabilities and worsening livelihoods. This reveals the failure of the authorities to enforce the law, and indeed their complicity with local elites. This chapter eventually opens up the debate of sustainability and shows its connections with poverty as well as with the people's resilience following cyclone Sidr.

Livelihoods of the Boleshwar Fishing Community

Fishermen's livelihoods are primarily a function of the interplay with nature and natural resources within a socio-cultural and politico-ecological framework, which Deb (2009) calls 'Fishantry', as an echo of peasantry. In Bangladesh, 54 per cent of coastal communities are functionally landless and more than 30 per cent are absolutely landless (Jentoft et al., 2010). Fishing has always been an alternative livelihood option, an open offer from nature to anyone, whose other livelihood options are diminished (Alam, 2001). Allison and Ellis (2001), Béné (2003) and Deb (2009) call it 'the occupation of last resort'. A time series presentation of the national census reports (Table 7.1, Figure 7.1 and 7.2) and my lived experience connotes with their assertion. Among all of my three field sites, only Gabtola's data was extractable from the census reports, as the other two field sites do not qualify as a separate administrative unit in the census, as noted in the first chapter. Therefore, to give a general sense of the land ownership pattern within the region, data of Gabtola's upper administrative tiers (Union and Upazila – see glossary) are also provided in Table

7.1. This Table also shows the striking growth of landlessness in Gabtola as against the other upper administrative units. In the previous empirical chapters, I have discussed riverbank erosion, land disputes and resource-vested local power dynamics, which altogether contribute to a desperate situation many local people and eventually leads to their landlessness.

Table 7.1: Change of Household Composition and Land Ownership Pattern from 1981-2001.

	Number of households			Number of Agricultural land Owners			Proportion of Landless (per cent)		
Census Years	1981	1991	2001	1981	1991	2001	1981	1991	2001
Gabtola	304	416	463	145	-	110	52	-	76
Southkhali Union	3204	4833	5201	1497	1792	2080	53	63	60
Sarankhola Upazila	14471	19588	21960	7595	8999	10299	48	54	53

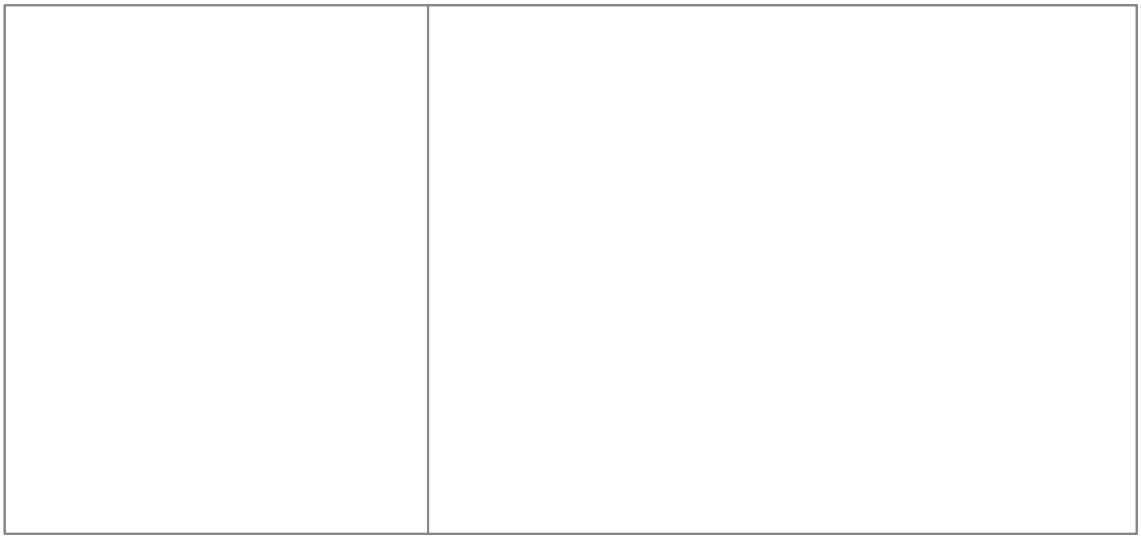
Source: Information are compiled from the BBS published Upazila Series of above-mentioned three years' census report (spaces are kept empty where data is unavailable)

Moving from a regional picture to a local level, Figure 7.1 and Figure 7.2 use the data of two censuses to show Gabtola's change in employment distribution over twenty years. Here people aged over ten are considered to be in the working age group and their employments are shown both in numbers (Figure 7.1) and in percentages (Figure 7.2). Increasing numbers in any employment opportunity could mean either economic growth or increased population pressure on a particular sector resource. The data show that employment opportunities are quite limited in Gabtola. Again, though the household is shown as an employment opportunity, it consists only of female members of households (above ten years), which appears to be consistent (Figure 7.2) over 20 years, in terms of employment ratios. Household work does not contribute to any direct cash

Figure 7.1: Change in Employment Distribution at Gabtola from 1981-2001

(material) income to families. Both figures show a considerable rate of unemployment, an increasing rate of non-crop agriculture (which the survey reports refers to agricultural labour), and a shrinking rate of cultivation. As I mentioned in the methodology chapter (Chapter Three), people's dependency on fisheries and forest (*maas r gaas*) is extremely high around my fieldwork sites. The graph depicts a rise in every employment opportunity except cultivation, which correlates with the statistics of landlessness as shown in Table 7.1. Figure 7.2 further clarifies that landlessness has not only increased in numbers, but has also tripled its overall ratio. Ellis (2000) argues that the insecurity of wage employment in agriculture is a major threat in rural livelihoods, as this limits their 'entitlement bundle' to cope with adverse situations. The increase of pressure on 'commons' as well as significant changes in employment ratios, as shown in Figure 7.1 and 7.2, necessitate a reconsideration of both Hardin (1968, 1998) and Sen (1981, 1999) in order to find a workable strategy (Jentoft et al., 2010).

This chapter strives to understand the livelihoods of the fishing community in my field sites. Two of my field sites (Mazer Char and Gabtola) have a large number in their fishing community, who also represent the other fishermen along the Boleshwar River. There are two distinct groups who live on both the sides of the Boleshwar River: river fishermen and deep sea fishermen. This chapter deals with the former group. Approximately four thousand households along the river directly depend on a few kilometres of river.



Life before the Cyclone Sidr

If we think about fishermen's lives before Sidr struck, it was pretty simple and straightforward. Either they had their own boats and nets or they took *dadon* from a *mohajon* to buy a boat and nets, or they worked for someone who had boats. Deb (2009) defines *jele-mohajon* (fishermen-lender) relations over *dadon* (lent capital) as 'rural corporatism'. A fisherman receives only 56 per cent of the

price paid by the final consumer, despite performing the hardest part of the job (Alam, 2002). In my fieldwork I observed a fish which is worth 800-1000 taka (£8) in Dhaka sold at 300 (£3) taka to a *mohajon*.

Mohajon are of different economic capacities and specialise in different stages of the production and distribution chain, from catching the fish to selling them to consumers. For example, in the big urban fish markets, the wholesalers (locally known as *pikers*) give *dadon* to a big fisherman on condition that he[28] sells only to that particular *mohajon*. Interestingly, there are no written agreements of *dadon*; it is verbal and efficient. Ultimately it means a one-sided control over sales prices and, thus, is a means of extracting maximum surplus value. Likewise, the big fishermen give *dadon* to small fishermen, the primary extractors, who have a single boat and some fishing nets. Normally 3-4 people work in a boat. All their food and associated costs during fishing come from the money this team earns by selling their catch. The balance is divided into two equal parts, one of which goes to the *mohajon* and the other is distributed among the members of the team.

Dadon is not only a means of exploitation, but also a symbol of corporate bond and promise. Taking *dadon* from a *mohajon* does not necessarily mean that the money has to be returned at the end of the loan cycle. Rather, this is a way for a peasant fisherman to show his commitment to working with a *mohajon*.[29] If he becomes uncomfortable working with his *mohajon*, he is free to pay the *dadon* money back and to find another *mohajon*. Here, the *mohajon* controls the market, especially the wholesale market, and peasants seek a bargain price through a *mohajon*, within his limits. The peasants never have had any direct and easy access to a big and competitive market, which is one of their main disadvantages and forces them to trade with the *mohajon*. We may say that it is a legacy of the social system.

Practices of Fishing Gear in the Boleshwar River

Hilsa is the main fish in the Boleshwar River. *Hilsa* is also very important in regard to Bangladesh's national economic development as its average annual production is 215 thousand metric tons, which is worth GBP 245 million and contributes 1 per cent to GDP (Mome, 2007). Most of the fishermen of my research community are involved with *Hilsa* fishing. Also caught are *Sannashi*, *Poma*, *Bata* and many other local varieties of small fishes and shrimp fry and my research explores

[28] It might seem gender insensitive to use 'he', but in my study area there is not a single woman involved in the fishing business, maybe because the cultural context of my field site is different than Mome's (2007) and Deb's (2009), who inform us about women's role in fishing. I have seen microcredit organisations giving loans to women for the purchase of boats and nets but behind them is always the hand of their husband, grown-up son or brother, who holds the main financial control.

[29] There are cases where people take loans from individuals or NGOs for fishing, enjoy full freedom in their business and repay his loans as per agreement. This loaning system must not be confused with the *dadon* system.

whether different fishing activities have any links in livelihood framework (Ellis, 2000). There are different patterns of fishing nets, used according to the financial capacity of the fishermen:

a. *Vasha Jal* (Drifting Gillnet);
b. *Dhora Jal* (Elongated Fixed Gillnet);
c. *Bendi Jal* (Shore Operated Stationary Lift Nets); and
d. *Char Gora Jal* (Tide Lined Fixed Gillnet).

Vasha Jal (Drifting Gillnet)

This type of net is submerged under the surface and moves freely up and down the river with the force of the tide. About ninety percent of the fishermen float their nets in the river in this way through the tidal bores. One boat with a 40 kilogram net requires a group of four people, at a cost of BDT 30,000 (approximately £300) to install a *Vasha Jal*. At high tide, the nets are laid downstream and the tide floats them gradually upstream, giving them a semi-circular shape to trap the fish. These are removed and the net is relaid at low tide to float in the opposite direction. The nets are floated one after another and, since they obtain the same momentum from the tidal force, the nets do not become tangled. Thus, *Vasha Jal* works and can accommodate many fishermen unless there is an obstruction in the river. It is important to mention here that only *Vasha* and *Dhora Jal* are used to catch the *Hilsa*.

Figure 7.3: Anchored boat with *Vasha Jal* – waiting for the high tide to lay their nets.

Dhora Jal (Elongated Fixed Gillnet)

The main difference of this kind of fishing net from the *vasha jal* is that it is fixed and visible. Strongly piled bamboo-poles and large blue buoys make the *dhora jal* easily visible. The poles are so solidly installed in the riverbed that they withstand the tidal bores. Nets are set up through these poles, which enable them to stand steady against the flow. Piling on the riverbed is quite expensive,

increasing the total investment of the *dhora jal* to BDT 200,000 (£2000) per net. Thus, only the richest in the local community can afford to install this kind of net. Normally, the poles remain in the riverbed and they just hook the net on to them while they go fishing.

Figure 7.4: Dhora Jal (laid along the white dotted line) at Boleshwar

Bendi Jal (Shore Operated Stationary Lift Nets)

Bendi jal is quite distinct for its size, tie-width and purpose. This net occupies a limited space and stands on a single pole that is installed in a relatively shallow part of the riverbed. Setting a pole up does not require additional manpower and massive piling and, thus, it is more affordable for a poor peasant. These nets have a smaller mesh size as they are intended to catch smaller fish. For this reason, they are restricted during the fish breeding seasons, so that they do not kill the fry of the big fishes, especially the *Hilsa*.

Figure 7.5: A Fisherman is operating his *Bendi Jal* at Boleshwar

Char Gora Jal (Tide Line Fixed Gillnet)

Another type of fixed fishing net is laid along the low tide line to trap the small fishes which swim up and cross that line at high tide. In figure 7.6, the bamboos along the riverbank are installed for the *char gora jal* (shown in dotted blue line). This fishing net also targets small fishes and fry and, for obvious reason, uses small mesh sized nets.

Figure 7.6: Char Gora Jal (dotted blue line) laid along the riverbank on the low tide line.

Sidr – A Deep Scar in the Memory

Sidr was one of the deadliest cyclones in recent hazard history. Its associated tidal surges washed through the fishing villages along the Boleshwar River and left thousands of dead bodies of humans, animals and poultry, uprooted plants, dismantled houses and boats. Mr. Alamgir, a college lecturer, explained to me how, what would usually have been a fifteen-minute motorbike ride, took him from dawn till dusk to walk down to his village on the day after Sidr. Fishing boats were smashed into small pieces that were usable only as fuel wood. The fishing families had no grain in their house to eat, no money to buy anything, and no financial backup to reinitiate any income-generating activities. As I explained in Liton's story, more or less all of the fishermen have received relief and rehabilitation packages from NGOs and the government but they have frustrations in the supply and distribution of this rehabilitation. For instance, the amount was inadequate and some non-fishermen are said to have received fishing packages while many fishermen were abandoned. However, these complaints were modest by comparison with their complaints when they explained the issues around *dhora jal*.

Issues around Dhora Jal

The *dhora jal* is laid during neap tides and in slack water during the spring, as the poles cannot hold the net in extreme tidal streams. So they do not set up the nets on the poles in the early and the middle phases of the moon when the tide is strongest. But, whether they lay the net or not, the bamboo poles remain in place all year round, obstructing and damaging any floating net, especially the *vasha jal*. On the other hand, when a *vasha jal* wedges into a *dhora jal*, it damages the *dhora jal* as well. Therefore, the *dhora jal* users put *kocha*[30] around the poles as a shield. *Kocha* causes even more damage to the *vasha jal* than those poles. Earlier on, *vasha jal* users could rescue parts of the undamaged net even after being stuck around the poles. Now, they do not find anything useable left if their net is wedged into the *kocha*.

[30] Spiky bamboos and thorny branches of trees.

Figure 7.7: Distribution of *Dhora Jal* (red lines at three different points on the river banks) at the Boleshwar River

Figure 7.7 provides a glimpse of the channels on either side of Mazer Char. On the eastern side, which is quite narrow, and shallower in comparison to the main channel on the other side, poor fishermen have entrenched *bendi* and *char gora jal*. Because it is shallower, *Hilsa* does not appear in that part of the river. So they catch small fishes and fry. Accordingly, thousands of fishermen set *vasha jal* at the western end, which is a deeper and more comfortable habitat for the *Hilsa*. It is worth mentioning that, during the high tide, sea water is forced upstream through the eastern and western banks of the river. Simultaneously, river water squeezes down along the western flank of Mazer Char. Whoever wants to float their nets at this time must go beyond the threshold of this opposing flow. Otherwise, the net will not float properly and will not be able to sustain the semi-circular shape needed to trap fish. Thus, when they are naturally forced towards the west, about thirty or even more *dhora jal*, installed at Tafalbari and North Southkhali on the west bank cross into the middle course, with obstacles in their way.

I spoke to every single fishing group at Mazer Char and did not come across a single group that had not lost 15-20 thousands taka (£150-£200) worth of nets in the last year, because of them becoming caught up with the poles and *kocha* of *dhora jal*. This is not an issue only for Mazer Char, but also for the fisherman of Tafalbari and North Southkhali, where the *dhora jal* are also installed. When I approached them to talk about this matter, they were so terrified that they refused to talk to me. They asked for my address[31] and some came over to my home the following night. Then I realised that *mohajon* of *dhora jal* have substantial power and these poor peasants did not want to be a subject of their gaze, which they felt would have been the case in front of me in their village. This discussion was very fruitful in regard to understanding how *dhora jal* is growing bigger.

Figure 7.8: Extent of *Dhora Jal* to the Centre of the Boleshwar River

A number of the names of the *dhora jal-mohajon* that I collected in my interviews and discussions are directly or indirectly involved with the partisan politics of the present regime, the Awami League who came to power in early 2009. They are engaged with a number of businesses and have invested a small portion of their capital in the fishing business. A *dhora jal* catches five times more fish than a *vasha jal*, with profits to match. As their homestead expenses do not come from this income, they reinvest this money and extend their nets towards the other end of the river, which is very visible in the Figure 7.8. Correspondingly, the *vasha jal* group are forced to shrink. Many groups of fishermen had 50 kilograms of nets just 2/3 years ago and now they use only 30 kilograms because smaller nets cover less area and this minimizes the likelihood of collision with *kocha* and poles. While *dhora jal*'s growth is forcing *vasha jal* to trim down their size and geographic periphery, similar victims from Machua have joined them to take a share of their limited resources.

Who Do Politicians Stand For?

Dhora jal at Machua (Figure 7.7) are clearly visible. Their extent has increased so much that any *vasha jal* around that area will inevitably hit them. I spoke to one of the most influential politicians of Mothbaria about this issue. He named five big *mohajons* of *dhora jal* at Machua and all of them are

[31] My temporary residence was at Rayenda, near the Upazila headquarters, which is 10 miles away from their village.

from the present political regime. He justified his stand by saying, "I understand that this is not fair, but I cannot weaken my political organisation by restraining them from installing *dhora jal*". In a similar vein, another influential political leader, who is also a potential chairman candidate in the forthcoming local government elections, confessed that "I would have protested about this injustice if the election was not so close". While the *mohajon*'s power and influence is more effective capital for his election than a huge mandate from the peasants, no-one is optimistic that he will be empathetic to the peasants' sufferings if he is elected eventually. One of the *dhora jal mohajons*, Badal Jomaddar, who will compete in the forthcoming local government election, has removed all *dhora jal* from the place where his constituents do their fishing but, controversially, he owns and finances several of the same type of net in another constituency.

Figure 7.9: 'Human-Chain' – Local fishermen's association demonstrating against *dhora jal* at the Sarankhola Press Club (Source: Author – 07/04/2010).

Out Cold Consciousness of Civil Society

I shared a wish with the local press club to discuss my findings with the community before returning from my field area (Figure 7.9). But they told me that they have already written enough about the fishermen's issues and there is nothing new that is of worth. However, they were accommodating and organised a public debate to which they invited the UNO[32] (Upazila Nirbahi Officer), the fishery officer, the OC, elected local government representatives, political leaders and a good number of peasant representatives. My presentation was not of any interest to local politicians; at least their eyes did not have any inquisitive expression. By comparison, the local journalists were extremely enthusiastic because they now had some new material to write about. I was very surprised to hear that none of them knew about the many types of fishing nets, even

[32] The UNO is the chief administrator of an Upazila, the principal functional tier of the local government structure in Bangladesh.

though they were born and brought up locally. A few weeks after my departure from the field, several local journalists rang to inform me that they had had a joint operation with the local police station and caught several *dhora jal*. I was surprised when I realised that they had accidentally caught *bendi jal*, and confused *dhora jal* with that. In other words they had targeted the poor, marginal group and the more influential group had escaped judgement.

The Government's View

The discourse of local politicians about such issues in civil society often suffers from numbness. They maintain a politically correct front but rarely go beyond clichéd and gimmicky phrases about fairness, equality of rights for all, and so on. This line is also followed by the local administration and law enforcement agencies. I spoke to the UNO, Upazila Fisheries Officer, Officer in Charge (OC) of the local police station and officers of the newly established Coast Guard[33] station, about this issue but none of them could guide me in any concrete direction. All of them mentioned about a law about the net mesh sizes and regretted not having any power against the *dhora jal*. Interestingly, I came to know from several of my respondents that the UNO and the OC executed a few joint operations in 2008 against the *dhora jal*. I was just wondering, if there was no law against *dhora jal*, why would the government administration take sides? This raises the dilemma of whether it is the peasants' right to have obstructions in the river removed or whether it is a matter of the administrators' charity. Finally, I Googled the law on the internet and obtained a scanned copy of the original manuscript of the law and its successive amendments.

Box 7.1: The Protection and Conservation of Fish Act, 1950 (East Bengal Act No. XVIII of 1950). [18th May 1950]

3. Power to make rules

(3) Such rules may-

(a) Prohibit or regulate all or any of the following matters, that is to say,-

(i) The erection and use of fixed engines;

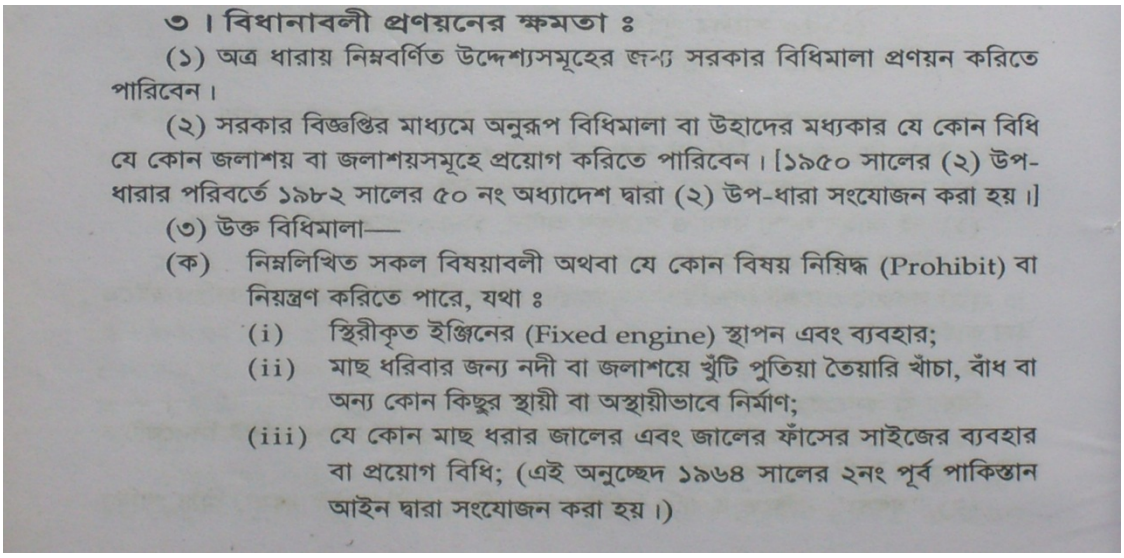
(ii) The construction, temporary or permanent, of weirs, dams, bunds, embankments and other structures;

(iii) The use or method of operation of any kind of fishing net and the size of the mesh of any fishing net;

[33] The Coast Guard is an agency under the Home Ministry which takes care of security issues around the coast. A new coast guard station has been established at the Sarankhola Upazila to protect against any illicit activities, like inappropriate fishing, timber smuggling, banditry and so on in and around the Boleshwar River which includes the adjacent forest.

