

# ADDRESSING CLIMATE INDUCED LOSS AND DAMAGE:

PERCEPTION AND THOUGHTS OF THE COASTAL FISHERS IN BANGLADESH



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## MESSAGE FROM EXECUTIVE DIRECTOR

Climate change is considered as one of the major threats to entire humanity and least development countries like Bangladesh are the worst victim of climate change due to their geographic location, higher population density and poor socio-economic conditions. While people living in the coastal areas of Bangladesh are always recognized as the most climate vulnerable community and perhaps experiences the most devastating consequence of climate change. The Bay of Bengal became more conducive to tropical cyclone intensification due to changes in climate variability and such rough events are causing enormous loss and damages to the forefront people in various ways.

Loss and Damage associated with the adverse effects of climate change is an old but emerging multifaceted concept which involves complex legal, political, scientific and ethical questions. Therefore, worldwide agreed definition and means of concrete solutions to address loss and damage are yet to be identified. Although, the issue has progressed and emerged as one of the key negotiation agenda at UNFCCC and beyond, it demands more attention and actions at all level.

To generate context specific knowledge on the issue, Christian Commission for Development in Bangladesh (CCDB) initiated this research study in 2016 with the broader objective to better understand the type and nature of climate change induced Loss and Damage of marginalized professional groups, e.g the coastal fishers' communities.

Christian Commission for Development in Bangladesh (CCDB) was formed in 1973 and has been working in various parts of the country to assist communities to meet the challenges of dynamic environments and development. Along with mainstreaming Disaster Risk Reduction (DRR) and Climate Change issues into development programs, CCDB has been implementing projects to build climate resilient communities since 2012, generating knowledge and enhancing capacities through training & research at the national level through a Climate Change Unit since 2015 and establishing a Climate Technology Park at Sreepur, Dhaka.

CCDB would like to acknowledge the financial support from Brot für die Welt, Germany and as well as the entire staff members who were engaged in publishing this report. CCDB would like to express special gratitude to the community people, especially to the respondent fishermen for their time and proactive support for conducting this research study.

**Joyanta Adhikari**

Executive Director  
Christian Commission for Development  
in Bangladesh (CCDB)



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## EXECUTIVE SUMMARY

Coastal region of Bangladesh is a pathway for a number of weather related natural disasters and has been experiencing cyclones and their fearsome sea surges with furious intensity which is most likely to be further aggravated as these atmospheric heat engines (cyclones) gather more energy from warmer sea. The Bay of Bengal became more conducive to tropical cyclone intensification due to increase in sea surface temperature & upper ocean heat content and increase in such rough sea events are directly affecting the major means of livings of more than 3.5 million coastal people.

Fisheries of the Bay of Bengal & other aquatic resources serve as a source of livelihood and employment opportunities for the surrounding coastal communities. Such Climatic extremes coincided with over exploitation have left majority of those people in severe crisis who depend on it. Diversified impact of climate change affects this marginal coastal fisher's groups in different ways and cause numerous loss and damage. The extent and dimension of climate change induced loss and damage is very complex and hardly proportional.

This research study applied participatory action research tools to explore the nature and dimensions of climate change induced loss and damage of this marginal professional groups based on the experience, perception and thoughts of the coastal fisher folks. The study revealed that, majority of the fishermen had to experience unfinished trip at least 3 to 4 time due to warning signal throughout the year of 2016 and on an average, such trip cost them an economic loss of more than BDT 3000. Most of the fishermen have to travel 10 to 15 additional hours on the deep sea as due to shift in fishing reservoirs and all the respondent expressed their concern regarding sea surface temperature rise, increased salinity and sea level rise. They also have been experiencing more intensified rough sea events including depressions and cyclones. Apart from those, limited technological access-not only in terms of fishing boats & gears but also in terms of access to weather forecast receiving instruments, safety equipments and poor socio-economic condition have aggravated their sufferings to further extend.

