Exploring the Process of Adaptation to Climate Change
in the Coastal Regions of Bangladesh

by
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of Doctor of Philosophy (Sustainable Resource Management) at the
University of Newcastle, Australia

March 2015
Declaration

The thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to the final version of my thesis being made available worldwide when deposited in the University’s Digital Repository, subject to the provisions of the Copyright Act 1968.

Masud Iqbal Md. Shameem

Signature........................................ Date: 03March 2015
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The following published article is based on the results of the research work conducted under this study:

Table of Contents

Table of Contents................................................................................................................. v
List of Tables ............................................................................................................................ ix
List of Figures ........................................................................................................................... x
List of Appendices .................................................................................................................. xii
List of Acronyms .................................................................................................................... xiii
Abstract ................................................................................................................................. xiv

CHAPTER 1 - Introduction ..................................................................................................... 1
  1.1 Problem Statement ........................................................................................................... 1
  1.2 Research Questions ......................................................................................................... 4
  1.3 Layout of the Thesis ....................................................................................................... 5

CHAPTER 2 – Literature Review and Conceptual Framework .............................................. 8
  2.1 Introduction .................................................................................................................... 8
  2.2 Adaptation in Theory ..................................................................................................... 9
    2.2.1 Evolution of Approaches to Adaptation ............................................................... 9
    2.2.2 A Conceptual Framework of Adaptation to Climate Change ................................ 11
  2.3 Key Concepts in Climate Change Adaptation Studies ................................................... 15
    2.3.1 Vulnerability to Climate Change ........................................................................... 15
    2.3.2 Resilience Framework in Climate Change Adaptation .......................................... 17
    2.3.3 Maladaptation ....................................................................................................... 18
  2.4 Process of Adaptation to Climate Change .................................................................... 19
    2.4.1 Strength of Belief as Motivation to Climate Change Adaptation ......................... 19
    2.4.2 Socio-Cognitive Model of Adaptation to Climate Change .................................... 20
  2.5 Adaptation to Climate Change in Livelihood Framework .......................................... 22
    2.5.1 Sustainable Livelihoods Approach (SLA) .............................................................. 23
    2.5.2 Adapting Livelihood Approaches to Climate Change ........................................... 26
    2.5.3 A Conceptual Framework for Livelihood Adaptation to Climate Variability and Change ........................................................................................................ 28

CHAPTER 3 – Research Design and Methodology .............................................................. 32
  3.1 Introduction .................................................................................................................... 32
3.2 Selection of Field Research Methods .......................................................... 32
3.3 Research Design ......................................................................................... 35
3.3.1 Climate Variability and Extremes as a proxy for Climate Change .......... 35
3.3.2 Sustainable Livelihoods Approach: Evaluation Framework for Livelihood Adaptation to Climate Change .................................................. 35
3.3.3 Institutional Analysis Framework ............................................................. 37
3.4 Case Study .................................................................................................. 38
3.4.1 Scoping the Case Study Area ................................................................. 39
3.4.2 Selection of Case Study .......................................................................... 39
3.4.3 Selection of Communities ....................................................................... 39
3.4.4 Selection of sample Households .............................................................. 40
3.5 Field Data Collection .................................................................................. 41
3.5.1 Secondary Information Review ............................................................... 41
3.5.2 Introductory Community Visit ............................................................... 42
3.5.3 Household Survey ................................................................................. 42
3.5.4 Focused Investigation ............................................................................ 44
3.5.5 Key Informant Interview ....................................................................... 46
3.5.6 Climate Data Collection ........................................................................ 46
3.6 Compiling and Analysing Data ................................................................... 47
3.7 Validation and Verification .......................................................................... 48

CHAPTER 4 – The Research Setting ................................................................. 51
4.1 Introduction ............................................................................................... 51
4.2 Coastal Bangladesh ................................................................................... 52
4.2.1 Physical Setting .................................................................................... 52
4.2.2 Socio-economic Context ...................................................................... 54
4.2.3 Characteristics of Climate ..................................................................... 59
4.2.4 Biophysical Hazards and Key Impacts .................................................. 61
4.2.5 Potential Impacts of Climate Change ..................................................... 64
4.3 Description of the Study Area .................................................................... 65
4.3.1 Geography of the Study Area ................................................................. 66
4.3.2 Socioeconomic Features ....................................................................... 67
7.8 Improvement of Shelters: Household Response to Tidal Flood ....................... 136
7.9 Migration .................................................................................................................... 137
7.10 Discussion and Conclusion .................................................................................... 138

CHAPTER 8 – Livelihood Adaptation to Climate Change: Role of Policies and Institutions ................................................................................................ 145