The Protection and Conservation of Fish Act, 1950

It was a great surprise for me to discover that the relevant law had existed for more than half a century. So the *dhora jal* issue is neither local nor new. In that case, how have the peasants survived for so long? The answer is that these issues were settled through mutual discussion and *salish*. Even in the last year, they had a *salish* where they agreed upon a boundary of *dhora jal*'s extent, which has been overruled this year [2012] by virtue of the *mohajon*'s political power. Poor peasants have never asked for their rightful claims by enforcing the law; rather, they just wanted to earn their living peacefully. In fact, it was not about the law, but rather about who that law is for. Otherwise, how come a sixty years old law, which has been reviewed on several occasions, is not in force, at least around the Boleshwar River? I had this apprehension when, first, I discovered the Bengali version of the act in the Police Handbook (2006: 879-85) on a shelf in the local police station and, second, only the poor were (intentionally) prohibited and penalised for using inappropriate nets.



৩। বিধানাবলী প্রণয়নের ক্ষমতা ঃ

(১) অত্র ধারায় নিম্নবর্ণিত উদ্দেশ্যসমূহের জন্য সরকার বিধিমালা প্রণয়ন করিতে পারিবেন।

(২) সরকার বিজ্ঞপ্তির মাধ্যমে অনুরূপ বিধিমালা বা উহাদের মধ্যকার যে কোন বিধি যে কোন জলাশয় বা জলাশয়সমূহে প্রয়োগ করিতে পারিবেন। [১৯৫০ সালের (২) উপ-ধারার পরিবর্তে ১৯৮২ সালের ৫০ নং অধ্যাদেশ দ্বারা (২) উপ-ধারা সংযোজন করা হয়।]

(৩) উক্ত বিধিমালা—

(ক) নিম্নলিখিত সকল বিষয়াবলী অথবা যে কোন বিষয় নিষিদ্ধ (Prohibit) বা নিয়ন্ত্রণ করিতে পারে, যথা ঃ

(i) স্থিরীকৃত ইঞ্জিনের (Fixed engine) স্থাপন এবং ব্যবহার;

(ii) মাছ ধরিবার জন্য নদী বা জলাশয়ে খুঁটি পুতিয়া তৈয়ারি খাঁচা, বাঁধ বা অন্য কোন কিছুর স্থায়ী বা অস্থায়ীভাবে নির্মাণ;

(iii) যে কোন মাছ ধরার জালের এবং জালের ফাঁসের সাইজের ব্যবহার বা প্রয়োগ বিধি; (এই অনুচ্ছেদ ১৯৬৪ সালের ২নং পূর্ব পাকিস্তান আইন দ্বারা সংযোজন করা হয়।)

Figure 7.10: A section of the Bengali version of The Fisheries Act 1950, scanned from the Police Handbook at the Sarankhola Police Station.

Box 7.1 shows one section of the act, which prohibits several pursuits in any common water body. In clause 3.3.a(ii), the temporary or permanent raising of structures is forbidden. More importantly, according to the Bengali version of the law, as seen in the Police Handbook (2006: 980), the word 'weir' is translated as 'pole' (*khuti*) (Figure 7.10). Both the Bengali and the English versions of the law, thus, put restrictions on structures in a river. In case of all three fixed fishing nets (*dhora jal*, *bendi jal* and *char gora jal*), poles are set up for a longer duration and only nets are hooked up and taken off from the poles. Therefore, the installation of any of these fixed fishing nets is a felony. However, I have seen confiscated *bendi jal*, *char gora jal* and *current jal*[34] in front of the local police and coast guard stations, throughout my eight-month field visit I never saw a single *dhora jal* dismantled

[34] This particular net has a very small mesh size (<45mm); thus, catches very small fishes and kills the Hilsa fry (See Kabir and Ahmed, 2005: 45).

nor anyone arrested for using them. It is interesting though that I gave my talk on the 2nd April 2010; and in the two months May-June, 2010 *dhora jal* owners received a warning from the local police station to remove their poles and several of the illicit nets have been burnt to the ground. The following year, after pressure from local journalists, fishermen, their sympathisers and strategic allies, *dhora jal* were removed temporarily and were reinstalled again when new people came into the relevant administrative positions.

Consequences of the *dhora jal* Issue

The entire issue is not only about peasants' rights; rather it has numerous social and economic consequences, which are:

1. The *dhora jal* fishermen are simply wage labourers of *mohajons* and belong to the same community of the *vasha jal* fishermen. Unfortunately, disputes around *dhora jal* vs *vasha jal* are spreading mistrust, jealousy, enmity, and anger, possibly the beginnings of an antagonistic society. Deb (2009) quotes Hauck (2007) about a case of resource degradation, violent conflict and social unrest within a small-scale fishermen community in South Africa, which was triggered by marginalisation and deprivation.
2. The growth of *dhora jal* and the decline of *vasha jal* has had a direct effect on the economic polarisation process. *Dhora jal* are making their *mohajons* richer and thus increasing in size and number while pushing all *vasha jal* away into a limited space. In this instance, all of the *vasha jal* on the Boleshwar River are now fishing within a limited zone between Mazer Char and the west bank. Thus, the individual share of fish catches by *vasha jal* is diminishing.
3. To cope with such a reality, a group of fishermen are laying their nets at midnight and are thus becoming exposed to bandits. I saw several cases every month where families paid ransoms to get their kin back home. In all cases, they were taken hostage from their boats while they were fishing at night.
4. Another group have started to fish at sea, which is a new environment for them and they are more exposed to natural calamities and pirates.
5. I talked to *bendi jal* and *char gora jal* users and found them all to have had *vasha jal* before. When they lost their nets they became bankrupt and had no way to go back to their *mohajons* to ask for more *dadon*, so they started fishing by using illicit nets. As I have already mentioned, they are always in the limelight and an easy target when there is a drive to remove illicit fishing nets. It is also very important to mention here that both the *bendi jal* and the *char gora jal* catches, and eventually kills, a huge amount of Hilsa fry and eggs, which is a great threat to the fisheries resource. This point potentially questions ecological acceptance of the present practice.
6. 15 years ago there were only two fishing boats at Mazer Char. Now there are fifteen, with the income of more than a hundred households depending on fishing, more than two thirds of the island's population. Poverty and landlessness has forced more and more people to extract resources from the river. This is a common picture along both the sides of the Boleshwar

River. Riverbank erosion is also reducing the cultivable landmass; thus there is an increased demand on alternative resources. Any kind of obstruction on catching fish will increase their vulnerability and lessen their resilience capacity.

It is often very easy to blame a political regime for imposing undue power. Bangladesh's successive political regimes have indeed abused their authority and they have never been challenged by strong positive forces like NGOs and pressure groups in civil society. At a glance in my field area, NGOs have distributed boats and nets, and given disaster warning training but that is all. None have really focused on the people's social, economic and political security and empowerment. Therefore, the vision they had before providing those services has never been achieved in the long run. Their beneficiaries have slipped back to their earlier state of destitution. Cynically, we could suggest that this cycle assures the flow of foreign donors' money for the NGOs. Regrettably, like the local journalists, NGOs are not aware of the subtleties of the different kind of fishing nets. Therefore, when they provide loans for nets they do not care which kind the recipients will install. As a result, some NGO micro-finance has been used to set up *dhora jal*.

My research reveals that one of the greatest pitfalls around the *dhora jal* issue is ignorance among the well-meaning, not among the fishermen. The latter suffer as a result and they are not politically empowered enough to have their case aired. The NGOs, who provide services to those peasants, have a substantial gap between themselves and their clients. Likewise, other pressure groups have never given serious thought to the peasants' action world. Thus, there has been no campaigning so far on their behalf from any corner of society. Capitalising on the numbness of politicians and bureaucrats, the *Mohajons* seized the chance to double their money.

Conclusion

This chapter has explored the resilience of the fishing communities around the Boleshwar following the shock from cyclone Sidr. As discussed in the introductory section, the resilience approach, to some extent, delimits the options of 'doing what they want to do' by adding up an 'ecologically sustainable' condition (Adger et al. 2005; Folke, 2006). Thus, a seemingly potential development effort may not be resilient for not being ecologically sustainable. Therefore, it is important to ask: resilience for whom and of what purpose? Besides being ecologically acceptable, resilience has to be judgemental so that it does not undermine another's interest.

The question of judgement comes from legal, moral as well as ecological grounds. The legal judgement was evidently very much wealth and power laden. Therefore, while *current*, *bendi* and *char gora jal* were under continuous administrative pressure, *dhora jal* was practised with dominance; despite the restrictions against all these fishing nets being printed in the same paragraph of the act. It is needless to argue on moral grounds while political leaders, elected local representatives, government executives and civil society, altogether agree that the practice of *dhora jal* is depriving

ninety per cent of the local fishermen. Finally, the ecological ground is rooted in the counter argument of the neoliberal 'bio-economic' model, rooted in Sen's (1981, 1999) judgement about the causation of poverty. As this chapter draws a picture of local 'fishantry', fishing as a livelihood option is not a proactive choice, rather an involuntary necessity (See Ellis's (2000: 56-76) 'Determinants of Livelihood Diversification'). Alam's (2001) and Deb's (2009) ethnographic accounts (PhD research) on Bangladeshi inland and coastal fishing communities also endorse this statement. Fishing community livelihoods are shot through with vulnerabilities as they do not have any entitlement bundle, i.e. land, money, to cope with any shock. On the contrary, use of the *dhora jal* is a voluntary and proactive endeavour, meant to maximise profit by obstructing others and maximising selfish financial gain by depriving others. Here, the question of judgement is about resource distribution. Use of the *dhora jal* puts more pressure on fishery resources and triggers economic loss to other users. Moreover, it cannot accommodate a significant number of users as *vasha jal* can do. Jentoft et al. (2010: 361) quotes:

> *Limiting the freedom of small-scale fishers is obviously an issue of justice, particularly when poverty is the cause or outcome. (Justice is also a recurring theme in Sen's work, including in his 2009 book.) But Hardin can hardly be held responsible for what his followers have done when putting his ideas into regulatory policy and practice. We believe, however, that as far as small-scale fishers are concerned, these policies, practices, and therefore outcomes, would have been very different from what they are today if it had been Sen's, rather than Hardin's idea of freedom that was at their roots.*

The impression I have of disaster intervention activities in my fieldwork area is focused on relief distribution and on a few of the 'temporary' rehabilitation measures. The word 'temporary' is used here because the rehabilitation measures were not thought through and could not be sustained for as long as expected. Eventually, the beneficiaries returned to their at-risk state and are thus exposed once more to any future hazard. This reality is very vivid in the lives of the fishing communities. This is already evident from other ethnographic research (Ellis, 2000; Alam, 2001, Deb, 2009) that fishing is an involuntary necessity, not a proactive livelihood choice. This signifies these communities economic as well as other aspects of marginalities. *Dhora jal* is an illegal (as it is prohibited according to the fishing act), ecologically unfriendly (as it put pressure on the ninety percent of fishermen to exploit more) and immoral (as it is maximising financial gain by depriving others) hurdle to the majority of fishermen. One direct consequence of this in cyclone management is echoed in Anwar's story, as discussed at the beginning of Chapter Three. Anwar went fishing on the very night of cyclone Sidr despite knowing the warning, as he had to earn the next meal for his family.

Having said that, poor fishermen's resilience is also appreciable. As a response to the issue of *dhora jal*, they reorganised their pattern of resource use in terms of distributed time slots and formed their own association to observe non-violent protests and campaigns to let their voices be heard. They also look for other opportunities of livelihood diversification (Ellis, 2000; Allison and Ellis,

2001). In doing so, they often depend on the nearby forest, the Sundanbans, which I will discuss in the following chapter.

Chapter Eight

Post-Sidr Scenario and Forest Conservation in the Sundarbans: Whose Knowledge Counts?

Chapter Eight: Post-Sidr Scenario and Forest Conservation in the Sundarbans: Whose Knowledge Counts?

Introduction

Sarankhola Upazila (sub-district) is at the North-Eastern corner of the Sundarbans, having the Boleshwar River along its eastern edge. Though this is a part of greater Khulna Division, local kinship networks are rooted on the other side of the Boleshwar River. The local accent even clearly matches that in the Barisal Division, suggesting a degree of migration from that region. Ismail Khalifa, an ex-chairman of Sarankhola Union, explained that he heard from his grandfather that in the past all of Sarankhola was low-lying land, mostly covered by forest and affected by regular tidal surges. Poor people from the other side of the Boleshwar River used to come and settle here temporarily using small *golpata*[35] (*Nipa Palm*) cottages in the dry season as bases for catching fish and cultivating patches of higher ground. Seasonally the monsoon floods pushed them back across the river. Gradually these areas became raised through siltation and people started clearing the forest to live there permanently.

Interviews and observations from my fieldwork reveal that up until now only the economically extremely marginal people risk their lives going to the forest for resource collection. Generally, they take up that livelihood option only when other options are not available. Massive riverbank erosion along the Sarankhola riverbank and unplanned (natural) population growth is increasing the number of landless people every year, as explained in earlier chapters (Chapter Two, Three and Seven) with statistical evidence from the national population census data series. Natural events, such as cyclones and associated tidal waves impacted their livelihoods by damaging their crops, livestock, boats and other assets (Chapter One, Four and Five). Since the level of damage pushed them beyond their capacity to recover (Chapter One, Two, Three and Four), they had to depend on relief aid and loans (Chapter Five). Not all people have access to relief; nor is relief always sufficient to help all affected people get back on their feet. They tend either to exploit local natural resources or move away to a new place to secure an alternative livelihood. Chapter Six recounts some stories of moving to Mazer Char. Where people depend on natural resources, they have three choices – the Boleshwar River, the Bay of Bengal and the Sundarbans. The last chapter drew a picture of the political economy of fishing in the Boleshwar and this chapter does the same for resource extraction in the Sundarbans.

The Sundarbans mangrove forest is the world's largest, spread around the western part of India-Bangladesh coastal border (Figure 8.1). It comprises 51 per cent of Bangladesh's national reserve forest estates, earns 41 per cent of forest revenue and supplies 45 per cent of total timber

[35] The only mangrove palm species widely used as roofing and fencing materials.

and fuel wood produced from all public forests (Iftekher and Islam, 2004a). Its periphery has the highest population density (856 per sq km) on earth (Giri, et al., 2007), and these are people who are predominantly poor and exposed to salinity, tidal fluctuations and cyclone and storm surges (Iftekhar, 2006). One million people within 0-10 kilometres and another 2.2 million people within 10-20 kilometres of the Sundarbans depend on forest resources for sustaining their livelihoods (Mitra, 2000). Historically, their relation with the forest has been transformed from traditional subsistence use to state-sponsored, revenue-driven contract labour (Mitra, 2000; Iftekhar and Islam, 2004a, 2004b; PDO-ICZMP, 2004; Iftekhar, 2006; Giri et al., 2007; Jalais, 2007; Biswas et al., 2009; Chowdhury, 2010). Therefore, the pattern of their forest use is very much conditioned by how the state thinks about the forest. A government u-turn in decision making about the removal of damaged plants to encourage forest growth draws a clear picture of this relationship.

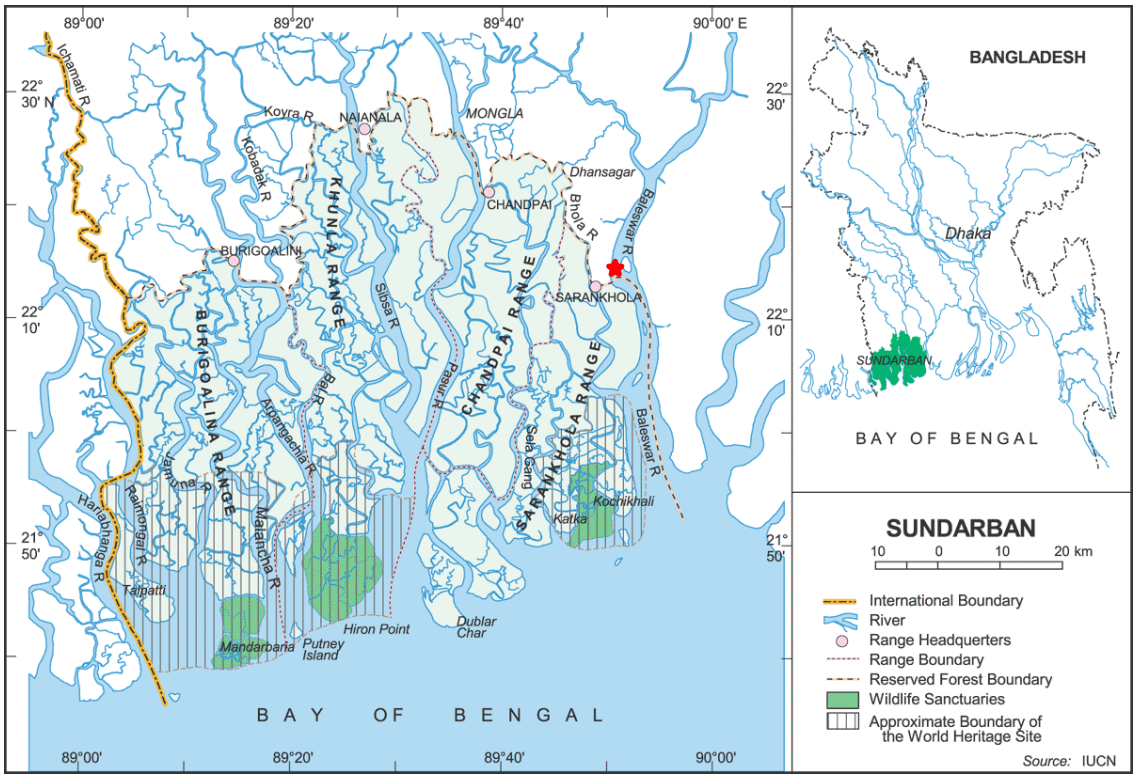


Figure 8.1: Bangladeshi part of the Sundarbans (the red asterisk points my field site). (Source: Banglapedia - http://www.banglapedia.org/httpdocs/Maps/MS_0602.GIF, Accessed on 03/08/2010)

Cyclone Sidr came from the Bay of Bengal and advanced north along the Boleshwar River, where it was responsible for much destruction. Farmers lost their crops and cattle, fishermen lost their boats and nets, fishponds were washed away and refilled with saline water and almost everybody lost their homes, which I explained in earlier chapters. The first strike came on the eastern part of the Sundarbans, which caused huge damage to the forest. According to estimates by Bogi Forest Station, 245 thousand hectares of forest of the Sarankhola and Chandpai Range (Figure

8.1) were devastated by extreme winds and water surges. After a visit to these sites on the 30th November 2007, UNESCO experts noticed[36] that 40 per cent of the site had been seriously affected. Most foliage had been stripped from the branches, which had given the normally rich green Sundarbans a very grey look. Most of larger trees had been blown down or had suffered major crown damage, which also affected other smaller plants within their canopy. The dead bodies of birds and animals were lying discretely everywhere. However, in the absence of detailed surveys of birds, tigers, deer and aquatic life, there were many assumptions, sometimes analogous and sometimes contrasting. I will now introduce the knowledge controversy that surrounded whether or not to remove uprooted trees following the cyclone damage.

Figure 8.2: Part of South-Eastern Sarankhola Range still bears the Scars of Sidr (Source: Author, 30/01/2010).

The government sought to employ the local community in removing uprooted trees and their broken and damaged branches from the forest, because it was thought that this would help forest regeneration as well as mobilise the community. But environmentalists condemned this decision. On the 29th November 2007, the *Prothom Alo*, a popular Bengali national daily published an appeal at the front page, titled, '*the Sundarbans will revive if undisturbed*' (in Bengali, *birokto na korla bachba Sundarbans*), drawing on expert opinions from a wide range of relevant academics and practitioners; this attracted huge media attention. Within a day, the government had changed their minds expressing worries that if people were allowed into the forest they would cut down good trees along with the bad. I interviewed Prof. Ainun Nishat, then Climate Change Senior Advisor, Asia Region, IUCN, a leading light among natural conservationists in Bangladesh, who also had the same idea. But my question was – since the government has a designated force to protect the forest,

[36] http://whc.unesco.org/en/news/399 (Accessed on 05/02/2010)

where do such concerns come from? I wondered why the government were accusing ordinary people as would-be illegal fellers instead of confessing that they, the government, did not have the capacity to protect the forest? And why had they taken the earlier decision? My confusion mounted when the Forest and Environment Advisor tried to back up his final decision by telling the media that uprooted plants and broken branches would decompose and, thereby, add nutrients to the forest's soil and so assist the rapid regeneration of the forest.

I spoke to Dr M.M. Hassan, former Director of the Bangladesh Forest Research Institute (BFRI) and now a freelance columnist, to know about his opinion about the advisor's argument. He informed me that humus, which retains soil fertility, is of ligno-proteinat composition. Leaves contain lignin and can produce humus after decomposing. But the timber part of a tree is made of cellulose, which supplies energy for the bacteria that are active in decomposing the timber. As wood does not contain nitrogen, the bacteria have to take it from the soil. This nitrogen depletion of the soil increases the carbon-nitrogen ratio and reduces soil fertility.

I was even more surprised after talking to some primary forest users whose livelihoods depend upon resource extraction from the Sundarbans, despite the legal restrictions. They had been to the forest several times after Sidr hit and explained what they had observed there. Mangrove plants have extraordinary growth characteristics. Their mature seeds fall off the tree, float with the tidal waters and naturally become lodged in a position suitable for them to grow. Scientists have tried to pick seeds from a tree canopy and sow them in favourable conditions where they can grow, but with limited success. This natural process of spreading plants was hindered after the cyclone, when broken branches were lying on all over the surface and were blocking seeds from floating down on the tide. Moreover plants growing underneath those uprooted trees and bushes were not able to grow straight and, therefore, they had limited chances of growing into a healthy tree. In addition, *sundori* trees live for around 70-80 years. When they grow old, their roots start dying and high winds can uproot them. Many of this kind of trees were uprooted in Sidr, which caused tremendous damage to the forest.

Tertiary users of the forest, such as experts, whose livelihoods are linked to knowledge production on the forest, do not agree with this explanation. Their observation tells us that *Sundori* (*Heritiera Fomes*) are of uneven height compared to surrounding plants, of which *Golpata* are the most exposed (Figure 8.6), and *Kewra* (*Sonneratia Apetala*) for both the reasons, were the most affected (UNESCO: http://whc.unesco.org/en/news/399). When I discussed the forest users' views with Professor Nishat, he replied, from his own perspective, that:

> '*I do not think that they are right and I was in the lead among those who protested against removing uprooted trees after Sidr. You need to understand that the forest is not only about trees; it consists of different types and levels of trees, bushes and soil. Several sawmills were established immediately after the realisation that there might be permits to deal with uprooted trees. They would have destroyed the forest if the government had not*

stopped them. If we stop cutting down trees, their carbon value will increase and if we sell that carbon value we will earn the similar amount of money that we generate through revenue collection. I doubt that the community is aware of this fact. I do not have any evidence of the community's awareness on this matter. If the community knew that they can get the money if they can let the trees grow instead of cutting them down, they would never cut a tree.' (Interview: 18/12/2009)

Neither this statement, nor any of my several formal and informal discussions with Professor Nishat, give any strong reason to disbelieve the forest users' view stated above. Besides, the sawmill owners, who he thinks are a threat to the forest, are not its primary users. Instead, they are part of powerful networks blessed with political patronage, and their illegal activities are beyond scrutiny. It is the primary users of the forest who have been held responsible for all of this group's 'misdeeds'. One point, however, in Nishat's statement is a probable reason for the government's abrupt withdrawal from their primary decision and that is the setting of a new agenda of carbon trading.

This story kicks off a discussion on knowledge controversies of the post-Sidr management of the Sundarbans. The chapter seeks to understand how knowledge is being framed, extracted, generated, manipulated and shaped, by whom and which knowledge is more powerful than the others, and, above all, how they potentially could trigger everyday risks and vulnerabilities for marginal communities.

Figure 8.3: Another 'Uninterrupted' Section of the Devastated Part of Sundarbans (Source: Author, 30/01/2010).

Here, the issue is not about 'sustainable greener planet', rather 'sustainable for who' and 'at what cost' (Jalais, 2007; Goldman and Turner, 2011). Following a period of in-depth observations

and interactions with marginal and forest-dependent communities throughout my eight months of fieldwork around Sarankhola Upazila, in conjunction with a number of interviews with relevant government agencies, NGOs, experts and donors, I resist any simplistic call to blame the local community alone for degrading the forest. The Sundarbans is not just a complex ecological niche of its inhabited flora and fauna; it is also a historically constituted and morally bounded space of meanings, which is mutually informed by social logics, complexities and conflicts about the natural world (Jalais, 2007). Formal sustainability rhetoric and practice insufficiently recognises the social production of vulnerability (Leach et al., 2010), and without this understanding, inappropriate blame has been attached to marginal groups as the perpetrators of environmental harms. Rather, I found the knowledge practices among the various actors involved to be fragmented, and contested at times by the external stakeholders (anyone other than primary resource users) to serve their own purposes. I have therefore tried to understand the societal processes through which knowledge and knowledge claims came to be framed. What are the sources of competing frames in a risk-prone society? How are particular frames stabilised? How are choices between disputed frames made? By whom? In what setting? And on what criteria is their credibility to be judged?

As noted in the first paragraph of this chapter, the following discussion owes much to the preceding chapters in attempting to understand local livelihood opportunities, power structures, their dynamics, and relations in accessing to resources, challenges, reactions, and other details of the people's everyday lives. The last chapter explained how the definition of sustainability is tangled by vested interest and politics. This chapter refers back to the same theoretical framework to understand how different meanings of sustainability are ever-evolving and redefining people's relationships with the Sundarbans. Moreover, more than half of the Sundarbans-resource users fish in its crisscrossing rivers (Islam and Haque, 2004; Chowdhury, 2010), which also links this chapter back to the previous discussion of politico-economic issues around fishing. With reference to peoples' day-to-day arrangements, this chapter will explore:

i. how meanings of sustainability and conservation are contested over time;
ii. how the local community reacted to the changed practicalities posed by new definitions of sustainability;
iii. how much present definitions, such as of Integrated Protected Area Co-management (IPAC), fit to the sustainability rhetoric.

The Sundarbans

In Chapter Four, we mentioned about a land survey during the Mughal period, where forestland was marked as '*bazuha*' or a protected region, and was separated from taxable lands. Later the British declared the Sundarbans a reserve forest in 1875 (Banglapedia; Jalais, 2007), which opened the window to take the forest under state's control for commercialisation. The imperial notion of revenue generation put pressure on the forests to convert them to arable lands and, in a discussion

of the historical evolution of human engagement with the Sundarbans, Mitra (2000) points to the growing demand from the early nineteenth century for wooden sleepers for the railways, wood packaging in the tea industry, paper and pulp production, and for construction materials for cities like Kolkata and Dhaka. In the modern era, the World Bank has encouraged commercial forestry in Bangladesh (Iftekhar and Islam, 2004b). The Khulna Newsprint Industry, established in the mid-twentieth century, used 47 million cubic feet of *Gewa* wood per year until the declaration of the Sundarbans as a World Heritage Site in 1999 (Banglapedia; http://whc.unesco.org/en/list/798/). Jalais (2007: 337) comments:

> *'The Sundarbans have often been portrayed in ways which suited those in power. In 1875, Hunter, as pointed out by Greenough (1998: 240), devoted an entire book to the Sundarbans where, after writing at great length about the forest and wild animals, he only mentions in passing the people, referring to them as a "few wandering tribes" and classifying them after long lists of wild animals and plants (1875: 317). Present-day studies on the Sundarbans follow a similar lopsided dichotomy: fascination, on the one hand, for the natural aspects of the Sundarbans, but on the other, an unsettling silence on the social and human facet of the region.'*

As Macnaghten and Urry (1998) argue, ideas about nature have obvious fundamental embeddings of dominant societal views, which need to be scrutinised to understand the process and politics of framing. The following section explores the government's latest project on the Sundarbans, the IPAC, to comprehend how and what ideas of society are produced, legitimated, excluded and validated through appeals to nature.

Figure 8.4: A typical scenic view of the Sundarbans (Source: Author, 31/01/2010).

IPAC and Carbon Trading Project

IPAC is a USAID funded project, which aims to help the Forest Department (FD), the Department of Environment (DoE), and the Government of Bangladesh (GoB) to serve the Sundarbans ecosystem in ways that benefit the people. The Sundarbans act as a shield against coastal cyclones and tidal surges and any conservation work there therefore serves an important purpose. In addition, IPAC's biodiversity and ecosystem services will enhance the saleable carbon

value of the forest. As a way to support livelihoods, IPAC's mission is to serve those who live very close to the Sundarbans and extract resources there. IPAC is trying to find alternative ways of sustaining their livelihoods by increasing the productivity of resources outside the Sundarbans, so that the reserve forest area and wildlife sanctuaries can be preserved as an area of wildlife habitat. The tiger habitat, for instance, has tourist potential, and the fish sanctuaries are areas of important biodiversity. IPAC's web resources[37] claim to give the greatest emphasis to ecosystem services, to biodiversity, to cyclone protection, and to other matters that are compatible with conservation. Their argument is that shifting extractive land uses, particularly those that are non-sustainable, are best managed outside the impact zone. They want to reduce people's dependence on going in for the collection of shrimp fries, honey and fish. Because these jobs are tough and people occasionally lose their lives to tiger attacks, and because they are subjected to exploitation by money lenders and dacoits, they have no real incentive to invest in restoring, regenerating and managing resources that belong to the Forest Department. There is potential to play a larger role in collaboration with the Forest Department because there are tens of thousands of villagers but a relatively small number of Forest Department employees. Local communities, if engaged, could act as the eyes and ears of the Forest Department.

IPAC's frame is pretty straightforward. In a nutshell, their first priority is to conserve the Sundarbans and they therefore wish to prevent human interference. As this project will affect people's livelihood security, IPAC will have to make certain provisions. In summary, these are: i) training the community so that they are aware of alternative livelihood options; ii) eco-tourism opportunities, where half of the revenue generated from eco-tourism will go for community development; iii) eco-tourism will also open up local employment opportunities for tourist guides and the sale of local crafts; and iv) this conservation project will open up prospects of carbon trading and money earned from them will help to instigate further community building projects.

Is human interruption the only factor in the degradation of the Sundarbans? If not, how will the IPAC be addressing the other causes? IPAC has published two Participatory Rural Appraisals (PRA), Biswas (2009) and Ghosh (2009), on the Sundarbans' east and west sanctuaries (Figure 8.1), where they engaged with the forest users to understand patterns of resource use as well as what the potential threats are to forest degradation. The causes of forest degradation adduced in these reports are as follows:

- Rapid growth of population
- Extreme poverty
- Indiscriminate harvesting of natural resources; cutting trees, hunting wildlife, collecting non timber forest products, over-fishing

[37] See www.nishorgo.org/index.php?option=com_content&view=article&id=118&Itemid=87

- Corruption of staff of concerned government departments, especially the Forest Department
- Illegal removal of trees using old permits issued by Forest Department that are no longer valid
- Increasing dependency on the forest for livelihoods
- Lack of knowledge and awareness among the people on forest, tree, wildlife and environmental conservation
- Natural disasters
- Salinity intrusion
- Habitat destruction of Sundarban flora and fauna, leading to ecological imbalances
- Decreased employment opportunities in the agriculture sector
- Inadequate or non-existent income generation opportunities at local level
- Unplanned shrimp culture.

The above list is coherent with articulations of other works, such as Karim (1994), Iftekhar and Islam (2004a, 2004b), PDO-ICZMP (2004), Iftekhar (2006), Giri, et al. (2007), Jalais (2007), Awal et al. (2009), Biswas et al. (2009), Fatima (2009), Chowdhury (2010), Loucks et al. (2010), Mörner (2010) and many others. Several of the listed causes are very much associated and one is the cause of another or vice-versa or mutually derived. Examples include:

- Embedded deprivation in society, both formal/institutional (Sen, 1981; Watts, 1983) and informal (Arens and Beurden, 1977; Hartman and Boyce, 1983), which triggers destitution and simultaneously increases pressure on natural resources (Ellis, 2000; Allison and Ellis, 2001; Béné, 2003; Jentoft et al., 2010) such as the Sundarbans (Mitra, 2000; Jalais, 2007).
- Relations between the forest and its primary users have been transformed from subsistence extraction to contract labour (Mitra, 2000), which has been orchestrated through the endeavours of powerful and moneyed interests, such as the state (revenue generation, industrial and economic prospects), moneylenders and entrepreneurs (timber and non-timber resources).
- Resource extraction practices and conservation knowledge often do not go hand in hand because of corruption (Rahman, 2011), extreme poverty, lack of awareness-raising efforts (Biswas, 2009; Ghosh, 2009), and greed.
- Natural disasters cause multiple damages to the forest, such as – i) physical damage to the forest (Figure 8.2 and 8.3) and ii) damage to human livelihoods intertwined with socio-politico-economic complexities, as described in the previous empirical chapters.
- Like natural disasters, increased salinity affects both the forest (Siddiqi 2001; Iftekhar and Islam, 2004a; Mörner, 2010) and livelihoods (Fatima, 2009), as explained later in this section.

- Shrimp farming is a state-sponsored (Rahman, 2011) and capital intensive (Islam and Haque, 2004) enterprise, which is responsible for both forest (Salauddin, 2005) and land (Fatima, 2009) degradation.

Given these issues, it is understandable that for the sustainable management of the forest it is essential to design a comprehensive approach, which can promise both wellbeing and social equity as well as environmental integrity over an indefinite period (Leach et al., 2010). Whether IPAC has a potential design to offer such sustainability is another matter and will be discussed in the rest of this chapter. As noted in IPAC's PRA reports (Biswas, 2009 and Ghosh, 2009), to offer a sustainable Sundarbans, they suggest the following 'must do' tasks:

- Capacity building of the Forest Department.
- Inventory survey of the Sundarbans' resources.
- Awareness-raising programme for all stakeholders on the conservation needs of the Sundarbans.
- Prohibit unauthorised collection of forest resources.
- Rehabilitation of resource poor vulnerable people who are fully dependent on forest resources.
- Create livelihood opportunities for forest dependent people.
- Provision for habitat restoration through forest regeneration to ensure appropriate protection.
- Local elites, sawmill owners and brickfield owners need to be brought on board with the concept of forest protection and sustainable natural resource management.
- Awareness programmes needed on how ordinary people can benefit by conserving forest resources.
- Introduce more efficient wood-burning stoves to reduce pressure on fuel wood consumption.
- Proper implementation of government laws and regulations by the concerned authorities.
- Stop corruption at all levels.

Despite these people's recommendations, IPAC's framing only concerns direct access of the Sundarbans' impact zone people to the forest resources, while other important environmental issues such as natural disasters, increased salinity and shrimp cultivations are not on their agenda. Before examining the politics beyond their aforesaid suggestions, I will first explain why they have ignored environmental issues important for the Sundarbans.

IPAC assumes that they can achieve land accretion by allowing the forest to grow, which ignores the fact that the Sundarbans has become a part of the 'moribund' delta (CEGIS, 2006). Giri et al. (2007) analyse multi-temporal satellite data and reveal that between the 1970s and the 1990s, the mangrove forest gained from aggradations (2925 ha) nearly as much as was lost to erosion (3157 ha). From the 1990s to the 2000s, in contrast, the rate of erosion claimed seven times more mangrove (4151 ha) as was created by aggradations (592 ha). It is worth mentioning here, the lowest level of low tide exposes highest amount of lands along riversides and sea beach areas. Images taken during that time will show a larger forest land than images taken in any other times. Thus, this evidence is insufficient to declare a significant land-erosion induced loss, as these figures could have an effect of tidal influence zone. Iftekhar and Islam (2004a) argue that although the

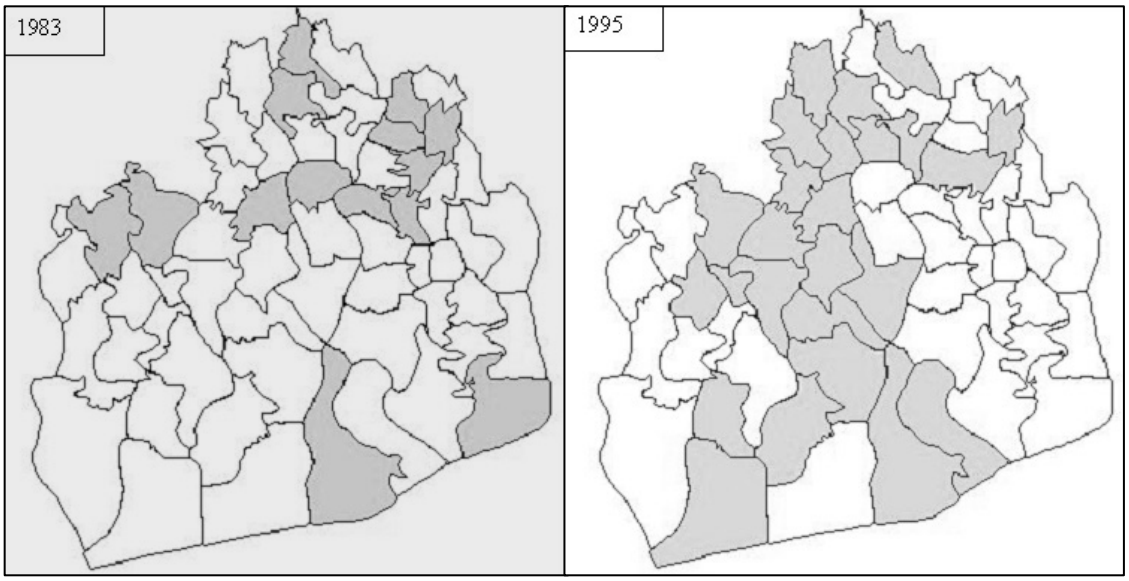


Figure 8.5: Spreading of Top Dying Diseases in the Sundarbans (Iftekhar and Islam, 2004a, p.126)

forest has not had any major change in its geographical coverage over the last few decades, its quality has been immensely degraded. Dieback (popularly known as top dying) disease is one of the setbacks for the forest's stable biodiversity. The *Sundori* tree is the principal victim of dieback – it constitutes 63.8 per cent of total tree vegetation (Awal et al., 2009 citing Chaffey et al., 1985). Figure 8.5 shows how significantly top dying disease spread over the 12 years 1983-95, probably as a consequence of rising salinity due to a reduction of fresh water flow due to the construction of the Farakka Barrage (Chowdhury, 2010; Mörner, 2010). The top dying of trees has been of particular concern since the mid-1970s (Awal et al., 2009) and this seems to fit with the hypothesis that the Farakka Barrage was the trigger (Abbas 1982; Karim 1994; Siddiqi 2001; Iftekhar and Islam, 2004a). Built between 1960 and 1974, this barrage is sited 10 kilometres upstream from the Bangladesh border in order to divert Ganges water to the Hooghly River. This reduced discharge to the lower basin by 60 per cent (Adel, 2002). The decreased rate of discharge affected downstream flood plains, ponds, canals, ditches, and the Sundarbans (Giri, et al., 2007). The groundwater table fell, and surface features were changed (Adel, 2002). The outcome has been mainly twofold: i) the

lowering of the downflow has diminished land aggradation, and ii) saline water has pushed up river estuaries and contaminated coastal aquifers.

The Farakka Barrage may not be the only reason for escalating salinity. Sea level rise would have some effect on this problem, as IPCC's first assessment report hints (IPCC, 1990), although some care is needed here. Mörner (2010) denies the IPCC's sea level rise theory. He draws on some observational facts of surface erosion and errors in gauges at four different sites in the Sundarbans and claims the opposite, that a phase of sea level shrinkage is ongoing. Such disagreements are the subject of academic debate, but accepting one or the other as 'true' will inform one's underlying politics (Stirling and Mayer, 2001; Wynne, 2001; Macnaghten, 2010; Goldman et al., 2011; Robbins, 2012), as elaborated in Chapter Two. Despite the confusion on sea level rise, this does not undermine, but rather prioritises, the issue of upstream water flow.

Like increased salinity, other environmental issues, particularly natural hazards and shrimp farming induced arable land degradation, have also had direct and indirect effects on the Sundarbans. For example, Chapter Five discussed the processes of marginal people's access to relief and rehabilitation packages, which is a vital part of comprehensive disaster management. Fatima (2009) also raises issues of social equity hindered by muscle power and the imposed degradation of arable lands due to shrimp cultivation. Both are creating a breeding ground of destitution. None of these issues are reflected in IPAC's understanding of forest conservation. Ignoring these environmental process of vulnerability production and focusing on alternative employment opportunity creation and restricting peoples' resource access from the forest, raise the doubt that maybe IPAC has chalked out a plan to keep the forest users out of the forest. This makes the IPAC distinctive from the sustainable livelihoods approach (Twigg, 2001) or bio-economic equilibrium model (Kibria and Ahmed, 2005; Mome, 2007), as discussed in Chapter Seven. However, having the Sundarbans out of any direct human contact will boost its carbon trading potential, which certainly informs us about the underlying politics (Stirling and Mayer, 2001; Jalais, 2007; Macnaghten, 2010; Goldman et al., 2011; Robbins, 2012). Knowing how people of the 'Sundarbans impact zone' are linked to the ecosystem of the Sundarbans would help us to draw critical reflections about that.

Ecology of the Sundarbans

One basic contrast of knowledge frames emerges from assorted understandings of the Sundarbans' ecology. In the case of other forests in Bangladesh, like the Madhupur Tract or the Chittagong Hill Tracts, the indigenous people who live inside the forest are considered a part of the forest ecology (Islam, 2006). However, the ecology of the Sundarbans is often framed within a box of natural ecology, where only 'non-human' living beings exist. Humans are counted as invaders who are causing substantial harm to the forest and the primary and the secondary users of the forests are always put in a same category. But, if we consider the present economic buffer zone of the

Sundarbans, it will guide us in framing its ecology. This forest is not only a natural habitat for tens of thousands of animals, birds, fishes, dolphins and reptiles, but also a source of livelihoods for four million people (PDO-ICZMP, 2004). As Robert Winterbottom, former Chief of Party of the IPAC project says, approximately a million people live and work in and around the Sundarbans for their livelihoods, 3 million are in the impact zone, and more within the threshold. Within the buffer zone of the Sundarbans, around 18 per cent of people directly depend on the forest for their livelihood (Iftekhar and Islam, 2004b). However, within the closest proximity of the Sundarbans, dependence on forest resources is much higher. Biswas (2009) reveals in his PRA of 46 villages near to the Sundarbans East Sanctuary that its primary stakeholders cover 79 percent of households. They fish, gather honey, *golpata*, *hental* (*Phoenix Pelludosa*), and so on. Their collected resources come to the market through another four per cent of households, who are the businessmen, such as money lenders (*mohajon*), fuel wood, fish and honey wholesalers, sawmill and brick field owners, and charcoal producers. There are tertiary stakeholders like the Forest Department, NGOs, governmental administrative structures and expert bodies like IPAC. Apart from these formal stakeholders, there are a few informal groups tied to the system, such as dacoits and corrupt local politicians. Dacoits collect kidnap ransoms and grab resources from the primary forest users and corrupt local politicians use their networks and power to carry out illegitimate extraction from the forest. All of these people are part of that ecology and without having a total picture of them, the Sundarbans ecology will be partially understood which could have serious implications for local livelihoods.

Natural Harmony of Forest Livelihoods

The fabric of local livelihoods and the forest was well harmonised until the secondary and tertiary stakeholders intervened. For example, in the previous management system[38] there was provision for 'selective felling'. It was an eight year cycle. In the first year, foresters used to go and mark the trees for felling. In the second year, these were leased out for felling. After felling an assigned area, foresters checked whether any unmarked trees were cut down or harmed and handed out fines on the basis of their examination. This additional revenue was spent on planting new trees. Once a block had been felled its use was restricted for the following eight years to let it regenerate. In 1989, because of widespread dieback diseases, the then government put restrictions on felling *Sundori* trees (Iftekhar and Islam, 2004a). During the era of selective felling, the people knew that their activities were legal and they would have to pay if they damaged any unmarked trees. They were

[38] The Sundarbans were the source of raw materials, mainly *Sundori* and *Gewa*, for the Khulna Newsprint Industry. The felling of *Sundori* has been banned since 1989 because it has become widely exposed to dieback disease. Following the declaration of the Sundarbans as a World Heritage Site in 1999, Bangladesh signed up in the 'Convention of Biological Diversity' (Iftekhar and Islam, 2004b), which restricts commercial harvesting in the forest, such as 'selective felling'. The trimming of *goran* was stopped in the aftermath of cyclone Sidr.

therefore very careful when in the forest. But now, because they are illegal, they are in a hurry and cut down the mother tree and do not care about the other, surrounding plants. This hampers the *sundori's* growth in numerous ways. For example, when they fell a mother tree, they hinder seed production. When they are in a hurry, they are very likely to kill or damage newly growing plants that are in their way. This is the same in regard to any plant they fell. A Station Officer (SO) of the Sundarbans told me from his 25 years of experience in the forest that illegal felling is significantly higher now that the government has banned timber felling without creating any substitute employment opportunities for the communities.