8.1 Introduction ............................................................................................................... 145
8.2 Institutional Interventions in Facilitating Adaptation to Climate Change .......... 146
8.3 Social Safety Nets (SSNs): Public Responses to Cope with Livelihood Disturbances .................................................................................................................... 147
   8.3.1 Supporting Households to Cope with Climate Hazards ................................. 149
   8.3.2 Limit to Social Safety Nets to Benefit the Vulnerable Communities .......... 151
8.4 Role of NGOs in Promoting Livelihood Adaptation ............................................. 152
8.5 National Climate Policy and Livelihood Adaptation at Local Level ............... 155
8.6 Adapting Development Plans and Sectoral Policies ............................................ 157
8.7 Discussion .................................................................................................................. 158
8.8 Conclusion ................................................................................................................. 162

CHAPTER 9 - Conclusion ................................................................................................. 164

9.1 Summary of the Major Findings ............................................................................. 164
9.2 Recommendations ................................................................................................... 170

REFERENCES .................................................................................................................. 175
List of Tables

Table 2.1 – Bases for Differentiating Adaptation

Table 3.1 – A list of variables representing the five livelihood capitals influencing the adaptive practices of rural households in the coastal area

Table 3.2 – Categorization of household based on land holding size

Table 4.1 – Basic demographic indicators of the national and coastal zone for the year 2011

Table 4.2 – Major cyclones that hit the Bangladeshi coast

Table 4.3 – Basic demographic indicators of Chila

Table 4.4 – Public facilities in Chila

Table 4.5 – Season calendar of livelihood activities in Chila

Table 4.6 – Information on the damage in Chila caused by Cyclone Aila

Table 4.7 – Information on damages to the fisheries sector and its estimated costs

Table 5.1 – Rate of literacy in selected household members

Table 5.2 – Sources of water used by survey population

Table 5.3 – Agricultural and non-agricultural equipment owned by survey population

Table 5.4 – Percentage of households by preferred source of credit

Table 6.1 – Local perceptions of climate change

Table 6.2 – Local perceptions of risk of climate change

Table 7.1 – Adaptation measures implemented by shrimp farmer in Chila

Table 7.2 – The percentage of households identifying the reasons for not using climate information

Table 8.1 – Institutional interventions identified by local residents to be required for buffering impacts of climate change

Table 8.2 – Overview of key social safety net programmes

Table 8.3 – An overview of NGO activities in Chila

Table 8.4 – NGO-run programmes participated in by survey households
List of Figures

Figure 2.1 – Conceptualization of vulnerability according to the IPCC TAR
Figure 2.2 – Process Model of Private Proactive Adaptation to Climate Change
Figure 2.3 – Sustainable Livelihoods Framework
Figure 2.4 – Conceptual framework for livelihood adaptation to climate variability and change
Figure 4.1 – Map of coastal region of Bangladesh
Figure 4.2 – Types of coastal household by landholding size
Figure 4.3 – Expansion of area under shrimp farming over 30 years
Figure 4.4 – Map of the climatic sub-regions of Bangladesh
Figure 4.5 – Water logging in coastal area
Figure 4.6 – Map of historical cyclonic storm tracks
Figure 4.7 – Maps showing location of Mongla Upazila in Bagerhat district and the study area
Figure 4.8 – Distribution of population by age and gender
Figure 4.9 – Distribution of households by farm type
Figure 4.10 – Seasonal changes of salinity in the Mongla River
Figure 5.1 – Household size and dependency ratio by income group
Figure 5.2 – Self-assessed health status
Figure 5.3 – Percentage of individuals received technical training
Figure 5.4 – House types of the surveyed households
Figure 5.5 – Lorenz curve of land distribution in the study area
Figure 5.6 – Distribution of operated land by farm size in the study area
Figure 5.7 – Percentage of households by flock size of poultry
Figure 5.8 – Percentage of households by cattle (left) and goat herd (right) size
Figure 5.9 – Income portfolios of surveyed households
Figure 5.10 – Distributions of income and operated land
Figure 5.11 – Lorenz curves of income distribution among surveyed household
Figure 5.12 – Income portfolios across income strata
Figure 6.1 – Box and whiskers diagram of yearly temperature in Mongla, 1989-2008
Figure 6.2 – Box and whiskers diagram of monthly total rainfall in Mongla, 1991-2008.