Golpata (Figure 8.6) is another plant that is widely used as a house building material in the southern part of Bangladesh. This particular plant requires trimming for its growth. Every year, at the end of winter, *bauals*[39] collect *golpata*. Like the *golpata*, *goran* needs leaning and thinning[40] for its healthy growth. Besides, *goran* branches also meet the fuel wood demand of the community. *Nol* and *Sone*, are long grasses, have a yearly cycle and they will rot if they are not trimmed, which also results in a reduced growth the following year. They help in the construction of the sidewalls of houses and are also used in making bed mats.

Figure 8.6: *Golpata* only grows on tidal mud along the riverbanks (Source: Author, 29/01/2010).

[39] The Sundarbans has three major forest users: *Bauali*: who collect plant materials, *Mouali*: who collects honey and the third group are fisherman: who catch crab, shrimp fry and fish in the river channels inside the forest.

[40] Leaning and thinning is a technique of helping a plant to grow by cutting its brushwood and leaves.

Figure 8.7: A temporary fishing village (inhabited from September – April fishing season) in a Sundarbans Island, called *Shewlar Char*. Houses are made of *nol*, *son* and *golpata*. (Source: Author, 30/01/2010)

A Tale of an Illegal Feller

I met Ponu at a local tea stall at Gabtola. He is 20/22 years old, about 5 feet 10 inches tall and strongly muscular, which gave me an impression that he must have been doing quite hard physical work since he grew up. I often saw him at tea stalls, with many of the other young fellows. Their relentless occupancy of the tea stalls never surprised me, as I already knew that they hardly had any employment opportunities at Gabtola other than fishing, unless they had any agricultural land. On different occasions, I asked them many questions about the local power structure in order to elaborate my naive observations. Ponu often put me in the right direction. One day Ponu invited me to visit his home and he was overawed to see me unhesitant about sitting on his 'poor' earthen floor when he had been trying to borrow a chair for me from his neighbours. To me, it was normal not to expect a chair, something I had learned from my work experience with the Rural Maintenance Programme (RMP), which engages the most destitute women of rural Bangladesh to help them achieve livelihood security. But, to Ponu, I was a privileged 'city boy' who lives in a 'dream country' (UK), which was reflected in his surprise and in thankful tears that came naturally when I sat on his bare floor. Gradually, Ponu and I become good friends and I came to know how he became an illegal feller.

Ponu can hardly remember his father's face because he passed away, leaving Ponu as a toddler along his other four brothers and three sisters. A little of their land went under the Boleshwar River. When Ponu was in year three in a local primary school, his elder brother, Nanna, was involved with an illegal timber felling gang. Nanna was a very good friend of Jakir Haulader, Mokbul Member's son.[41] Jakir fancied a girl who was in love with Nanna and this eventually broke up their friendship. So, Jakir put an illicit small firearm in the backyard of Nanna's house to plot a

[41] A power network map of Gabtola can be found in Chapter Five.

dacoit case to evict Nanna. Jakir discussed his plan with his uncle Anis Mallik, who is also brother-in-law of Ponu's eldest sister's father-in-law. He was not aware of the background of this plot and was quite sympathetic to Nanna. Therefore, he dropped hints to Ponu's eldest sister's father-in-law. Ponu saw the weapon in Jakir's hand while Jakir was in their back garden, but he was too young to recognise it as dangerous. However, as soon as his eldest sister was informed about the plot, she ran up to their home, discovered the firearm hidden underneath their backyard stairs and hid it in an abandoned garden. The police came shortly after but could not find the weapon. When the police started interrogating Ponu's brother's wife, she became afraid and showed them the weapon. Nanna was informed about this on his way back home, and, anticipating some trouble he escaped to Dhaka, far away from his home. Ponu's sister and sister-in-law were sentenced for six and nine months in prison. His two elder brothers were still around, living a separate life with their own families after getting married. They were leading a hand-to-mouth existence and it was Ponu who had to be the bread winner in the family at that time. Ponu's mother encouraged him to continue his education, but he was the subject of gossip among his school friends, being labelled a dacoit's brother. As a result, Ponu had no other alternative but to leave the school and start collecting shrimp fries (*Bagda*) from the river.

When Nanna realised about Ponu's hardship, he moved to Chittagong to work in the ship-breaking industry. The money he earned was used to resolve his case. It took nearly four years to put an end to the case and Nanna came back home from exile. After coming back, Nanna realised that he had been accused in two cases, one for robbery and another for keeping an illicit firearm. He was jailed for five years for the firearm case. Ponu was quite grown up by this time and harsh realities around made him very cautious. Ponu assumes that eight years of exiled life and suffering drove Nanna to join a dacoit gang to take revenge. On the third day of his dacoit-life he was caught and was sentenced to jail for another three and half years. This time, Nanna realised that dacoitism did not suit him. He does not have any land to cultivate, nor any fishing skills, and other employment opportunities were scarce; so, they decided to go to the forest to fell timber. Ponu told me that 'I never have done any bad thing in my life, nor would allow my brother to do. We go to the forest, do timber felling and live our life.'

How does a timber felling gang work?

Mohajon employed Nanna to fell 500 cubic feet of timber for a wage contract of 200 taka/cubic foot. They also gave a bribe to the forest guards so that they would overlook the fellers. If they did not negotiate with the forest guards beforehand, the contract-wage would have been 250 taka/cubic foot. But, irrespective of any negotiation with the Forest Department, if anyone from outside this circle informs forest guards about attempted theft, they are obliged to catch them in order to save their jobs. The Forest Department has an estimate of the total volume of wood and every forest station is liable for any loss of forest resources within their jurisdiction. The forest guards normally let fellers through to cut down trees outside their jurisdiction because they are not

accountable for that, but this can rebound if another gang from a neighbouring station slips through on to their land. When the forest guards identify any felling within their territory, they file a court case against a suspected feller gang. They often use suspects' names from their previous case files. They also depend on their agents to collect intelligence. These agents are part of a community where the nature of uncertainty makes people desperate to compete over resources and, thus, bring disputes into the social realm. Anecdotally it is said that those who inform the forest guards do so with previous personal disputes in mind.

The Vicious Socio-Politico-Administrative Cycle

In such a social scenario, when Nanna or Ponu receive money in advance from a *mohajon* for felling, they spend the money on bribes to get bail from the court and become indebted. The *Mohajon* puts pressure on them either to pay their money back or to go to the forest again. They always bear the pressure of paying their debt to *mohajons*, paying lawyer's fees instead to fight their court cases and bribing the police to keep them at bay. The first time Ponu was charged with illegal felling he was found guilty and sent to prison. His mother borrowed 10,000 taka (£100) from Ponu's *mohajon* to bail him out. Finally, it took 19,000 taka (£190) to get him out from behind bars after serving 29 days. Once he came out, he realised that he would only be able to pay off his debts to the *mohajon* if he got involved in illicit work. Therefore, he had to go to the forest again.

Such circumstances drive those involved to more uncertain livelihoods. Sometimes, they try to work with a new *mohajon* to escape paying off debts to their old *mohajon*. On such occasions, the new *mohajon* exploits their vulnerability and does not pay them a full wage. In the worst cases, when *mohajons* have political and administrative connections, they can easily trap these poor people and pursue a theft or illegal felling case against them. Four cases have been filed against Ponu since the new political regime assumed power in the early 2009. Ponu believes that these cases were filed to suppress him as he says he is an active supporter of the present opposition, the Bangladesh Nationalist Party (BNP), who headed the previous government. One of these four cases charges Ponu with illegal felling while he was physically in prison for the previous case of illegal felling! One of Ponu's brothers has been living in Jessore, a relatively distant regional town and growth centre, for the last five years and he has also been charged with illegal felling. Another of his brothers, who has been living in Dhaka for last 10 years, has similarly been charged with a forest case. Ponu thinks that for the next five years, the duration of the present Parliament, even if he gives up the felling job, he will be charged with cases, as he seems to have been black listed. Therefore, the only option left for him is to leave his home and to find another job in one of the big cities. This does not guarantee that he will not be further charged while he is away, like his brothers, but at least he will have an alibi. Since July 2010, Ponu has been working for a ship breaking firm at Chittagong.

Untold testimony of a Dacoit

There are many Ponus around the Sundarban villages. Those who do not leave their villages become dacoits and Sobur was one of them. Sobur was a fisherman and wage labourer at Tafalbari, two kilometres north of Gabtola. He had some affiliation with the opposition political party in early 2001. The rivalry triggered by political enmity led his political opponents to trap him in a firearm possession case. A firearm, found hidden in a bush one kilometre away from Sobur's home, was recovered under his name. He was sent to prison summarily and the case was never forwarded to the court. After serving four and half years, he met some high ranking visitors to whom he explained his issue. He was bailed within a month and his case has remained pending ever since.

Sobur came back to his home and restarted his previous job. By then his party was in power and he had no problems whatsoever. In 2007, he was caught up in cyclone Sidr. His toddler son was killed, his home was wrecked and everything was washed away. Like all other families, he received relief money and goods. He bought a small piece of agricultural land with that money. Several others were tempted to buy the same land and Halim Mridha was one of them. It is worth mentioning here that Halim Mridha is affiliated with a rival political party and he plotted a case against Sobur soon after this party came to power in early 2009. This time it was a hijacking case. Although Halim was not able to gather much evidence against Sobur, he influenced the local police administration to forward his case to the court under Clause 54, which allows the police to arrest anyone on suspicion. Sobur even did not know who the plaintiff in his case was and he was only bailed after four months. He had to sell off his land to pay the fees of the court and his lawyer. At this time he was approached by Sagir, a dacoit gang leader, who offered him membership of his gang.

While Sobur was in jail, cyclone Aila struck and damaged his home again. His wife was on the list of refugees like the other affected people but the relief distributors refused to give her anything. After coming out of jail, when Sobur found that his name was also on the list, he went to the local council office to claim his share. He discovered that his name had been deleted from the recipients list and Rob Mallik's son's name substituted. Rob Mallik and Halim Mridha are political allies and Sobur had no ability to withstand them. Sobur's joblessness, frustration and anger triggered a feeling of revenge against Halim and Rob. Therefore, instead of going to a big city to find a job, he joined in Sagir's gang of bandits in the Sundarbans. Sobur started taking ransoms and extorting from other forest users. However, early in April 2010 he was cornered by some of his victims, they blinded him and he was handed over to police custody. During my eight months stay at Sarankhola, Sobur was the sixth dacoit I heard of being caught by the community and all of them were blinded in this way.

Standpoint of the Forest Guards

Illegal fellers and bandits are believed to keep good contacts with the forest guards. However, the guards' pain and frustration are rarely considered. They live in the forest and their families live elsewhere. They maintain two households, and therefore have costs that are much higher than their salaries. Despite taking tremendous personal risks in chasing organised dacoits, they do not get any bonuses, nor any risk benefits (which the police have). During my fieldwork, there was a gunfight when a bandit group was raided by the forest guards. The raid was successful at the cost of a forest guard's life, while several others were injured. None of them, nor their families, received any compensation from the government. I met one forest guard whose lower jaw was hit by a bullet from a dacoit group and his medical bill was 170,000 taka (£1700), which he had to pay by himself.

The guards' deprivation is not only at an individual level, but has also plagued them as a group. For example, I was told that one station is allocated 2000 litres of petrol every month for boat patrolling. They do not receive this in any form, but have to sign the patrol receipt logbook every month. So, who should pay for this petrol? It comes from bribes they collect from the forest users. Thus, the system puts them in a position where they feel they have to take money.

The Sundarbans are quite different from the land forests in Bangladesh. Here the physiographic character of the forest restricts access. It is a dense forest that is criss-crossed by rivers and complex channel systems. I visited the Bogi forest station where they do not have a speedboat to chase criminals. Their motorised boats are rather noisy and criminals are able to hear and locate them from a safe distance. They have a jurisdiction of eight square kilometres and have only 20 people to protect this whole area. As they are split into three groups in three shifts, these sub-groups are smaller than the smallest gang that operates in the area. The bandits come to their station when they need firewood or fuel. They outnumber the forest guards in numbers and in firepower. So the have no choice but to cooperate with them.

Political Corruption

Most of the crime in the forest has some direct or indirect political and administrative patronage. If we think about the timber fellers, there are about 300 in Gabtola and more than 4000 in the entire upazila. The *mohajons* or brokers who pursue them to go to the forest are the top ranked political and business persons in the upazila. But when the fellers are caught red handed and charged with whatever crime they have committed, their patron is never charged with complicity. If they receive a prison sentence, their patrons let them borrow bail money so that they can again work for them. This cycle continues on and on. That is their only means of income and there is no change in their livelihood status. If they want to break the cycle, they have to depend on relief and rehabilitation schemes as employment opportunities, and these are scarce in the area. Anyway, dependence on relief further enmeshes them in the patron-client network as politicians have control over those

resources (See Chapter Five for detail). The people who are patronising them are growing richer and they are never dragged into the legal system.

Discussion

The above discussion uncovers how carbon trading is framed in the name of natural conservation while the main causes of degradation are ignored and socio-political practicalities of vulnerabilities are neglected and bypassed. The causes of forest dependencies are not thought through and, thus, have not been addressed in conservation projects. People who lose everything in cyclone and riverbank erosion slip into a vicious cycle of poverty. They need to be protected from slipping out of their rhythm of life in the first instance. The following discussion stresses the likely future consequences of IPAC's efforts.

Participatory Exclusion of Community

IPAC is trying to pioneer co-management in partnership with different stakeholders in the forest's resources. They have chosen some adjacent villages to run a co-management model and these are called the VCF (Village Conservation Forum). Every forest-dependent person is a member of the VCF. Two members are elected from every village to be members of the People's Forum (PF). Around Sarankhola, IPAC have clustered 21 villages, from which they have 42 PF members. The Co-Management Council (CMC) is the upper stratum of the PF, consisting of 65 members, including 22 members of the PF, and five from the UP. The Upazila Chairman, the Member of Parliament and the District Forest Officer (DFO) act as Advisors, and the Forest Ranger is the member secretary. There will also be five people from civil society, and four from forest user institutes (*mohajons*), the *Nishorgo* club (young people) and the patrol team (which consists 4/5 community members and a forest guard). The highest stratum will be the co-management committee (CMgC), which will consist of 27 members. This highest stratum has not yet been formed.

My field experience prompts me to wonder how far this community can work in view of the fabric of power relations among participating actors. The poor of the community, despite having institutional grounds to be empowered, are not socially and politically liberated enough to talk in front of the DFO, Upazila Chairman and so on. As discussed in Chapter Six, I attended a *Salish* on Mazer Char's land dispute at Mothbaria Upazila in January 2010, where nine of the upazila's political elites were in the *Salish* committee and every single family from Mazer Char had a representative in the meeting. The ordinary people were not sure whether any decision would be made that day. Nor did they have the courage to ask anyone on the committee about any indication of when they would be able to make a decision. At the time of writing (July 2012), the Salish committee has still not come to a decision after two and a half years. On another occasion, I was talking to the Sarankhola UNO about some local dispute over relief materials. He pretended that

victims could come to him to discuss their problems. But I wondered how realistic that was when I, being empowered enough one would have thought by virtue of my polished Bengali accent and appearance, did not have any direct access to his office. In my opinion, IPAC's co-management is an overambitious and gimmicky approach to community participation that will simply serve the purpose of the elites (See Figure 5.3 and 5.4 in Chapter Five). At Gabtola, for instance, Jakir Haulader (Ward Awami Jubo League Secretary) and Shewly Begum (daughter of Moksed Doctor, Ward Awami League President) are two elected VCF leaders and, by virtue of this office, they also hold membership of the PF.

IPAC's Version of 'Ecotourism'

According to the *Oxford English Dictionary*, ecotourism is tourism to areas of ecological interest (typically exotic and often threatened natural environments), especially to support conservation efforts and observe wildlife. Specifically access to an endangered environment is controlled so as to have the least possible adverse effect. The World Conservation Union (IUCN) defines the concept as environmentally responsible travel and visitation to relatively undisturbed areas, in order to enjoy, study and appreciate nature (and any accompanying cultural features – both past and present) that promotes conservation, has a low visitor impact, and provides for the beneficially active socio-economic involvement of local populations. Conventional tourism providers often use the concept as a marketing tool, without embracing its ethical and environmental basis and IPAC seems quite reticent about how the tour operators are running their 'eco-tours'. This is because:

1. I went to some tourist spots inside the sundarbans and met a group of private college students from Dhaka with their teachers, including the Principal of that college. They wanted to have a campfire in one of the islands but the SO of that forest station tried to restrain them from doing so. Then, the principal contacted a senior government official in Dhaka and through him they got permission for their campfire.
2. All of the tour operators are based in Dhaka, the capital city, and they do not employ anyone from the local community where competent tour guides are in short supply.

How is the Community Going to Get their Share?

The most irresistably tempting thing that the IPAC is offering the community is a half share in the revenue generated by tour operators and carbon trading. But how are they going to access that money? Will the community have enough control over their share? Who is going to direct the distribution? Will IPAC have any role thorugh this process? According to the plan, the money will be passed down from the central government to the local government, who will then use the money for development projects to engage people with income-generating activities. Though ideally this sounds very impressive, the greatest danger lies here. As the field reality tells us that the IPAC's formation community organisation does represent the affuent part of the society, it is very hard to

imagine that the poor will be the prime beneficiary of that fund. Chapters Five, Six and Seven elaborate on how benefits of aid grants rarely trickle down to the poorest. Moreover, when local government in Bangladesh are gradually becoming means of centralising power (Nadiruzzaman, 2007), there is always a worry that the money would be used for partisan interest, as before (Westergaard and Alam, 1995; Barenstein, 2000; World Bank, 2002; Reilly, 2003).

Ethnographic fieldwork of this scholarship provides sufficient examples to link partisan interest, lack of accountibility, lawlessness and patron-client networks with resource access and distribution. As IPAC suggests, people will have to leave their forest dependent livelihoods, in which they have their own control and freedom of choice, to rely on the revenue generated through carbon crediting and eco-tourism. From previous experiences of resource distribution (Arens and Beurden, 1977; Hartmann and Boyce, 1983; Bode, 2002; Blair, 2005; Toufique and Turton, 2005), and observations at the field sites, it could be speculated that the community eventually will not have any control over their livelihoods. Those who used to be legal forest workers are being pushed out, even from the sustainable trimming works that help the forest to regenerate, just for the sake of carbon trading, and they will move from one vicious cycle to another. Earlier the *mohajons* controlled their lives and now it will be the local politicians. In many cases, these *mohajons* and politicians are the same persons. When this issue is brought out in discussion, the most popular and unanimous answer is, '*this is the statecraft; we will find corruption around and will have to find a way through*' (Interview with Professor Ainun Nishat, 18/12/2009). However, according to the Chief of Party of IPAC, this is not an anti-corruption project. This assertion hints that carbon (and climate change) is IPAC's main focus and explains why restricting access to the forest and its resources is so important. Every living and non-living entity of the forest has a carbon value and removing any biomass, even sustainable trimming of *goran* and *golpata*, *son*, *nol* and *hental*, regardless of the management benefits for the growth of those species, appears in the deficit column of the carbon accounting. Moreover, after reading the PRA reports (Biswas, 2009; Ghosh, 2009), talking to field-level staff, and interviewing two of the highest ranking officers of the IPAC, it was difficult to avoid the conclusion that law enforcement is to prohibit local villagers getting into the forest for resource collection, not for ensuring that the people get their due share, as promised in the project. There is no doubt that unless transparency in restored to the process, this project is going to produce many more Ponus, Soburs and even more helpless people in the years to come. As Jalais (2007: 341) argues,

> '*how, from being a 'waste' or 'drowned' land under early colonial administrators, it has metamorphosed into 'a beautiful and exotic garden' culminating in a 'World Heritage Site'. This is not so much the history of the Sundarbans' 'nature' as it is of its portrayal by the authorities that govern it. What is not addressed in relation to this picture is the fate of those who live in the islands adjoining both the Bangladesh and the West Bengal Sundarbans forest.*'

Conclusion

Iftekhar and Islam (2004b) say that from 1966-96 the coastal afforestation programme in Bangladesh was funded by the World Bank and that one of their objectives was to sustain timber production for fuel wood and industrial uses. Bangladesh is gradually shifting from a harvest and revenue forest to a natural conservation paradigm. This is because the UN-REDD (United Nations – Reducing Emissions from Deforestation and Forest Degradation) is acting as liaison for carbon trading between the global south and the global north. In the case of Bangladesh, USAID and US Forest Services are offering money and technical expertise to promote the carbon trading potential of Bangladesh, which will eventually help them to legitimate their emissions. Politicians have agreed to this kind of project, which gives them more financial control than ever before. Moreover, such a project will help their power to penetrate right to the bottom through the development of patron-client networks, while at the same time being politically correct about climate change.

'Climate change' issues have encouraged multidisciplinary perspectives that together stress 'participatory approaches'. In theory this advocates community empowerment by engaging people in the decision-making process and assuring their emancipatory participation. But, despite the literal meaning of this approach, 'participation' has widely been misused, abused and exploited by its users (Pelling, 2007). The post-Sidr forest management of the Sundarbans is not an exception and, we can say that it amounts to 'exclusion through participation' or 'participatory exclusion'. We discussed in earlier chapters that communities around the Sundarbans depend more on natural resources for their living as there is a lack of secondary and tertiary employment opportunities. About 3-4 million people within 20 kilometres radius of the forest are dependent on the forest for their livelihoods. Marginalisation in other potential employment sectors, such as land and fishing and even in governmental rehabilitation schemes, is increasing pressure on the forest. On top of this, two consecutive cyclones in November 2007 (Sidr) and in May 2009 (Aila) cost huge losses to their livelihoods. Given these circumstances, prohibiting people from accessing the forest resources without arranging alternative livelihood options for them restricts their opportunities to recover from cyclone damage.

The IPAC is in effect a replication of an old corporatised model of forest management (Mitra, 2000; Jalais, 2007) and does not have enough elements to support human wellbeing, social equity and environmental integrity (Leach et al., 2010). The evidence suggests that the subject-community is being used in the name of 'carbon trading' through 'ecotourism' and 'natural conservation'. Unfortunately, this seems likely to make them more vulnerable to future disasters, and might even lead to a repetition of Salauddin's (2005: 10-11) analysis of char land control:

> *In December 2003, a series of violent incidents in the remote shoals of the Meghna River in Noakhali shook the nation. As reports started to pour in, it was first conceived that the 300,000 people, mostly landless peasants, in these remote shoals or char land have risen to challenge the bandits, who have long exploited them*

with iron fists and deprived them of the vast natural resources. But soon the facts emerged. The systematic killing of nearly 40 alleged robbers had nothing or little to do with a popular uprising. It was the local political leaders and vested quarters operating from the capital who allegedly instigated the killing in the name of cleansing the char lands of robbers.

It soon became clear why the elite city dwellers had eyed the char lands of such a remote part of the country. The area promised a huge prospect in shrimp cultivation. In May 2003, without any assessment of social or environmental impact, the government had declared 11,955.59 acres of char land in Noakhali as shrimp cultivation zone. As soon as the declaration was made public, influential quarters rushed to evict the landless peasants and grab the land to establish shrimp cultivation compartments. The nation watched as hundreds of landless families, who had long lived in those chars were evicted.

Chapter Nine

General Reflections, Challenges and Future Research Directions

Chapter Nine: General Reflections, Challenges and Future Research Directions

Introduction

I would like to introduce Anwar Haulader at the beginning of this concluding chapter, as his story connects all the chapters together. I first noticed Anwar while I was talking to a small group of Sonatola Model Village residents (10/10/2009) at the corner shop. Anwar suddenly turned up from nowhere with a few tools in his hands and was angrily expressing his disappointment to others that they were not taking any initiative to repair the only tube well in their village. Others sitting with me tried to explain why they were not able to repair it when they attempted or what else they had done for the common interest. Continuing verbal exchanges alongside, Anwar started unscrewing tube well parts to change a valve from the inside. I gave him a hand by passing tools to him, holding up parts and doing other necessary tasks. After that we talked for many times and I learned about Anwar's life.

Anwar is the youngest of three brothers, all married with their own families. They used to squeeze into their parent's home as none of them had their own homestead lands. Neither Anwar's parents nor any of his brothers had any agricultural land. None of them had enough capital to run their own businesses either. Therefore, all of them depended for their living on wage-labouring activities, in agriculture, infrastructural development, fishing and forest resource extraction. It was not that they picked one from the selection of choices of job opportunities (Ellis, 2000), rather their opportunities were always constrained (Sen, 1999; Allison and Ellis, 2001; Béné, 2003; Jentoft et al., 2010).

Anwar was at sea fishing as a wage-labourer when Cyclone Sidr hit. There were seven other wage labourers like him, one boatman and one representative of the *mohajon* in their fishing boat. Just a day before the Sidr struck the crew members noted the change in the weather's mood and asked their boss whether they should pull back to the shore and anchor in a safe inlet. Their boss, the *mohajon*'s man, wanted them to maintain their position and keep fishing. They did not have any radio in their boat and so were not aware of any formal cyclone warning. Their experienced observations on weather variations and, later, information about the cyclone warning through mobile phone contacts with the mainland, where CPP operates (see Chapter Four), together were indicating something bad to come. But they did not have any freedom to back off. Because cyclones often die out at sea, without turning wild and making landfall, neither fishermen's observations nor expert climatological models can make any guaranteed infallible judgement with regard to cyclone magnitude, track and timing of landfall. Moreover, only just a month before that the BMD had issued an alert with a number 10 signal (see Chapter Four) for a tsunami, which had proved to be a false alarm. So, if the boat had withdrawn in the face of what later might have been a false alarm, there

would have been tough consequences from their *mohajon*, such as job losses and wage cuts. When the sea became very violent and other fishing boats started pulling away, Anwar's boss decided to change his plan. But, as Anwar tells the story, their boat was the last boat to withdraw from that vicinity and find some tree cover, yet they were still five hours away from a safe inlet. It was nearly sunset and the sea turned even rougher. It was not practical given that situation to run for the safe inlet. There were around twenty boats with them who were all anchored together. Sidr swept across them at around 9 PM, 4-5 hours after they anchored. Anwar's boat was one of only two that survived and the rest were either capsized or blown elsewhere. The following morning, Anwar and the other crew members reached the nearby shore and prepared to return home.

Several days after the cyclone, when Anwar's family have not heard anything from him, they assumed that he had perished. Anwar came back home one evening after two weeks and found that his family members, relatives and neighbours had gathered together to pray for his departed soul. Meanwhile his family received petty cash as aid relief from different individuals and organisations (see Chapter Five). Adding up all aid money, Anwar gave 7500 taka (approximately £75) to his *mohajon* to go fishing again so that they could all recover from the loss. This time they had a good catch but his *mohajon* later denied that he had received any money from Anwar. Nor did he give him his due share of wage-money. Anwar took his case to the UP Chairman, who, as Anwar thinks, had received a bribe from Anwar's *mohajon* and gave a verdict in the *mohajon*'s favour. Given his limited capacity, Anwar could proceed no further. So, he decided not to go to the sea anymore and went instead to the forest, under another *mohajon*, for seasonal fishing.

After a season's fishing, Anwar worked as an agricultural labourer during the harvest and then went to Khulna, the nearest big city and a Divisional headquarters, to work in a gram flourmill; he then moved to Dhaka after two months to work in a flourmill. He again came back home before the fishing season, when I met him first. He does not know what he will do next; it entirely depends on what comes up. He may go for fishing in the Boleshwar, or go to sea again. He is still trying to get his money back from his former *mohajon*. Meanwhile, there was a change in political power. In the National Parliamentary Election 2008, the Awami League (AL) and their political allies won with more than a two-thirds public mandate and formed a coalition government in early January 2009. The former UP Chairman (2001-2008), who later resigned and contested the Upazila election in 2009, lost against the Awami League candidate, which transformed control of local power from the BNP network to the AL domain. Anwar is now trying to make contacts within the AL power network to get his money back. He is also trying to get a *khas* land at Sonatola through his contacts. Anwar's affiliation with the present power realm may endanger him if the former political elites resume power through winning in future election. For example, Anwar's main contact with the present powerful network, Nasir Pottor, is an AL activist, who had 27 forest cases against him during the last BNP regime. His future survival will depend on how he copes with the ever-changing power relations.

This tidal rhythm in Anwar's life draws a general picture of life and livelihoods around Southkhali Union, where I conducted my ethnographic fieldwork in the hope of understanding the meaning of cyclones through the investigation of people's everyday lives. In this chapter, I will wrap up the discussions of preceding chapters through – i) answering the research questions I laid out in the first chapter; ii) discussing the wider implications of this research; iii) pointing out the limitations of this research; and iv) hinting at potential directions for taking this research forward. Thus, the following section begins by revisiting the research questions.

Revisiting Research Questions

This research asks questions in three broad areas – a) environmental vulnerability, b) marginalisation and c) power dynamics, which are elaborated below.

Research Question 1: How are communities' everyday livelihoods connected to cyclone knowledge?

Who is vulnerable to cyclones?

The most popular definition of vulnerability is a status quo of an individual, a group or a system, combining three basic elements of exposure, sensitivity and adaptive capacity, against an adverse event (Adger and Brown, 2009). Thus, to understand 'who is vulnerable to cyclones', we need to explore individuals' exposure, sensitively and adaptive capacity with regard to cyclones.

Exposure to cyclones can be deliberate by not having any defence structures or can be socially constructed by forcing people to exceed or ignore protection structures. The traditional framing of cyclones in Bangladesh (GoB, 2008ab) understands exposure in terms of being outside structural protection, such as cyclone shelters, embankments and cyclone warning systems. This research acknowledges the importance of having engineering structures. However, existing cyclone shelters in Bangladesh can accommodate less than 10 per cent of the inhabitants of coastal communities (CEGIS, 2009; also see Table 4.3). In addition, coastal embankments are frequently damaged (in my fieldwork area) and cyclone warnings and communications are inefficient (as unfolds from the Sidr stories), exposing a large proportion of people to the mercy of nature. After cyclone Sidr, almost every village of Southkhali Union now has at least one cyclone shelter and almost every NGO operating in this area had a cyclone warning awareness programme, which together have reduced the potential death toll from future cyclones. However, the embankment around the Union is still in a fragile condition, which exposes people's houses, crops, livestock and other assets, to the impending danger of being flooded and damaged, which also has a bearing on individual and community sensitivities. Again, it is not always people's choice whether or not to be outside the protected structures when a cyclone is imminent as we learned from the stories of Anwar from

Gabtola (see Chapter Three) and Anwar from Sonatola Model Village (as described at the beginning of this chapter). In the case of the first Anwar, he went fishing as it was important to him to ensure the next meal for his family. In the second case, Anwar's *mohajon* compelled him to ignore the forecast warning. The four empirical chapters (Chapter Five, Six, Seven and Eight) explained the marginalisation process in my field sites, which also links to both of these cases. Such evolving marginality coupled with inefficient warning systems, and weak and unmanaged circumference of the embankments, triggers exposure to cyclones.

Sensitivity, here, is an individual's or a system's capacity to absorb the shock of a cyclone without experiencing any long-term suffering or significant state of change. Both the magnitude of a cyclone and robustness of structural defences have a direct correlation with any manifested damage. And it is also simple arithmetic that a higher cost of damage brings a long period of suffering. As discussed in several parts of this thesis, the general community in my field site live at a subsistence level of livelihood. Any shock in their life, such as illness, job loss, damage of assets or the death of family's breadwinner, has an impact. This thesis has drawn a picture of life as it was observed two years after Sidr, while myriad people were struggling to get back on their feet. Here, it is also important to note that, though there are anecdotal claims that Gabtola received an overwhelming amount of relief and rehabilitation support, my field observations revealed that there were issues around the fairness of aid distribution. On top of that, the ongoing process of marginalisation (Wisner et al., 2004), which is very apparent, affects the sensitivity of the community.

Adaptive capacity is long-term and dependent upon overall sensitivity of a system to accommodate future cyclone challenges and endeavour to cope. Certainly engineering and technological structures, discussed in the above two paragraphs are key to adaptive capacity. In addition to these, efforts in diversifying income earning opportunities and capacitising people also increase adaptive capacity, which rather follows a reverse direction in my field sites. My field observations noted a few separate efforts from NGOs to provide training for creating alternative livelihood opportunities such as raising livestock, sewing and handcrafts. However, from interviews with project leaders it appears that none of these projects have any prospective insight about the feasibility of those livelihoods. For example, demand and marketability of the outputs were not considered. Moreover, they are just providing training, without giving any financial incentives to buy equipment and to begin the activities. In addition, existing opportunities are also becoming more and more challenging. Chapter Seven elaborated on an impending bleak future for the poverty-stricken fishermen of the Boleshwar River. Exposed to social, political, economic and environmental hazards on both a short- and long-term basis, the vicious circle has no foreseeable end.

Now joining the discussion of the above-three paragraphs, it can be argued that there is vulnerability to cyclones at the levels of– i) individuals, who are extremely dependent of their

connections to access to resources; ii) groups, who do not have political voice and socio-economic independence; and iii) the system, which undermines social empowerment and economic security in the interests of local elites, partisan politics and bureaucratic wrangling.

How are the most vulnerable groups connected within broader societal, political and economic networks?

Reflecting back on Ponu's case from Chapter Eight and power network maps from Chapter Five, I will now explain how most vulnerable groups are connected within diverse wider networks. Ponu lost his father when he was a toddler and had to take responsibility of his family as the main bread winner before completing his primary education, as his elder brothers were either in exile to escape the police or were living separately with their own families. He used to collect shrimp fry from the Boleshwar River and worked as day labourer when he was offered any. After his house being flattened by cyclone Sidr, he contacted his uncle Anis Mallick (Figure 5.1, 5.2, 5.3 and 5.4 shows Anis's network) to receive a house and other relief benefits. Anis and his wife, Setara, were also his political allies. Ponu's political affiliation put him in a difficult position to access to common aid support as his party have been in opposition since 2009. However, his economic connections compensate for his deprivations by employing him to illegally fell timbers from the Sundarbans. This situation echoes at individual level in every case I discussed as well as at a group level as unveiled with regard to the Boleshwar fishing community.

How do their positions within the wider network inform their ability to cope?

It was very interesting to observe in my field sites that relatively wealthy people are connected to partisan politics and vice versa. In their cases, when their party is in power, they get all the contracts for local infrastructure development and aid support distribution works, where they employ their allies in 'Food/Cash for Work' programmes and distribute aid to their own people. These resources are invested to develop partisan interests. The opposition elites tend to hold their breath for future opportunities and avoid any chaos. Some of them take the opportunity of factions in the power regime. For example, in the Upazila council election in 2009, both Gabtola and Sonatola Model Village people supported Mozammel who lost against Kamal of his own political party. Therefore, after assuming office, Kamal Chairman used to support rivals of Mozammel's supporters. This rivalry between Kamal and Mozammel continued until the middle of 2011, when they agreed to cooperate with each other and, accordingly, Kamal Chairman extended his full-fledged support to Mozammel's election campaign for the Southkhali Union chairmanship. Now, this change of strategic partnership at the top affects the previous patron-client relationships, manifested in access patterns and the distribution of resources. Extremely poor people, who are outside the loop and have substantial dependence on aid resources, look out for alternative livelihood options (Ellis, 2000).

Research Question 2: How are environment and society linked to the cyclone rhetoric?

Are different livelihood options linked together? How?

Some livelihoods are more challenging than others and a general trend is to pick a less challenging livelihood option for living. Jalais (2007) reports that nearly 300 people are killed by tigers every year on the Bangladeshi and Indian sides of the Sundarbans. During my fieldwork, I heard at least one piece of news about a tiger attack every month within Southkhali Union. People would not have taken any risk of confronting wild animals if they had easier and relatively safer choices. Anwar of Sonatola Model Village is a good example. When I asked him how he wants to see himself in the future, the answer was 'cultivation', because this gives him a stable family life. He would not have to be away from his family for several months, as he does when he sails away on fishing trips or goes for work to the big cities. Neither would he be exposed to wild animals or weather. Instead, he would be able to be with his family all the time, particularly during extreme weather events.

Chapter Seven shows that there is a reciprocal relationship between land ownership and the gradual increase in numbers of the fishing community. Over the last few decades, land ownership has declined because of embedded economic polarisation in the society as well as riverbank erosion along the Gabtola. Though land erosion was not a problem at Mazer Char, increasing population pressure on a small piece of arable land drove many to find alternative livelihood options. Livelihoods options, alternative to cultivation, available around my field sites are mainly wage earning in farmlands and from local development works, fishing in the Boleshwar River, in the forest channels and in the open sea and collecting timber and non-timber resources from the Sundarbans. Otherwise, temporary or permanent economic migration is also a choice (Rigg, 2007). As mentioned earlier, there is no systematic shift from one kind of opportunity to another, nor do they often pick one from a range of choices; rather people take on whatever is available to them (Ellis, 2000). However, decline in one livelihood certainly puts pressure on other available opportunities, as options are limited.

How does the nexus of livelihood and power dynamics affect the local environment?

This research narrates how power dynamics are linked with livelihoods. It reiterates that marginal people often may not have the liberty to access resources they are entitled to (Sen, 1999), without the permission of the power elites. The breach of the 'sustainable model' of Sonatola is an example. When the project of Sonatola Model Village was designed, there were six big fish tanks in the plan to support livelihoods of its occupants. However, as I mentioned in Chapter Six, the former UP Chairman was controlling all six of those ponds, until he lost against Kamal Chairman in the 2009 Upazila election. The change of political power resulted in an alteration of resource control between

the partisan elites but the poor never had any opportunity to practice their legitimate rights over those fish tanks. It is also a similar story in regard to fishing net practice in the Boleshwar River, in holding control over arable *khas* lands at Mazer Char and in accessing rehabilitation packages in Gabtola and Sonatola Model Village. The research has shown how deprivation and losses at one level force poor people to put pressure on the environment for their transient needs. People tend to extract more fish from the river, use illicit small-mesh nets to catch immature fish, collect fish fry and kill many other fish varieties, fell timbers illegally from the forest, which altogether puts tremendous pressure on the local environment.

Figure 9.1: A *Goalpata* Boat at Gabtola (Source: Author, 12/12/2009)

It is not only the marginal people who are forced to put pressure on the environment, but also the power elites who exploit by virtue of their position and accrue more assets. Figure 6.1 and 6.2 demonstrate a picture of land aggression by the elites at the edge of the Sundarbans, while 100 metres inland, where landless people were being allocated land in a planned village, they became victims of legal red tape. Mitra (2000) and Jalais (2007) explain how the state controlled commercialisation of the Sundarbans has encouraged rich outsiders to convert traditional forest users into contract labourers. The present practice of commercial *Golpata* collection is an example of the overuse of forest resources. Figure 9.1 shows a typical *Golpata* boat, which has been raised up to 6 feet on both sides. This extension is locally called *molom* (partially painted in Figure 9.1), which is intended to increase the carrying capacity of the boat. In Figure 9.2, several boats are making their final preparations before heading to the Bogi Forest Station to obtain a permit to enter the forest to harvest *Golpata*. All of these boats have extended their carrying capacity. Literally, they extract twice the resources that the Forest Department want them to. The *Mohajons* of these boats are well connected with the power elites. Asadul, a *mohajon* and influential local leader at Gabtola, told me that

he understands the environmental downside of overharvesting *Golpata*, but he has to pay bribes to the forest guards and tolls to the bandits, which together push him to exceed the quota of his permit.

Figure 9.2: Boats near Rayenda are Making Last Minute Preparations before Setting off to the Sundarbans to Collect *Golpata* (Source: Author, 27/01/2010)

How does environmental change connect to the cyclone rhetoric?

Environmental change connects to the cyclone rhetoric in number of ways:

i) Environmental change makes livelihood opportunities more challenging, increases poverty and, thus, reduce people's capacity to cope with any environmental stresses like cyclones;

ii) Challenged livelihoods drive people to look for new opportunities, which often put more pressure on the environment for resource extraction (Jentoft et al., 2010);

iii) Overwhelming pressure on the environment for resource extraction can result in resource degradation;

iv) In the particular case of the people around the Sundarbans, the forest is not only a great source of livelihoods, but also a natural shield against cyclones. Therefore, any degradation of the forest will weaken this natural shield; and

v) Environmental change and its potential consequences for environmental degradation opens up new opportunities to develop and implement pro-poor cyclone preparedness policies, restore social justice, and explore alternative livelihood opportunities.

Research Question 3: How has cyclone knowledge and practice in Bangladesh changed over time?

How are cyclones viewed in dominant practice?

The existing cyclone management practices operate in three short-term phases – pre-event preparedness, event-time evacuation and post-event management. NGOs are working hand in hand with the government agencies at all these stages. In the early stage the main tasks are building and maintaining structural defences, like embankments and cyclone shelters, introducing cyclone warnings to at-risk communities, raising awareness on what to do in an emergency situation and training volunteers and relevant agencies. When there is a potential risk of cyclone formation, cyclone alerts are disseminated through a top-down channel from the DMB; cyclone shelters show the flag-signs in coordination with the level of signal; local CPP volunteers alert people from door to door and keep reminding people from time to time about the expected course of actions; and relevant agencies follow the instructions from the Standing Orders on Disaster (SOD) (GoB, 2010). In the post event drill, a Damage and Loss assessment (DaLa) is carried out (see Chapter Four for detail) and relief and rehabilitation support starts pouring in from relatives, neighbours, different organisations and the state. Depending on the magnitude of loss, international organisations and donor agencies extend their collaborations through appropriate agencies. All of the formal organisational support is distributed through the administrative instruction of the Upazila. The SOD and other disaster related policies certainly have detailed instruction on how to follow a corruption-free and transparent distribution practice, which are unfortunately not often practised very strictly, as I gathered from my lived experience in the field sites. Thus, in dominant practice, cyclones are viewed as extreme natural events which can be fought through comprehensive strategies (GoB, 2008ad), while people's incapacity to withstand cyclones, fabricated through embedded marginalisation, remains ignored.

How have new institutions emerged through the experience of cyclones?

Chapter Four discussed how the experiences from one major cyclone directed the next course of action, as reproduced in a concise form in Table 9.1. The emergence of a new institution is not only informed through experiences of devastation, but also equally influenced by the global agreements and interests of donor organisations. As a signatory of the Hyogo Framework for Action (HFA) in 2005, Bangladesh commits to adopt the key attributes of the HFA such as harmonising between national and local level disaster management through an institutional framework (Figure 9.3). Therefore, CDMP has introduced CRA as a tool to link community with the policy process, which has attracted big donors such as UNDP, DFID and EC.

Table 9.1: A Reflection on Lesson Learnt from Deadliest Cyclones in Bangladesh

Event	Description	New Institution/ Policy	Remarks
Bhola Cyclone (1970)	The deadliest cyclone in the world's known history, which killed around 300,000 people.	Cyclone Preparedness Programme (CPP) was established in 1972.	238 cyclone shelters were built. Coastal Embankment Programme Phase I was completed by 1970.
Urir Char Cyclone (1985)	A category II cyclone perished around 15000 human lives and caused huge damage to individual assets and infrastructures	Standing Order of Cyclone (SOC) in 1985	Another 62 cyclone shelters were built around the affected coastline including the first shelter at Urir Char.
Cyclone Gorky (1991)	A category III cyclone killed around 138000 people and 70000 domestic animals and damaged £420 million worth crops.	Establishing DMB in 1993. DMB publishes SOD in 1997 to replace SOC.	Coordination among different disaster management agencies was established. Another 300 cyclone shelters were built immediately after this disaster.
Two consecutive cyclones in 1997	A category IV and a category II cyclone swept across Bangladesh respectively in pre and post-monsoon seasons.	CDMP formed in 2003. Their main policy publications are Guidebook for CRA (2005), VGF Policy (2005), National Food Policy (2006), Household Money Allocation/Distribution Policy (2007) and General Relief Cash Allocation/Distribution Policy 2007.	Focus moves from a natural event to disaster centric strategy (capacity and consequence). Importance of community participation is uttered for the first time in the mainstream disaster management. A paradigm shift from conventional response and relief to a comprehensive risk reduction culture.
Cyclone Sidr (2007)	The highest magnitude cyclone Bangladesh has ever experienced, which killed relatively fewer people than other deadliest cyclones, but has caused huge economic damage.	Important policy papers are - revised SOD (in 2008 and 2010), Guideline of Construction of Houses in the Coastal Belt (2008), National Disaster Management Plan 2010-2015 (2010) and Draft Disaster Management Policy (2012).	Both the number of cyclone shelters and CPP volunteers increased along the coast. Campaign 'build back better' slogan as a disaster management strategy. Conduct CRA in all disaster-prone Unions.