Figure 6.3a – Monthly distribution of major cyclonic storms over Bangladesh, 1960-2013

Figure 6.3b – Interdecadal trends in temporal distribution of major cyclone over Bangladesh 1960-2009

Figure 6.4 – Decadal frequency of cyclonic storms over the southwest coast and all the coastal regions of Bangladesh during 1960-2009

Figure 6.5 – Decadal frequency of severe cyclones over the southwest coast and all the coastal regions of Bangladesh during 1960-2009

Figure 6.6 – Maximum wind speeds and corresponding surge heights of the major cyclonic storms during 1960-2013

Figure 6.7 – Decadal frequency of major cyclonic storms and associated human casualties during 1960-2009

Figure 6.8 – Annual departure of monsoon rainfall from 1991-2008

Figure 6.9 – Annual departure from winter rainfall 1991-2008 mean

Figure 7.1 – Income portfolios across income strata

Figure 7.2 – Income portfolios across farming households

Figure 7.3 – Changing patterns of livelihood activities over the last 10 years in Chila

Figure 7.4 – A rainwater collection tank used by a household in Chila
List of Appendices

Appendix A – Survey Questionnaire.........................................................191
Appendix B – Sub-survey Questionnaire...............................................199
Appendix C – Focus Group Schedule.....................................................202
## List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCCSAP</td>
<td>Bangladesh Climate Change Strategy and Action Plan</td>
</tr>
<tr>
<td>BCCRF</td>
<td>Bangladesh Climate Change Resilience Fund</td>
</tr>
<tr>
<td>BCCTF</td>
<td>Bangladesh Climate Change Trust Fund</td>
</tr>
<tr>
<td>BRRI</td>
<td>Bangladesh Rice Research Institute</td>
</tr>
<tr>
<td>BDT</td>
<td>Bangladeshi Taka</td>
</tr>
<tr>
<td>CI</td>
<td>Corrugated Iron</td>
</tr>
<tr>
<td>CRED</td>
<td>Centre for Research on the Epidemiology of Disaster</td>
</tr>
<tr>
<td>DFID</td>
<td>Department for International Development</td>
</tr>
<tr>
<td>DRR</td>
<td>Disaster Risk Reduction</td>
</tr>
<tr>
<td>EMDAT</td>
<td>Emergency Event Database</td>
</tr>
<tr>
<td>HYV</td>
<td>High Yielding Variety</td>
</tr>
<tr>
<td>IPCC</td>
<td>Intergovernmental Panel on Climate Change</td>
</tr>
<tr>
<td>IPCC TAR</td>
<td>Third Assessment Report of the Intergovernmental Panel on Climate Change</td>
</tr>
<tr>
<td>MOEF</td>
<td>Ministry of Environment and Forests</td>
</tr>
<tr>
<td>MPPACC</td>
<td>Model of Private Proactive Adaptation to Climate Change</td>
</tr>
<tr>
<td>NAPA</td>
<td>National Adaptation Plan of Action</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
</tr>
<tr>
<td>PL</td>
<td>Post Larvae</td>
</tr>
<tr>
<td>PMT</td>
<td>Protection Motivation Theory</td>
</tr>
<tr>
<td>SLA</td>
<td>Sustainable Livelihoods Approach</td>
</tr>
<tr>
<td>SP</td>
<td>Social Protection</td>
</tr>
<tr>
<td>SREX</td>
<td>Special Report on Managing the Risks of Extreme Events</td>
</tr>
<tr>
<td>SSN</td>
<td>Social Safety Network</td>
</tr>
<tr>
<td>UNFCCC</td>
<td>United Nations Framework Convention on Climate Change</td>
</tr>
<tr>
<td>VGD</td>
<td>Vulnerable Group Development</td>
</tr>
<tr>
<td>VGF</td>
<td>Vulnerable Group Feeding</td>
</tr>
<tr>
<td>WARPO</td>
<td>Water Resources Planning Organization</td>
</tr>
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</table>
Abstract

The natural resource dependent societies of the coastal areas in Bangladesh have long been dealing with their vulnerabilities to extreme weather events. Marked changes in the coastal hydro-climatic environment are exacerbating the existing situation, with serious impacts on the environment, food production systems and freshwater resources. As a result, coastal communities face the challenge of managing immediate livelihood threats and maintaining livelihood security in the long term. This study aims to empirically explore the processes by which rural households in coastal areas of Bangladesh adapt their livelihoods to climate variability and change within the context of a vulnerable setting. Empirical data were explored from a union (lowest local administrative unit) of a southwest coastal district in Bangladesh using a combination of qualitative and quantitative methods.

This study shows that local people are aware of the changes in hydro-climatic parameters. As adaptations to hydro-climatic stressors, households have diversified their livelihoods, and have progressively changed their livelihood strategies – mostly by switching from agriculture to the commercial brackish water shrimp aquaculture and business, gaining access to agricultural land and diversifying the aquaculture sector through the adoption of innovative practices. Drawing on this case study, there are clear winners and losers in these adaptive strategies. Better-off households are only able to radically transform their livelihood strategies in order to exploit the opportunities resulting from a changing environment that provides ingredients to develop robust livelihood systems. This research suggests that to become effective, adaptations to climate change in the coastal area of Bangladesh need to be combined specific strategies to respond to the climate-related risks, with
strategies addressing the underlying causes of vulnerability in order to enhance livelihood resilience in the face of multiple stressors.