Whose views are reflected?

The above two paragraphs very clearly find that the CDMP has, for the first time, recognised that at-risk communities' voices have been missing from previous approaches to disaster intervention. So, whether or not the CDMP rightly understands and follows communities' voice is the main subject of inquiry. Chapter Four gives an example of ADO (Area Development Organisation) and describes the process of how ADO conducted CRAs (Community Risk Assessment) in 20 Unions, including the field site of this research. Though CRA tends to claim it as a participatory endeavour, the duration of participation is short and engagement is mainly with privileged groups in society (Pelling, 2007). Not only were there methodological limitations of CRA, but also the CDMP's understanding of an extreme natural event depended upon a particular ontological identification of 'nature as nature' rather than including a societal element. Thus, there was hardly any opportunity to take account of embedded social, economic and political marginalisation as a reason for turning an event into a

disaster (O'Keefe et al., 1976). Thus, instead of discovering the real challenges of people's everyday lives, such as land disputes, power struggles, unfair interruptions in access to resources, fishing net disputes, and so on, the CRA focused on arsenic contamination, increased salinity, irrigation crisis, and other matters through a prism of natural crisis. Moreover, many of the outcomes of the CRA in Southkhali, i.e., salinity, arsenic contamination, etc., contradicts the original data sources that they claimed to have explored (See Chapter Four). Thus, CRA echoes a top-down voice with a pretended participation. Having said that, this can still stimulate and inject the idea of emancipatory participation (Pelling, 2007) in future framings of cyclones.

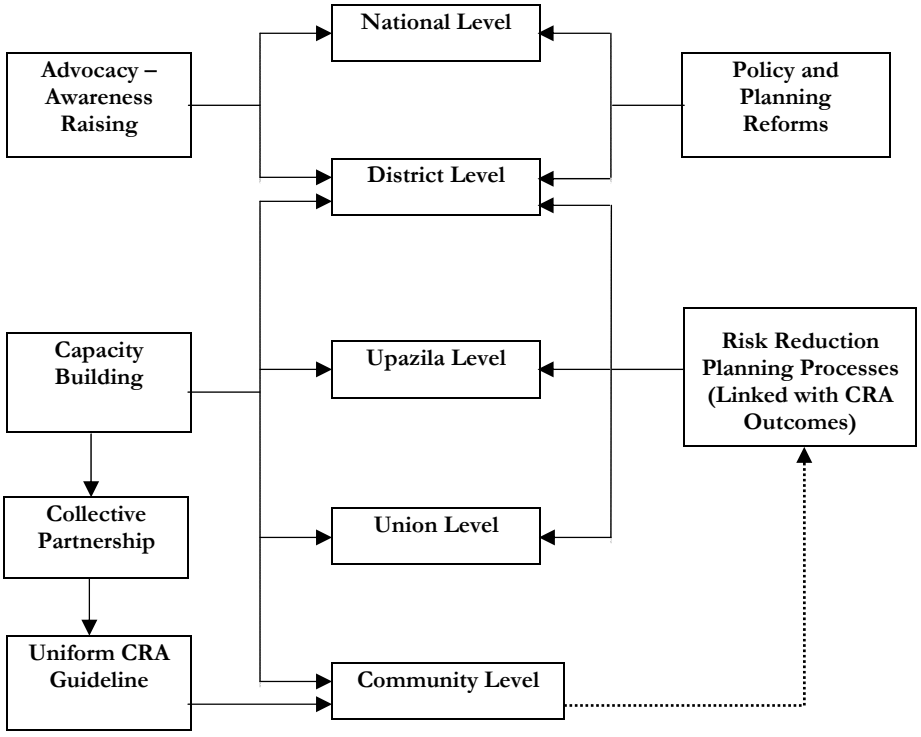


Figure 9.3: Existing Institutional Setting of Disaster management in Bangladesh.

Wider Implications of this research

As I explained at the beginning of this chapter, Anwar is not an exceptional character in my fieldwork area, rather a common example of people's relation with the environment and society on a quotidian basis. This thesis has striven to unveil an understanding of how people got back to their lives after the devastation of cyclone Sidr on 15th November 2007. As elaborated in Chapter Four, realist and elitist accounts dominate cyclone knowledge in Bangladesh. Though 'realist' accounts tend to assume that scientific knowledge results from value-free and apolitical activities (Miller, 2000), it often reflects particular ways of viewing the world through the lens of privileged (often expert) groups and accordingly shapes social relationships (Macnaghten, 2010). For example, Chapter Seven

elaborates how a 'bio-economic' model of fishing resource development fails to understand marginal fishermen's practicalities and, by ignoring the context of their marginalisation, it therefore favours the relatively wealthy *mohajons*. This research, instead, unpacks detailed narratives of people's everyday livelihoods to show – i) how the voices of the grassroots are ignored in addressing cyclone resilience and ii) why it is very important to focus on them.

This research is based on ethnographic accounts. I lived in my field sites, worked at local schools, interacted with the community, local leaders, politicians and civil society members. Interacting with the local community facilitated my deeper understanding of how the complexities of local power dynamics, kinship, vested interests, influences and interests of regional and central partisan politics construct individuals' livelihood opportunities and challenges at the local level. I interviewed government officials, experts and policy makers, which introduced me to their thoughts about recovering from the cyclone shocks and preparing better for the future, paraphrased as 'build back better' (GoB, 2008abe). This research has prioritised the necessity for such qualitative detail to understand cyclone vulnerability and resilience, and thus can claim a methodological contribution to such scholarship.

The present research contributes to ideas about vulnerability and resilience by putting particular emphasis on mapping local power dynamics. This engages the idea of a pressure and release (PAR) model (Wisner et al., 2004) to understand how an individual, a group or a system progresses to vulnerability and degrades one's resilience. Though this research loosely aligns with PAR, it is distanced from PAR on two points – i) the overly economistic nature and Marxist tone at the root of PAR, and ii) PAR's insufficient acknowledgement of the variations of natural extremes. In other words, this research contributes to the vulnerability and resilience rhetoric by – i) pushing the idea of 'marginality' forward, which does not bear any particular economistic conservativeness, as the PAR's 'progression to vulnerability' does; and ii) rather than dividing between social and natural processes, this research emphasises the social overprint on natural processes in understanding hazards (Oven, 2010; Petley, 2010).

There are myriad of observations from my fieldwork that argue that it is not the normative economic structure, but rather political and power-laden impulses, which inform the local social order and resource distribution (Arens and Beurden, 1977; Bode, 2002; Ellis, 2012). Having a deeper understanding of how local political dynamics and power relations are linked to resource distribution and livelihoods, this research reveals that embedded social, economic and political marginalisation at my field sites held people back from recovering after cyclone Sidr. Still people are trying to get on with their lives through establishing a wide range of networks. In the empirical chapters (Chapter Five, Six, Seven and Eight) I have elaborated this picture in regard to relief and rehabilitation, land disputes, fishing in the Boleshwar River and accessing the Sundarbans for resource extraction. The

discussions in those chapters are based on ethnographic fieldwork in three field sites in close proximity – Gabtola, Mazer Char and Sonatola Model Village. The rationales for selecting these three sites are described in Chapter Three. All of my field sites have a very distinct pattern of power relations. In Gabtola there are strong links to national partisan politics and, therefore, the present opposition's allies and activists are cornered. Mazer Char's division is a legacy of complex land disputes, which are elucidated in Chapter Six. The case of Sonatola Model Village is very interesting. Though it was the former UP Chairman Anwar Panchaiyat's vote bank, the people there supported the present government party, the AL, in the last general election. However, two rival factions of the government party contested the Upazila election and the people there supported the defeated candidate, bringing problems for themselves. What is common in all three cases is the role of power and politics as the determinants of people's livelihoods. In fact, politics and power relations between individuals, groups and communities determine their livelihoods and shape the relationship with the surrounding environment, which has been elaborated by answering the research questions.

These discussions of power and marginality connect to the wider debates; such as, ignored urban middle-classes in flood management in Bangladesh (Cook, 2010), relatively more sufferings of sedentary farmers than nomads in the 1980s West African drought (Wisner, 2009), political exclusion of 'black' South African women (McEwan, 2003) and Javanese (Elmhirst, 2002) women from development planning, poverty and resource struggles in the North Lampung (Elmhirst, 2001), social and political production of deprivation and sufferings in 1995 Chicago heat wave (Klinenberg, 2002), and many others. All of these researches echo marginality as the virtual distance from power, which informs individuals' or groups' access to resources, as outlined in the theoretical chapter. In addition, though the present research distinguishes marginality from extreme poverty (Elmhirst, 2002; McEwan, 2003; Cook, 2010), it does recognise a strong correlation between levels of poverty and access to resources (Elmhirst, 2001; Howell, 2001; Wisner, 2009).

This thesis draws together ethnographic detail of several aspects of power relations and marginalities in the context of a cyclone and its aftermath. Cyclone science in Bangladesh (GoB 2007, 2008bce) is very much isolated from ongoing development activities and particularly focuses on building cyclone defences, disseminating warnings and intervening in post-cyclone losses. In contrast, this research presents mundane detail of power negotiations, struggles, disputes of communities over relief and rehabilitation services, *khas* land, fishing and forest resources, which are complex and reciprocally tied up with kinship, bubbles of interests, local power dynamics and partisan politics in a post-cyclone life. The thesis reveals that these complex relationships were producing marginality, a fluid and relative position in the complex power network, which determines individuals' and groups' access to resources. And marginality eventually defines individuals' and groups' ability to recover from and cope with cyclones. This research, therefore, strongly suggests the incorporation of marginality into the framework of cyclone science and policy, which would give voice to the marginal

people and bring mainstream cyclone science into development activities.

This research reviews a wide range of literature on cyclones in Bangladesh and remains critical of how communities are misunderstood and misrepresented. An example is the popular framing of religious fatalism (Islam et al., 2004; Paul and Rahman, 2006; GoB, 2008b) in regard to community responses to cyclone warnings. This thesis has revealed the community's everyday engagement with, and perception of, their 'God' through lived experience. Why is people's devotion to 'God' during an extreme event not echoed, and sometimes contradict, in their everyday life? From a Western standpoint, any act of ignoring a cyclone warning and refusing to take refuge in the cyclone shelters seems like evidence of submissiveness and is regarded as religious fatalism. Alam and Collins (2010) point to less females turning up at cyclone shelters because of '*purdah'* as a religious custom. But Paul and Dutt (2010), although they recognise the strict practice of '*purdah'* in some spaces, do not agree that this custom is practised all around Bangladesh. Indeed such crude generalisations undermine understandings of the role of religious culture and deliver an imagined framing of 'cyclone risk'. The problem hides under the disguise of religious belief. The question of 'being rational in an extreme situation' can appear when one has the knowledge to judge and choices to consider. The Western way of understanding cyclone preparedness through weather forecasting, warning dissemination, engineering defence construction and so on does not make much sense to the poor coastal community as their desperation to live pushes them to go beyond the margin in any circumstances. A choice between the very depths of poverty and high-risk environmental strategies is not much of a choice for people seeking to assure their next meal (Haque and Blair, 1992; Haque, 1993). This situation clearly draws a margin between helplessness and submissiveness. Their reliance on 'Allah' or 'Raam' simply helps them to console their helplessness during extreme events (Schmuck, 2000; Paul, 2010; Paul and Dutt, 2010).

During my fieldwork, in stories of how my respondents have taken refuge to the cyclone shelter, it was commonly told how women took off their *sarees* so that they could swim. Figure 3.3 shows men and women working together in a water tank digging programme, which also reiterates the irrelevance of *purdah* in certain circumstances (Paul and Dutt, 2010). Restrictions arising from women's *purdah* are mainly a phenomenon of the middle and upper class. Thus, the above paragraph not only contradicts the stereotypical representation of 'gender' and 'religion', but also reenergises the crucial need for ethnographic research on hazards. Dowler and Sharp (2001) acknowledge that 'the personal is political' in researching feminist and other marginal voices, as manifested in people's everyday and mundane exercise of power. Schmuck (2000: 88) shares his experience of studying char-dwellers of the Jamuna River as below:

> *'Confronting people with questions about their coping strategies before a hazard occurs, or asking them afterwards why they were so passive, does not give a clear picture about the poor response of the local people to warnings, as the questioner depends fully on what the affected people tell him [sic] - how they reconstruct the*

event and their behaviour. Moreover, it is possible that people cannot easily give clear answers about which strategies they undertook in order to survive a disaster, as traumatic stress has a considerable impact on the human mind. Thus, in order to gain insight into the reasons behind the choice of a certain behaviour, the researcher has to be present during a hazard.'

The second theoretical contribution, as mentioned above, is to understand that we cannot divide social and natural processes in extreme events. The PAR model (Figure 2.2), for instance, only focuses of human vulnerability (Wisner et al., 2004) and assumes hazard as very much a consequence of natural process. As Zebrowski (1997: 38) argues,

'A swollen river devastates a growing city, and we view the flood as the cause of the devastation. We are not inclined to the question whether the presence of the city itself may have caused the flood (through local deforestation, for example, or through construction of dykes that prevented the river from dispersing into a natural floodplain.'

This quote is relevant to landslide fatalities in Bangladesh (Petley, 2010) and in Nepal (Oven, 2010). In both the cases, deforestation, human invasion and infrastructural development share responsibility in triggering landslide events. This also points to the idea of knowledge framing (Miller, 2000), as highlighted in the future research direction.

Figure 9.4: 'Sidr Affected Fishing Community and Their Challenges Ahead' – The Author Gives a Talk at the Sarankhola Press Club in Presence of Local Government Administrators, Journalists, Elected Local Government Representatives, Local Political Leaders and a Group of Fishermen.


আমার দেশ
স্বাধীনতার কথা বলে

আর্কাইভ: 7 – April – 2010 GO

প্রথম পাতা
শেষের পাতা
জাতীয়
সম্পাদকীয়
খেলাধুলা
আন্তর্জাতিক
মহানগর
ব্যবসা বাণিজ্য
ফিরে দেখা
রাশি
আইসিটি
ইতিহাসের এই দিনে
রসের হাঁড়ি
শোক ও মৃত্যুবার্ষিকী

বলেশ্বর নদীতে ধরা ও বেন্দি জাল : চার হাজার জেলে পথে বসেছে : কোটি টাকা চাঁদার অভিযোগ

শরণখোলা (বাগেরহাট) প্রতিনিধি

বলেশ্বর নদীতে ধরা ও বেন্দি জাল দিয়ে মাছ ধরছে জেলেরা

উপজেলার বলেশ্বর নদীতে ধরা জাল ও বেন্দি জালের কারণে প্রায় চার হাজার জেলের এখন পথে বসার উপক্রম হয়েছে। স্থানীয় কিছু প্রভাবশালী ব্যক্তি কোটি টাকা চাঁদা নিয়ে একশ্রেণীর জেলেকে এসব জাল বসাতে সাহায্য করছে বলে অভিযোগ উঠেছে। এসব অবৈধ জাল দ্রুত উচ্ছেদ ও শরণখোলায় চলতি জাটকা মৌসুমে জেলেদের জন্য ভিজিএফ কর্মসূচি চালু করার দাবিতে শত শত জেলে সোমবার শরণখোলায় মানববন্ধন ও মত্স্যমন্ত্রী বরাবরে স্মারকলিপি প্রদান

Figure 9.5: '*Amar Desh*' – A National Daily Publishes the Fishing Net Issue Following the Talk at the Sarankhola Press Club

This research also shows how dissemination of its findings could make a difference. Before leaving from my fieldwork, the Sarankhola Press Club wished to give me a formal farewell. I took that opportunity to present my findings on fishing nets (discussed in Chapter Seven). All the senior government officials from the Upazila, local political leaders, elected local government representatives, several NGO workers and several members and leaders of local fishermen association were invited in the meeting (Figure 9.4). After presenting my paper, I found only the fishermen expressed their thanks for rightly outlining their issues. On the following two days, the meeting was written up in several local dailies and two national dailies (one is in Figure 9.5). The impact of that talk gave the fishermen some inspiration and there was a massive peaceful demonstration within a week. This mobilised the local journalists, politicians and administrators. Many people for the first time became aware of the issues.

Limitations

This research has taught me to reflect on my position and focus at every stage of my observations. Thus, my role was not only to explore what is out there, but also to examine the point where I am observing from (Andersen, 2003). However, in reality, scholarship often confronts many challenges and practicalities, such as, safety and security, ethical considerations, conventional structures of presentation, representation, and restricted time and budget, which force a negotiation in the observer's position and focus. A change in the observer's position and focus understandably affects the picture drawn from observations. An attempt to heal this mediated effect can be achieved through explaining limitations of the scholarship to the readers.

There was a security concern in my fieldwork areas, which restricted my free movement. As

discussed in Chapter Three, I was not able to live in Sonatola Model Village as I did in Gabtola and Mazer Char. This was because Sonatola Model Village is locally assumed to be an unsafe neighbourhood being very close to the Sundarbans. There are anecdotal records of kidnapping for ransom and it is less accessible to police because of poor infrastructure and longer distances from the nearest police station. Living in Sonatola would have breached my declared risk assessment, which I had submitted to the Durham University before setting off for my fieldwork. I invested huge time at Sonatola Model Village during the day to compensate for this limitation. However, security threats certainly obstructed my interaction with people at this particular field site more than the other two, and this certainly had some effects on data collection. This research, however, seeks to understand the marginalisation process in relief and rehabilitation distribution and livelihood challenges in access to *khas* land, river and forest resources, and none of my empirical chapters entirely depends on data collected from Sonatola Model Village. Thus, any gap due to security threat-induced limitations of data collection at Sonatola was recovered through material from the other two field sites (See Table 3.1). Still, this research acknowledges a minor risk of local practicality being camouflaged by a general picture, though logically drawn from a relatively similar setting.

A formal thesis writing structure and its flow of discussion and fabric of arguments could eliminate some of the observations important for drawing a local picture. In my eight month long fieldwork I gathered about one hundred hours of tape recorded data and a volume of observations and notes and inevitably not all of this has been used. Instead, the research has drawn a general picture of my field sites to answer the research questions and I have been selective in the information drawn from the data bundle. Systematically, this presentation hides myriad voices behind the collective portrait. For example, although I came across and heard several events of unfair influence in aid resources distribution, only a few have been recounted, those which fitted with the thesis structure. It was the researcher's own judgement to decide which stories to present. Although I was certainly critical about my own position (Andersen, 2003), there are still some human limitations. Having acknowledged this, the research adopted a methodology where there was the greatest possible opportunity to interact with respondents and get the data and its interpretation verified by the respondents, as explained in the discussion on fishing nets.

It was mentioned above that this research only attempts to explain issues around three major sources of livelihood – khas land, the Boleshwar River and the Sundarbans. So, there are other issues, which this research has not covered, such as marginalisation in the market (loan sharks, infrastructure) (Nabi, 2001; Shamsuddoha, 2007; Deb, 2009, Jentoft et al., 2010); general agricultural practices; other fishing issues in the sea and the Sundarbans (Islam and Haque, 2004; Chowdhury, 2010); and migration as a livelihood opportunity. There are main four reasons behind this –

i) A PhD thesis has, at least in my case, strict temporal and financial margins, which I had to

abide by. In order to have a detailed understanding of all the livelihood options I would have had to dedicate more time and resources to my fieldwork, which was not possible.

ii) The second, also the ultimate, choice I had to make was to utilise my limited time and resources to bring out the essences of local life. Therefore, I chose the most dominant livelihood patterns, which resonate with the local paraphrase for explaining common livelihoods – *maas r gaas* (fishing and forest use). As noted before, this group also statistically represents the majority of the community. The issue of relief distribution and *khas* land were essential discussion topics, as these two resources tend to tie people with landed economic activities.

iii) As answered in the first subsection of the second research question, generally, at my field sites, individuals are not engaged in any particular employment (Ellis, 2000), unless they have adequate landed property for their living. So, people tend to switch from one occupation to another depending on job availability. This thesis has focused on marginal processes in dominant job opportunities.

iv) Finally, there is nothing 'final' about academic research. Always there will be some constraints in a research project and limitations opening up windows for further research. The research fits this pattern.

Future Research Plans

My future research plan is to explore the interface of climate change, forest conservation and displacement. Work on environmental displacement, which emerged after the 1990 IPCC report, generally refers to the rhetoric of climate change-induced migration, and hides the voice of the 'migrants'. Since the outset, different individuals, disciplines, institutions and states have failed to came up with consensus definitions because of – i) a lack of conceptual clarity of whether and how to isolate environmental factors from others; ii) complexity of incorporating existing vulnerability, resilience and migration theories into the climate migration debate; and iii) the vested political interests of the different stakeholders. This idea was first imbued from my interactions with seasonal economic migrants at my field site, who often cross the international border and work in distant cities in India. This made me inquisitive about how national policy and development projects, bilateral cross border climate refugee debates and international donors' interests are shaping climate change politics and, thereby, affecting the livelihoods of poor local communities.

My present research laid a foundation for arguing why and how conventional interpretations of climate change and climate displacements are inefficient to explain the context of the southern coast of Bangladesh. This area has been referred to as the 'Climate Change Ground Zero' because it is highly susceptible to sea level rise, increased salinity, arsenic contamination, tidal surges, floods and

water logging.[42] Rapid population growth, insufficient arable land, inadequate income earning opportunities and degraded land force the poor into subsistence livelihoods. Their income earning opportunities have shrunk further following the prohibition on their access to the adjacent forest, the Sundarbans, presently the subject of a campaign by the IPAC. The IPAC is a USAID-funded project of the Bangladesh Forest Department, inspired by the Reducing Emissions from Deforestation and forest Degradation (REDD+) programme as an intervention recipe for global combat against climate change. The changing environment of scarcity of livelihood opportunities triggers migration decisions but this is ignored at the international negotiation table, where i) Bangladesh demands the costs of her environmental damage from the Global North (Alam et al., 2011) while at the same time hiding her own responsibility for inappropriate resource distribution (Barkat, 2000; Bode, 2002; Salauddin, 2005; Jalais, 2007; Jentoft et al., 2010); ii) India accuses Bangladesh of affecting India's security through an inflow of 'climate migrants' from Bangladesh (Alam, 2003; Anwar, 2012) but refuses to take responsibility for increased salinity and water logging caused by her blocking and diverting of waters from international rivers (Abbas, 1982; Karim 1994; Siddiqi 2001; Iftekhar and Islam, 2004a; Chowdhury, 2010; Mörner, 2010); and iii) the Global North finds a way to maintain emissions at the risk of many livelihoods in the climatic red alert area that is southern Bangladesh.

Though this idea is still at a very early stage, it seeks to employ science and technology studies (STS) (Stirling and Mayer, 2001; Macnaghten, 2010) and ethnographic fieldwork at different phases of the research (depending on available funding resources). This research will challenge both the epistemological and ontological basis of conventional interpretations of climate change and climate displacements. More specifically, my future research intends to explore – i) how the political interests of different institutions and states are constructing contrasting meanings of climate change, ii) how these meanings are justifying their offered solutions and iii) how, contrarily, the solutions proposed by governments often conflict with the reality for ordinary people's lives on the ground.

Conclusion

This PhD research has been about power struggles and marginality in people's everyday lives in the aftermath of cyclone Sidr. It reiterates the idea that the conditionality, which makes an individual, a group or a community susceptible to a natural event, is a legacy of our engagement with the environment and, thus, scrutinises our knowledge on that particular event. From a theoretical interest in environment-society studies, my work has striven to understand affected communities' quotidian experiences of their livelihoods, after being affected by Cyclone Sidr, through rebuilding, relief support, access to natural resources in land, water and forest, alternative income opportunities, patron-client networks, and local power dynamics. The whole research has been based on an

[42] http://asiafoundation.org/in-asia/2010/04/21/from-bangladesh-climate-change-ground-zero/

ethnographic account in three proximate villages, Gabtola, Mazer Char and Sonatola Model Village, adjacent to the Sundarbans. Being a native Bengali speaker, knowing local dialects, having previous work experience of academic research on disadvantaged and rural communities, power dynamics and development, I was in an advantageous position to carry out this highly sensitive work. The research contributes to the idea of vulnerability and resilience by portraying the importance of considering local power dynamics in shaping environment-society relationships. In addition, this research is also enlightening on local development and economic aspects through unpacking issues in regard to relief and rehabilitation, fishing and forest use. These theoretical contributions, reciprocally, back up the methodological underpinnings. More importantly, this research explores the interface of cyclones, power and livelihoods and echoes the voices of marginal people with a view to them having their space in policies. Thus, this research resonates the spirit of the nineteenth century Bengali poet, Ishwar Chandra Gupta (1812-1859), who satirised the so-called modern class who blindly followed British colonial power:

You are the greatest and the mightiest, and we are your pet cows
We haven't learned to raise our horn, only eat straw and grass
So that your men do not get angry with us and make our life hell
We are happy to survive on leftovers, but can't withstand a punch.

-This poem is translated by the author

Cited Reference

Cited References

Abbas BM. 1982. *The Ganges Water Dispute*. The University Press Limited, Dhaka, Bangladesh.

Adel, MH. 2002. 'Man made climate change in the Ganges basin', *International Journal of Climatology*, 22: 993–1016

Adger, WN and Brown, K. 2009. 'Vulnerability and Resilience to Environmental Challenge: Ecological and Social Perspectives' in Castree, N. et al. edited, *A Companion to Environmental Geography*, Wiley-Blackwell, pp 109-22.

Adger, WN. 2000. 'Social and Ecological Resilience: Are they Related?', *Progress in Human Geography*, 24 (3): 347-64.

Adger, WN. 2006. 'Vulnerability', *Global Environmental Change*, 16: 268-81.

Adger, WN., Hughes, TP., Folke, C. Carpenter, SR. and Rockström, J. 2005. 'Social-Ecological Resilience to Coastal Disasters', *Science*, 309: 1036-39.

Agrawala, S. et al. 2003. *Development and Climate Change in Bangladesh: Focus on Coastal Flooding in the Sundarbans*. OECD.

Ahmed, S and Afreen, N. 1992. 'Early Warning and Preparedness', in H Hossain et al (edited), *From Crisis to Development: Coping with Disasters in Bangladesh*, Dhaka: University Press Limited.

Akhand, M. H. 2003. 'Disaster Management and Cyclone Warning System in Bangladesh, in Jochen Zschau and Andreas N Kuppers edited *Early Warning Systems for Natural Disaster Reduction*. pp 49-64. Springer.

Alam, E and Collins, AE. 2010. Cyclone disaster vulnerability and response experiences in coastal Bangladesh, *Disasters*, 34 (4): 931-54.

Alam, K. 2005. 'How to Face a Disaster like the Cyclone and Tidal Surge in Bangladesh: A Practical Experience of a Development Worker', *Nirapad Barta*, 9, 8-12.

Alam, K. *et al.* 2011. 'The political Economy of Climate Resilient Development Planning in Bangladesh', *IDS Bulletin*, 24 (3): 52-61.

Alam, M. 2001. *Slaves of Water: Indigenous Knowledge of Fisheries on the Floodplain of Bangladesh*. Unpublished PhD Thesis, Durham University.

Alam, S. 2002. 'Production, Accessibility and Consumption Patterns of Aquaculture Products in

Bangladesh', *Production Accessibility, Marketing and Consumption Patterns of Freshwater Aquaculture Products in Asia- A Cross Country Comparison*, FAO Fisheries Circular No. 473, FAO Regional Office, Bangkok, Thailand.

Alam, S. 2003. 'Environmentally induced migration from Bangladesh to India', *Strategic Analysis*, 27 (3): 422-38.

Ali, A. 1999. 'Climate Change Impact and Adaptation Assessment in Bangladesh', *Climate Research*, 12: 109-16. Inter-Research.

Alim, MA. 2009. 'Land Management in Bangladesh with Reference to *Khas* Land: Need for Reform', Drake Journal of Agricultural Law, 14: 245-58.

Allison, HA. And Ellis, F. 2001. 'The Livelihoods Approach and Management of Small-scale Fisheries', *Marine Policy*, 25: 377-88.

Andersen, NA. 2003. *Discursive Analytical Strategies: Understanding Foucault, Koselleck, Laclau, Luhmann*. The Policy Press.

Anwer, S. 2012. 'Climate Refugees in Bangladesh: Understanding Migration Process at the Local Level', in *Climate Refugees Study: Analysis 30*, Brot für die Welt, Germany.

Arens, J. and Beurden, J van. 1977. *Jhagrapur: Poor Peasants and Women in a Village in Bangladesh*. Orient Longman.

Atkins, PJ. 2009. 'Famine', in R. Kitchin & N. Thrift edited, *International Encyclopedia of Human Geography*, Oxford: Elsevier, 14-20.

Atkins, PJ., Hassan, M. and Dunn, C. 2007. 'Environmental Irony: Summoning Death in Bangladesh', *Environment and Planning A*, 39:11, 2699-2714.

Atkins, PJ., Hassan, MM. and Dunn, CE. 2006. 'Toxic torts: arsenic poisoning in Bangladesh and the legal geographies of responsibility', *Transactions of the Institute of British Geographers*, 31:272-85.

Awal, MA., Hale, WHG. and Stern, B. 2009 'Trace element concentrations in mangrove sediments in the Sundarbans, Bangladesh', *Marine Pollution Bulletin*, 58 (12): 1944-1948

Baki, A (ed). 2007. *Community Risk Assessment (CRA) Report on B. M. Char*. The Comprehensive Disaster Management Programme, Ministry of Food and Disaster Management, Government of Bangladesh.
(http://services.cdmp.org.bd/cra/CRA_reports/Cox's%20Bazar/Chokoria%20DU/B.%20M.%20char%20Bangla.pdf), Accessed on 02.01.2009.

Bankoff, G. 2003. *Cultures of Disaster: Society and Natural Hazard in the Philippines*. London: Routledge-Curzon.

Bankoff, G. 2004. Time is of the essence: disasters, vulnerability and history. *International Journal of Mass Emergencies and Disasters* 22(3): 23-42.

Barenstein, J. 2000. *Tropical Robber Barons? The Different Road Towards Inclusive Local Governance in Bangladesh*, Presented in the 6th Workshop of the European Network of Bangladesh Studies, University of Oslo, Norway, May 14-16, 2000.

Barkat, A and Roy, PK. 2004. *Political Economy of Land Litigation in Bangladesh*, ALRD and Nijera Kori.

Barkat, A. 2000. *Political Economy of Khas Land in Bangladesh*, University Press Limited.

Barkat, A., Zaman, S., Raiham, S. 2000. *Distribution and Retention of Khas Land in Bangladesh*, Association for Land Reform and Development (ALRD).

Baumwoll, J. 2008. *The Value of Indigenous Knowledge for Disaster Risk Reduction: A Unique Assessment Tool for Reducing Community Vulnerability to Natural Disasters*. Unpublished MA Thesis. Webster University.

Beck, U. 1992. *Risk Society: Towards a New Modernity*, London: Sage.

Béné, C. 2003. 'When Fishery Rhymes with Poverty: A First Step beyond the Old Paradigm on Poverty in Small-Scale Fisheries', *World Development*, 31 (6): 949-75.

Bennett, J. 2010. *Vibrant Matter: A Political Ecology of Things*. Duke University Press.

Beurden, J van. 2007. *Jhagrapur Revisited*. Pearl Publications, Bangladesh.

Bijker, WE., Hughes, T. P. and Pinch, T. F. (ed.). 1987. *The Social Construction of Technological Systems: New Direction in the Sociology and History of Technology*. The MIT Press.

Biswas, MF. 2009. *Participatory Rural Appraisal of Sundarbans (East) Wildlife Sanctuary*, Integrated Protected Area Co-management (IPAC) Project, Dhaka.

Biswas, SR; Mallik, AU; Choudhury, JK and Nishat, A. 2009. 'A Unified Framework for the Restoration of Southeast Asian Mangroves-Bridging Ecology, Society and Economics', *Wetlands Ecology and Management*, 17 (4): 365-383.

Blaikie, P. 1985. *The Political Economy of Soil Erosion in Developing Countries*, Longman Development Series, London.

Blaikie, P. and Brookfield, H. 1987. *Land Degradation and Society*, London: Methuen.

Blaikie, P., Cameron, J. and Seddon, D. 2002. 'Understanding 20 Years of Change in West-Central Nepal: Continuity and Change in Lives and Ideas', *World Development*, 30 (7): 1255-70.

Blaikie, P., Cannon, T., Davis I. and Wisner B. 1994. *At Risk: Natural Hazards, People's Vulnerability and Disasters*, London: Routledge.

Blair, H. 2005. 'Civil Society and Proper Initiatives of Rural Bangladesh: Finding a Workable Strategy', *World Development*, 33 (6): 921-936.

Bode, B. 2002. In Pursuit of Power: *The North West Institutional Analysis*. GO-INTERFISH Project, CARE Bangladesh. http://www.carebd.org/nw_institutional_analysis_report.pdf. Accessed on 15.10.2009.

BRAC. 1983. *The Net: Power Structure in Ten Villages*, BRAC Prokashana, Dhaka, Bangladesh.

Brammer, H. 2004. *Can Bangladesh be protected from Floods*? The University Press Limited, Dhaka, Bangladesh.

Brand, FS. And Jax, K. 2007. 'Focusing the Meaning(s) of Resilience: Resilience as a Descriptive Concept and a Boundary Object', *Ecology and Society*, 12 (1): 23.

Burn, Sir R. (ed.). 1937. 'The Mughul Period', *The Cambridge History of India*, Volume IV, Cambridge University Press.

Burton, I. 1960. *Readings in Resource Management and Conservation*. University of Chicago Press.

Carroll, B., Morbey, H., Balogh, R. and Araoz, G. 2009. 'Flooded homes, broken bonds, the meaning of home, psychological processes and their impact on psychological health in a disaster', *Health and Place*, 15 (2): 540-547.

CEGIS. 2004. *National Survey on current status of Shelters and Developing an Operational SYSMIS*, CARE Bangladesh.

CEGIS. 2006. *Impact of Sea Level Rise on Landuse Suitability and Adaptation Options*. Sustainable Environment Management Programme, Ministry of Environment and Forest, Bangladesh.

CEGIS. 2009. *Report on Cyclone Shelter Information for Management of Tsunami and Cyclone Preparedness*, Ministry of Food and Disaster Management, Comprehensive Disaster Management Programme, Government of Bangladesh.

Chambers, R. 2006. 'Vulnerability, Coping and Policy (Editorial Introduction)', *IDS Bulletin*, 37 (4): 33-40.

Chondo, I. 2006. 'Needs Amendment of the Ordinance and its Successful Implementation: the Village Court' in *The Daily Shamokal* on 09 April, 2006.

Chowdhury, M. et al. 1992. 'Cyclone Aftermath: Research and Directions for the Future', in H. Hossain et al edited, *From Crisis to Development: Coping with Disasters in Bangladesh*, University Press Limited, Dhaka.

Chowdhury, MTA. 2010. *Resource-Dependent Livelihoods in the Sundarbans*, CRBOM Small Publications Series No. 18, Centre for River Basin Organisations and Management, Solo, Indonesia.

Cloke, P., Cook, I., Crang, P., Goodwin, M., Painter, J. and Philo, C. 2004. *Practicing Human Geography*, Sage Publications.

Cook, BR. 2008. 'Controversy in Bangladesh: What Sort of Knowledge for What sort of Flood Management?', *Geography*, 93 (2): 114-18.

Cook, BR. 2010. *Knowledges, Controversies and Floods: National-Scale Flood Management in Bangladesh*. Doctoral thesis, Durham University.

Crang, M. and Cook, I. 2007. *Doing Ethnographies*, Sage Publications Ltd.

Cutter, S.L. 2003. 'The Vulnerability of Science and the Science of Vulnerability', *Annals of the Association of American Geographers*, 93: 1‑12.

Deb, AK. 2009. *'Voices of the Fishantry': Learning on the Livelihood Dynamics from Bangladesh*, Unpublished PhD Thesis, University of Manitoba.

Devereux, S. 2001. 'Sen's Entitlement Approach: Critiques and Counter-critiques', *Oxford Development Studies*, 29 (3): 245-263.

DFID, 2011. *Defining Disaster Resilience: A DFID Approach Paper*, The Department of International Development, UK. (http://www.dfid.gov.uk/Documents/publications1/Defining-Disaster-Resilience-DFID-Approach-Paper.pdf; Accessed on 19.06.2012)

DoF. 2003. *Brief on Department of Fisheries Bangladesh*, Department of Fisheries, Ministry of Fisheries and Livestock, Dhaka, Bangladesh.

Dove, MR and Khan, MH. 1995. 'Competing Constructions of Calamity - The April-1991 Bangladesh Cyclone', *Population and Environment*, 16 (5): 445-471

Dowlah, C. 2006. 'The Politics and Economics of Food and Famine in Bangladesh in the Early 1970s – with Special Reference to Amartya Sen's Interpretation of the 1974 Famine', *International Journal of the Social Welfare*, 15: 344-356.

Dowler, L. and Sharp, J. 2001. 'A Feminist Geopolitics?', *Space and Polity*, 5 (3): 165-76.

DSK. 2009. *Bangladesh Cyclone Sidr, 2007: DSK Experience*. DSK: Dhaka.

Duit, A., Galaz, V., Eckerberg, K. and Ebbesson, J. 2010. 'Governance, Complexity and Resilience', *Global Environmental Change*, 20(3):363-68.

Elahi, KQ-I. 2006. 'Entitlement Failure and Deprivation: A Critique of Sen's Famine Philosophy', *Journal of Development Studies*. 42 (4): 541 - 558.

Elahi, KQ-I. 2009. 'The Entitlement Approach: A Case for Framework Development Rather than Demolition: A Reply to Rubin', *Journal of Development Studies*. 45 (4): 641 - 645.

Ellis, F. 2000. *Rural Livelihoods and Diversity in Developing Countries*, Oxford University Press, Oxford.

Ellis, F. 2012. "We All are Poor Here': Economic Difference, Social Divisiveness and Targeting Cash Transfers in Sub-Saharan Africa', *Journal of Development Studies*, 48 (2): 201-14.

Elmhirst, R. 2001. 'Resource Struggles and the Politics of Place in North Lampung, Indonesia', *Singapore Journal of Tropical Geography*, 22 (3): 284-306.

Elmhirst, R. 2002. 'Negotiating Land and Livelihood: Agency and Identities in Indonesia's Transmigration Programme', in BSA. Yeoh, P. Teo and S. Huang, edited, *Gender Politics in the Asia-Pacific Region*, Routledge, London, pp. 79-98.

Ericksen, N. J., Ahmad Q. K. and Chowdhury A. R. 1997. *Socio-Economic Implications of Climate Change for Bangladesh*, Briefing Document No. 4, Bangladesh Unnayan Parishad (BUP), Dhaka.

Ericksen, PJ. 2008. 'What is the Vulnerability of a Food System to Global Environmental Change?', *Ecology and Society*, 13 (2): 14.

Fairhead, J. and Leach, M. 1996. *Misunderstanding African Landscape: Society and Ecology in a Forest-Savanna Mosaic*, Cambridge University Press, Cambridge.

Fatima, S. 2009. 'Bangladesh Shrimp Cultivation: Pitiful Plunder', *Samudra Report*, 53: 41-43.

Few, R. 2003. 'Flooding, vulnerability and coping strategies: local responses to a global threat' *Progress in Development Studies*, 3:1, 43-58.

Folke, C. 2006. 'Resilience: The Emergence of a Perspective for Social-Ecological Systems Analyses', *Global Environmental Change*, 16: 253-67.

Forsyth, T. 2008. 'Political Ecology and the Epistemology of Social Justice', *Geoforum*, 39 (2): 756-64.

Gaillard, JC. et al. 2010. 'Alternatives for Sustained Disaster Risk Reduction', *Human Geography*, 3(1): 66-88.

Gallopin, GC. 2006. 'Linkages between Vulnerability, Resilience, and Adaptive Capacity', *Global Environmental Change*, 16: 293-303.

Ghosh, GK. 2009. *Site Level FIeld Appraisal of Sundarbans West Wildlife Sanctuary*, Integrated Protected Area Co-management (IPAC) Project, Dhaka.

Giri, C; Pengra, B; Zhu, ZL, et al. 2007. 'Monitoring mangrove forest dynamics of the Sundarbans in Bangladesh and India using multi-temporal satellite data from 1973 to 2000', *Estuarine Coastal and Shelf Science*, 73 (1-2): 91-100

GoB. 1998. *National Fisheries Policy*, Ministry of Fisheries and Livestock, Government of Bangladesh.

GoB. 2007. *Super Cyclone SIDR 2007: Emergency Response and Action Plans Interim Report*. Ministry of Food and Disaster Management, Bangladesh Secretariat, Dhaka, Bangladesh. http://www.cdmp.org.bd/reports/Revised-Sidr-Report-Final.pdf. Accessed on 02.01.2009

GoB. 2008a. *Bangladesh Climate Change Strategy and Action Plan 2008*. Ministry of Environment and Forests, Bangladesh.

GoB. 2008b. *Cyclone Sidr in Bangladesh: Damage, Loss and Needs Assessment for Disaster Recovery and Reconstruction*, Government of Bangladesh.

GoB. 2008c. *Standing Order*, Disaster Management Bureau, Government of Bangladesh.

GoB. 2008d. *Moving Ahead: National Strategy for Accelerated Poverty Reduction II*. General Economic Division, Planning Commission, Government of Bangladesh.

GoB. 2008e. *Super Cyclone SIDR 2007: Impacts and Strategies for Interventions*. Ministry of Food and Disaster Management, Bangladesh Secretariat, Dhaka.

GoB. 2010. *National Plan for Disaster Management 2010-15*, Ministry of Food and Disaster Management, Bangladesh Secretariat, Dhaka, Bangladesh.

Goldman, MJ. and Turner, MD. 2011. 'Introduction' in Mara J. Goldman, Paul Nadasdy, and

Matthew D. Turner edited, *Knowing Nature: Conversations at the Intersection of Political Ecology and Science Studies*, The University of Chicago Press, Ltd., London, 1-23.

Gore, C. 1993. 'Entitlement Relations and 'Unruly' Social Practices: A Comment on the Work of Amartya Sen', *The Journal of Development Studies*, 29 (3): 429-60.

Haque, CE. 1993. 'Climatic Hazards Warning Process in Bangladesh: Experience of, and Lessons from, the 1991 April Cyclone', *Environmental Management*, 19 (5): 719-34

Haque, CE. 1997. 'Atmospheric hazards preparedness in Bangladesh: A study of warning, adjustments and recovery from the April 1991 cyclone', *Natural Hazards*, 16 (2-3): 181-202.

Haque, CE. and Blair, D. 1992. 'Vulnerability to Tropical Cyclones: Evidence from the April 1991 Cyclone in Coastal Bangladesh', *Disasters*, 16 (3): 217–229.

Haque, MM. 1992. 'Relief is Full Swing', in H Hossain et al. (edited), *From Crisis to Development: Coping with Disasters in Bangladesh*, Dhaka: University Press Limited.

Hardin, G. 1968. 'The Tragedy of the Commons', *Science*, 162: 1143-1248.

Hardin, G. 1998. 'Extensions of "The Tragedy of the Commons"', *Science*, 280 (5364): 682-683.

Haroon-Al-Rashid, AKM. 2001. 'Cyclone Preparedness for Reducing Damage and Losses', *Nirapad Barta*, 4th Issue :6-7.

Harris, M. 2000. *Life on the Amazon: the Anthropology of a Brazilian Peasant Village*, Oxford University Press.

Hartmann, B. and Boyce, J. 1983. *A Quiet Violence: View from a Bangladesh Village*. Zed Press.

Hassan, MM. 2003. *Arsenic Toxicity in Bangladesh: Health and Social Hazards*. Phd thesis, Durham University.

Hewitt, K. (ed.) 1983. *Interpretations of Calamity from the Viewpoint of Human Ecology*, Allen and Unwin, London.

Hoggart, K.; Lees, L. and Davies, A. 2002. *Researching Human Geography*, Arnold.

Hossain, A. and Westergaard, K. 1998. *The 1997 Union Parishad Election in Bangladesh: A Case Study of a Village in Bogra*. Paper presented at ENBS Workshop in Bath, 16-18 April.

Hossain, H; Dodge, CP and Abed, FH. (edited). 1992. *From Crisis to Development: Coping with Disasters in Bangladesh*, Dhaka: University Press Limited.

Hossain, MM., Islam, MA., Ridgway, S. and Matsuishi, T. 2006. 'Management of Inland Open Water Fisheries Resources of Bangladesh: Issues and Options', *Fisheries Research*, 77: 275-84.

Hossain, MZ., Islam, MT., Sakai, T. and Ishida M. 2008. 'Impact of Tropical Cyclones on Rural Infrastructures in Bangladesh', *Agricultural Engineering International: the CIGR E-journal*. Invited Overview No. 2, Vol. X.

Howell, P. 2001. 'Knowledge is Power? Obstacles to Disaster Preparedness on the Coastal *Chars* of Bangladesh', *Humanitarian Exchange*, 18: 21-23.

Howell, P. 2003. *Indigenous Early Warning Indicators of Cyclones: Potential Application in Coastal Bangladesh*. Disaster Studies Working Paper 6, Benfield Hazard Research Centre.

Hussain, MG. 2010. 'Freshwater Fishes of Bangladesh: Fisheries, Biodiversity and Habitat', *Aquatic Ecosystem Health and Management*, 13 (1): 85-93.

IFRC. 2012. *The Road to Resilience: Bridging Relief and Development for a More Sustainable Future*, IFRC discussion paper on resilience – June 2012, International Federation of Red Cross and Red Crescent Societies

Iftekhar, MS and Islam MR. 2004a. 'Degeneration of Bangladesh's Sundarbans mangroves: a management issue', *International Forestry Review*, 6 (2): 123-135

Iftekhar, MS and Islam MR. 2004b. 'Managing Mangroves in Bangladesh: A strategy Analysis', *Journal of Coastal Conservation*, 10 (1-2): 139-146

Iftekhar, MS. 2006. 'Conservation and Management of the Bangladesh Coastal Ecosystem: Overview of an Integrated Approach', *Natural Resource Forum*, 30: 230-237.

Indra, DM. and Buchignani, N. 1997. 'Rural Landlessness, Extended Entitlements and Inter-Household Relations in South Asia: A Bangladesh Case', *The Journal of Peasant Studies*, 24 (3): 25.64.

Indra, DM. 2000. 'Not Just Displaced and Poor: How Environmentally Forced Migrants in Rural Bangladesh Recreate Space and Place under Trying Conditions', in EM. Gozdziak and D. Shandy, edited, *Rethinking Refuge and Development: Selected Papers on Refugees and Imigrants, Volume III*, American Anthropological Association, Washington DC, pp. 163-91.

Ingold, T. 1992. 'Culture and the Perception of the Environment', in E. Croll and D.Parkin edited, *Culture, Environment and Development*, Routledge, London, pp. 39-56.

Ingold, T. 2000. *The Perception of the Environment: Essays in Livelihood, Dwelling and Skill*. Routledge.

IPCC. 1990. *Climate Change: The IPCC Scientific Assessment*, IPCC Working Group I, Cambridge University Press.

Islam, MA. 1974. Tropical Cyclone, Coastal Bangladesh. Pages 19-24 in G. F. White (ed.), *Natural Hazards: Local, National, Global*. New York: Oxford University Press.

Islam, MA. 1995. *Environment Land Use and Natural Hazards in Bangladesh*. Dhaka: Dhaka University.

Islam, MS. and Haque, M. 2004. 'The Mangrove-based Coastal and Nearshore Fisheries of Bangladesh: Ecology, Exploitation and Management', *Reviews in Fish Biology and Fisheries*, 14: 153-80.

Islam, MS., Ullah, MS. and Paul, A. 2004. 'Community Response to Broadcast Media for Cyclone Warning and Disaster Mitigation: A Perception Study of Coastal People with Special Reference to Meghna Estuary in Bangladesh', *Asian Journal of Water, Environment and Pollution*, 1 (1 & 2): 55-64.

Islam, SA. 2002. 'The Informal Institutional Framework in Rural Bangladesh' in Toufique, K. A. and Turton, C edited, *Hands Not Lands: How Livelihoods are Changing in Rural Bangladesh*. Bangladesh Institute of Development Studies, Dhaka.

Islam, ST. 2006. *Resource Assessment of Deciduous Forests in Bangladesh*, Unpublished PhD Thesis, Durham University, UK.

Islam, T and Peterson, R. 2009. 'Climatology of Landfalling Tropical Cyclones in Bangladesh 1877-2003, *Natural Hazards*, 48 (1): 115-135.

Islam, T. and Atkins, P. 2007. 'Indigenous floating cultivation: a sustainable agricultural practice in the wetlands of Bangladesh', *Development in Practice*, 17 (1): 130-36

Jalais, A. 2007. 'The Sundarbans: Whose World Heritage Site?' *Conservation and Society*, 5 (3): 335-42.

Jentoft, S., Onyango, P. and Islam, MM. 2010. 'Freedom and Poverty in the Fishery Commons', *International Journal of the Commons*, 4 (1): 345-66.

Karim, A. 1992. *History of Bengal, Mughal Period, I*, Rajshahi University, Rajshahi, Bangladesh.

Karim, A. 1994. 'Vegetation' in: Hussain, Z. and Acharya, G. (eds.), *Mangroves of the Sundarbans*, Volume Two: Bangladesh. IUCN, Bangkok, Thailand.

Karim, MF and Mimura, N. 2008. Impacts of climate change and sea-level rise on cyclonic storm surge floods in Bangladesh, Global Environmental Change-Human and Policy Dimensions, 18 (3): 490-500

Kearnes, MB. 2008. 'Risk Society: Towards a New Modernity by Ulrich Beck', *Geography*, 93 (2):

122-23.

Keim, ME. 2006. 'Cyclones, Tsunamis and Human Health: The Key Role of Preparedness', *Oceanography*, 19 (2): 40-49.

Kelman, I. 2006. 'A Framework for Weather-Related Fatalities Research', *Weather and Society Watch*, 1 (1): 4.

Kelman, I. 2008. 'Myth of Hurricane Katrina', *Disaster Advances*, 1 (1): 40-46.

Khalil, GM. 1992. 'Cyclones and Storm Surges in Bangladesh: Some Mitigative Measures', *Natural Hazards*, 6: 11-24.

Kibria, MG. and Ahmed, KKU. 2005. 'Diversity of Selective and Non-Selective Fishing Gear and Their Impact on Inland Fisheries in Bangladesh', *NAGA*, *WaterFish Center Newsletter*, 28 (1&2): 43-48.

Klinenberg, E. 2002. *Heat Wave: A Social Autopsy of Disaster in Chicago*, Chicago University Press, Chicago, Illinois.

Kotal, SD. et al. 2008. 'A Statistical Cyclone Intensity Prediction (SCIP) Model for the Bay of Bengal', *Journal of Earth System Science*, 117 (2): 157-68.

Landsea, CW; Harper, BA; Hoarau, K and Knaff, JA. 2006. Can We Detect Trends in Extreme Tropical Cyclones? *Science*, 313: 452-4

Lane, SN. 2008. 'Editorial: Living with Hazard and Risk', *Geography*, 93 (2): 66-68.

Le Mare, RA. 2007. *Exploring the Power to Change: Fair Trade, Development and Handicraft Production in Bangladesh*, Unpublished PhD thesis, Durham University, UK.

Leach, M and Mearns, R (ed.). 1996. *The Lie of the Land: Challenging Received Wisdom on the African Environment*, The International African Institute, James Currey and Heinemann.

Leach, M. (eds.). 2008. *Re-framing Resilience: A Symposium Report*, STEPS Centre, Institute of Development Studies, University of Sussex.

Leach, M. and Scoones, I. 2006. *The Slow Race: Making Technology Work for the Poor*, Demos.

Leach, M., Scoones, I. and Stirling, A. 2010. *Dynamic Sustainabilities: Technology, Environment and Social Justice*, Earthscan, UK.

Lein, H. 2009. 'The Poorest and Most Vulnerable? On Hazards, Livelihoods and Labelling of

Riverine Communities in Bangladesh', *Singapore Journal of Tropical Geography*, 30, 98–113.

Lewis, D and Hossain, A. 2008. 'A Tale of Three Villages: Power, Difference and Local Difference in Rural Bangladesh', Journal of South Asian Development, 3 (1): 33-51.

Lewis, D and Hossain, A. 2008. 'Beyond 'the Net'? Institutions, Elites and the Changing Power Structure in Rural Bangladesh' in D Gellner and K. Hachhethu edited, *Local Democracy in South Asia: The Micropolitics of Democratization in Nepal and its Neighbours*. Delhi: Sage.

Loucks, C; Barber-Meyer, S; Hossain, MAA, et al. 2010. 'Sea level rise and tigers: predicted impacts to Bangladesh's Sundarbans mangroves', *Climatic Change*, 98 (1-2): 291-298

Macnaghten, P. 2003. 'Embodying the Environment in Everyday Life Practices', *The Sociological Review*, 51(1): 63-84.

Macnaghten, P. 2008. 'Nanotechnology, Risk and Upstreaming Public Engagement', *Geography*, 93 (2): 108-13.

Macnaghten, P. 2010. 'Science and Technology Studies', in B. Warf (ed.). *Encyclopedia of Geography*. Thousand Oaks, CA: Sage

Macnaghten, P. and Myers, G. 2004. 'Focus Groups' in Clive Seale et al. edited, *Quantitative Research Practice*, Sage Publications: 65-79.

Macnaghten, P. and Urry, J. 1995. 'Towards a Sociology of Nature', *Sociology*, 29 (2): 203-20.

Macnaghten, P. and Urry, J.1998. *Contested Natures*, Sage/TCS, London, UK.

Mandiyanike, D. 2009. 'The Dilemma of Conducting Research Back in Your Country as a Returning Student – Reflections of Research Fieldwork in Zimbabwe', *Area*, 41 (1): 64-71.

Manyena, SB., O'Brien, G., O'Keefe, P. and Rose, J. 2011. 'Disaster Resilience: a Bounce back or bounce forward ability?', *Local Environment*, 16 (5): 417-24.

Mathbor, GM. 2007. 'Enhancement of Community Preparedness for Natural Disasters: The Role of Social Work in Building Social Capital for Sustainable Disaster Relief and Management', *International Social Work*, 50 (3): 357-69.

Mathbor, GM. 2008. *Effective Community Participation in Coastal Development*, Lyceum Books Inc.

Matsuda, I. 1992. The cyclone disaster of 29-30 April, 1991 in Bangladesh. Geographical Reports. Tokyo Metropolitan University, 27: 55-70.

McEwan, C. 2003. 'Bringing Government to the People': Women, Local Governance and Community Participation in South Africa', *Geoforum*, 34: 469-81.

Mercer, J., Kelman, I., Lloyd, K. and Suchet-Pearson, S. 2008. 'Reflections on Use of Participatory Research for Disaster Risk Reduction', *Area*, 40 (2): 172-83.

Miller, CA. 2000. 'The Dynamics of Framing Environmental Values and Policy: Four Models of Societal Process', *Environmental Values*, 9: 211-33.

Mitra, M. 2000. 'Constituting the Commons: Crafting Sustainable Commons in the New Millennium', *the Eighth Biennial Conference of the International Association for the Study of Common Property*, Bloomington, Indiana, USA, May 31 – June 04, 2000.

Mome, MA. 2007. *The Potential of the Artisanal Hilsa Fishery in Bangladesh: An Economically Efficient Fisheries Policy*, United Nations University – Fisheries Training Programme, Reykjavik, Iceland.

Mörner, N-A. 2010. 'Sea Level Changes in Bangladesh: New Observational Facts', *Energy and Environment*, 21 (3): 235-249

Moustakas, C. 1994. *Phenomenological Research Methods*. Sage Publications.

Nabi, R. 2001. 'Institutional Arrangements and Fisheries Management in Bangladesh', *Grassroots Voice*, III (IV): 99-114.

Nadiruzzaman, M. 2008. *Rural Local Government and Central Politics in Bangladesh*. Unpublished MA Thesis, Durham University.

Nadiruzzaman, M. and Atkins, PJ. 2007. 'Infrastructure and Poverty Reduction: the Rural Maintenance Programme in Bangladesh', *Indian Journal of Landscape Systems and Ecological Studies*, 30 (2): 1-6.

Nadiruzzaman, M. and Paul, BK. Forthcoming. 'Post-Sidr Public Housing Assistance in Bangladesh: A Case Study', *Environmental Hazards*.

Nasreen, M. 2004. 'Disaster Approach: Exploring the Sociological Approach to Disaster in Bangladesh', *Bangladesh e-Journal of Sociology*, 1 (2): 21-28.

Natural Hazards Observer. 2008. Cyclone Sidr – Bangladesh. 32: 4.

O'Keefe, P., Westgate, K. and Wisner, B. 1976. 'Taking the Natureness Out of Natural Disaster', *Nature*, 260: 566-7.

Oven, KJ. 2010. *Landscape, Livelihoods and Risk: Community Vulnerability to Landslides in Nepal*,

Unpublished PhD Thesis, Durham University, UK.

Paul, A. and Rahmam, MM. 2006. 'Cyclone Mitigation Perspectives in the Islands of Bangladesh: A Case of Sandwip and Hatia Islands', *Coastal Management*, 34: 199–215.

Paul, BK; Dutt, S. 2010. 'Hazard Warnings and Responses to Evacuation Orders: the Case of Bangladesh's Cyclone Sidr', *Geographical Review*, 100 (3): 336-355.

Paul, BK. 2009. Why relatively fewer people died? The case of Bangladesh's Cyclone Sidr, *Natural Hazards*, 50: 289-304.

Paul, BK. 2010. 'Human Injuries Caused by Bangladesh's Cyclone Sidr: An Empirical Study', *Natural Hazards*, 54: 483–495.

PDO-ICZMP. 2004. *Living in the Coast: People and Livelihoods*, Ministry of Water Resources, Government of the People's Republic of Bangladesh.

Pelling, M. 2007. 'Learning from others: the scope and challenges for participatory disaster risk assessment', *Disasters*, 31 (4): 373-85.

Pelling, M. and Manuel-Navarrete, D. 2011. 'From Resilience to Transformation: the Adaptive Cycle in Two Mexican Urban Centres', *Ecology and Society*, 16 (2): 11.

Petley, DN. 2010. 'Landslide Hazards', in I. Alcántara-Ayala and A. Goudie, edited, *Geomorphological Hazards and Disaster Prevention*, Cambridge: Cambridge University Press, pp. 63-74.

Phillips, BD. and Morrow, BH. 2007. 'Social Science Research Needs: Focus of Vulnerable Population, Forecasting and Warning', *Natural Hazards Review*, 8 (3): 61-68.

Rahman, A. 2011. 'Climate Change, Global Commons and Corruption in the Context of Sundarban Mangrove Forest in Bangladesh', *Sustainable Commons: Sustaining our Future*, The Thirteenth Biennial Conference of the International Association for the Study of Commons, Hyderabad, India, January 10-14, 2011.

Rangasami, A. 1985. "Failure of Exchange Entitlements' Theory of Famine: A Response', *Economic and Political Weekly*, 20 (41): 1747-1752.

Rasid, H. and Paul, BK. 1987. 'Flood Problems in Bangladesh: Is There any Indigenous Solution?', *Environmental Management*, 11 (2): 155-73.

Rector, I. (ed). 2008. *Challenging Times*, A Newsletter of the Comprehensive Disaster Management Programme (CDMP), 1st edition (January-March), Ministry of Food and Disaster Management,

Government of Bangladesh.

Reilly, B. 2003. 'Political Parties and Political Engineering in the Asia Pacific Region', *Asia Pacific Issues*, No. 71. Analysis from the East-West Center.

Rigg, J. 2007. *An Everyday Geography of the Global South*. Abingdon: Routledge.

Robbins, P. 2012. *Political Ecology (2nd Edition)*, John Wiley & Sons Ltd.

Rubin, O. 2009a. 'The Entitlement Approach – A Case for Framework Development rather than Demolition: A Comment on 'Entitlement Failure and Deprivation: A Critique of Sen's Famine Philosophy'', *Journal of Development Studies*, 45 (4): 621-40.

Rubin, O. 2009b. 'The Entitlement Approach: A Case for Framework Development Rather than Demolition: Rejoinder', *Journal of Development Studies*. 45 (4): 646 - 648.

Salauddin, S. 2005. 'Land Rights and Poverty Alleviation', in S. Islam and S. Islam edited, *Land Rights and Poverty Alleviation*, Bangladesh Legal and Aid Services Trust (BLAST), 4-12.

Scaffer, M., Westley, F. Brock, WA., Holmgren, M. 2002. 'Dynamic Interaction of Societies and Ecosystems – Linking Theories from Ecology, Economy and Sociology', in LH Gunderson and CS Holling edited, *Panarchy: Understanding Transformations in Human and Natural Systems*. Island, London, UK.

Schipper, ELF. 2004. *Exploring Adaptation to Climate: A Development Perspective*, Unpublished PhD thesis, School of Development Studies, University of East Anglia.

Scmuck, H. 2000. '"An Act of Allah": Religious Explanations for Floods in Bangladesh as Survival Strategy', *International Journal of Mass Emergencies and Disasters*, 18 (1): 85-95.

Sen, A. 1981. *Poverty and Famines: An Essay on Entitlement and Deprivation*, Oxford : Clarendon Press.

Sen, A. 1999. *Development as Freedom*, Anchor Books, New York.

Shamsuddoha, M and Chowdhury, RK. 2007. *Climate Change Impact and Disaster Vulnerabilities in the Coastal Areas of Bangladesh*, COAST Trust and Equity and Justice Working Group.

Shamsuddoha, M. 2007. 'Supply and Value Chain Analysis in the Marketing of Marine Dried Fish in Bangladesh and Non Tariff Measures (NTMs) in International Trading', paper presented at the 106th Seminar of the EAAE, titled, *Pro-poor Development in Low Income Countries: Food, Agriculture, Trade and Environment*, 25-27 October 2007, Montpellier, France.

Shaw, R. 2006. 'Critical Issues of Community Based Flood Mitigation: Examples from Bangladesh

and Vietnam', *Journal of Science and Culture*, 72 (1-2): 1-17.

Siddiqi, NA. 2001. *Mangrove Forestry in Bangladesh*. Institute of Forestry and Environmental Sciences, University of Chittagong, Chittagong.

Sillitoe, P. (ed) 2007. *Local Science vs. Global Science: Approaches to Indigenous Knowledge in International Development*, Berghahn Books.

Sillitoe, P., Barr, J. and Alam, M. 2004. 'Sandy-Clay or Clayey-Sand? Mapping Indigenous and Scientific Soil Knowledge on the Bangladesh Floodplains', in Bicker, A., Sillitoe, P and Pottier, J. (edited) *Development and Local Knowledge*, Routledge.

Smith, A. and Stirling, A. 2008. *Socio-Ecological Resilience and Socio-Technical Transitions: Critical Issues for Sustainability Governance*, STEPS Centre, Institute of Development Studies, University of Sussex.

Sohlberg, P. 2006. 'Amartya Sen's Entitlement Approach: Empirical Statement or Conceptual Framework?', *International Journal of the Social Welfare*, 15: 357-362.

Stirling, A. and Mayer, S. 2001. 'A Novel Approach to the Appraisal of Technological Risk: A Multicriteria Mapping Study of a Genetically Modified Crop', *Environment and Planning C: Government and Policy*, 19: 529-55.

Storch, H. von and Woth, K. 2008. 'Storm Surges: Perspectives and Options', *Integrated Research System for Sustainability Science*, 3, 33-43.

Talukder, J., Roy, GD. and Ahmed, M. 1992. *Living with Cyclone: Study on Storm Surge Prediction and Disaster Preparedness*, Community Development Library, Dhaka, Bangladesh.

Thomalla, F. and Schmuck, H. 2004. "We All Knew that a Cyclone Was Coming': Disaster Preparedness and the Cyclone of 1999 in Orissa, India', *Disasters*, 28 (4): 373–87.

Thywissen, K. 2006. Core terminology of disaster reduction: a comparative glossary, in J. Birkmann edited, *Measuring Vulnerability to Natural Hazards - Towards Disaster Resilient Societies*, Hong Kong: United Nations University Press: 448-96.

Toufique, KA. 1997. 'Some Observations on Power and Property Rights in the Inland Fisheries of Bangladesh', *World Development*, 25 (3): 457-67.

Toufique, KA. 2000. 'Property Rights, Livelihoods, and Poverty around some Fishing Grounds in Rural Bangladesh', *Constituting the Commons: Crafting Sustainable Commons in the New Millennium*, the Eighth Biennial Conference of the International Association for the Study of Common Property, May 31 – June 4, Bloomington, Indiana, USA.

Toufique, KA. and Turton, C. (ed.). 2005. *Hands Not Land: How livelihood are Changing in Rural Bangladesh*, Bangladesh Institute of Development Studies.

Twigg, J. (2001). 'Sustainable livelihoods and vulnerability to disasters', *Disaster Management Working Paper 2*, London: Benfield Hazard Research Centre.

Watts, M. 1983. *Silent Violence: Food, Famine and Peasantry in Northern Nigeria*. University of California Press.

Watts, MJ. 1993. 'Hunger, Famine and the Space of Vulnerability', *GeoJournal*, 30 (2): 117-125.

Westergaard, K. and Alam, M. M., 1995. 'Local Government in Bangladesh: Past Experiences and Yet Another Try', *World Development*, 23 (4): 679-690.

White, GF. 1945. *Human Adjustment to Floods: A Geographical Approach to the Flood Problem in the United States*, Research Paper No. 29. University of Chicago, Department of Geography.

Wisner, B. 1993. 'Disaster Vulnerability: Scale, Power and Daily Life', *GeoJournal*, 30 (2): 127-140.

Wisner, B. 2003. 'Sustainable Suffering? Reflections on Development and Disaster Vulnerability in the Post-Johannesburg World', *Regional Development Dialogue*, 24 (1, Spring): 135-48.

Wisner, B. 2007. *40 Years of Vulnerability Studies: Personal Reflections*, IHRR Seminar, 27 November 2007.

Wisner, B. 2009. 'Vulnerability' in R. Kitchin & N. Thrift edited, *International Encyclopedia of Human Geography*, Oxford: Elsevier, 176-82.

Wisner, B., Blaikie, P., Cannon, T. and Davis, I. 2004. *At Risk: Natural Hazards, People's Vulnerability and Disasters*, 2nd edition, Routledge, London.

World Bank, 2002. *Taming Leviathan – Reforming Governance in Bangladesh: An Institutional Review*. The World Bank.

Wynne, B. 1995. 'May the Sheep Safely Graze? A Reflexive View of the Expert-Lay Knowledge Divide', in: S Lash, B Szerszynski and B Wynne (eds.), *Risk, Environment and Modernity: Towards a New Ecology*, London: Sage.

Wynne, B. 2001. 'Creating Public Alienation: Expert Cultures of Risk and Ethics on GMOs', *Science as Culture*, 10 (4): 445-81.

Zebrowski, E. Jr. 1997. *Perils of a Restless Planet: Scientific Perspectives on Natural Disasters*, Cambridge University Press, UK.