Government has various safety net supports schemes but none of them are explicitly deal with fishing communities except the "Coastal fishers support scheme (also called as fishers ID card)". Both informal and institutional credit mechanisms were found in both the study areas but more than 50% of the respondents from the Cox's Bazar were engaged with informal one (dadan) while in case of Barguna, more than 60% respondents reported their engagement with institutional microcredit.

Surprisingly, more than 50% of the respondents stated that they know about insurance and significant portion of them met insurance agent and have basic understanding on different policy schemes. Though the understanding was very limited to life insurance scheme only, however, majority of the respondents (97% in Barguna and 88.2% in Cox's Bazar) expressed their willingness to pay a monthly premium up to BDT 500 for their fishing boats and nets if rationale compensations are ensured.

For addressing loss and damage, combination of efforts are required at individual & institutional level. More specific poverty reduction programmes and special support schemes are need be initiated this for this marginal coastal fishing communities. Insurance can be a part of the solutions but feasible and suitable mechanism needs to be developed before introduction.

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## ACRONYMS AND GLOSSARY

AO	- Agricultural Officers	GIS	- Geographic Information System
CBO	- Community Based Organization	HH	- Households
CRA	- Community Risk Assessment	KII	- Key Informant Interview
DFO	- District Fisheries Officer	LGD	- Local Government Department
DM	- Disaster Management	LGED	- Local Government Engineering Department
DMC	- Disaster Management Committee	LRRD	- Relief-Rehabilitation and Development
DMIC	- Disaster Management Information Center	NGO	- Nongovernmental Organization
DRR	- Disaster Risk Reduction	PWD	- Person with Disability
EW	- Early Warning	UP	- Union Parishad
FGD	- Focus Group Discussion	VGD	- Vulnerable Group Development
FY	- Fiscal Year		

<i>Arat</i>	Generally an office, a store, or a warehouse in a market place from which an Aratdar conducts his business.
<i>Aratdar</i>	Main actor in the fish distribution system; either acts as wholesaler or commission agent and the main provider of credit in the marketing chain.
<i>Bahaddar</i>	Owner of fishing boat.
<i>Bazar</i>	Market
<i>Bepari</i>	Middleman in the marketing chain who transports the fish to other Districts.
<i>Behundijal</i>	A fixed bag net with a rectangular mouth.
<i>Chalani</i>	Same as Bepari
<i>Dadan</i>	Loan as part of interlocked credit-marketing transactions.
<i>Faria</i>	Local itinerant fish trader.
<i>Lakh</i>	One hundred thousand.
<i>Hat</i>	Small market place where market exchanges are carried out either once, twice, or thrice a week, however not every day.
<i>Jaal</i>	Fishing net.
<i>Mahajan</i>	Traditional moneylender.
<i>Mahji</i>	Captain of boat.
<i>Mokam Markets</i>	Important fish markets in district capitals are often referred to as Head Mokam.
<i>Paiker</i>	Middleman in the fish marketing chain; often covers the assembly function in the chain, acting as Dadandar at the same time; depending on the location sometimes also referred to as wholesaler or retailer.



## **CHAPTER 01**

### **INTRODUCTION AND BACKGROUND**

# 1

## INTRODUCTION AND BACKGROUND

---

### 1.1 Problem Statement

Coastal areas of Bangladesh are considered as one of the most vulnerable hotspots as many weather related extremes especially the tropical Cyclone that frequently hit those areas. In the recent years, development of tropical cyclones in the Bay of Bengal (BoB) becomes more frequent and intense causing substantive loss and damages to the coastal fisher folks, the marginal professional groups whose livelihoods largely depends on fishing. Rise in the frequency and magnitude of these extremes are basically due to rise of surface temperature of the Bay of Bengal, the simultaneous affect of global warming.

(Singh et al. 2001) reported two-fold increase in the frequency of tropical cyclone in the Bay of Bengal over a period from 1877 to 1998. While some other studies, for example WIREs Climate Change (2015) reported increased speed and intensity of Cyclone disturbances over the period from 1961 to 2010. The above findings further been confirmed by a recent study that established the casual relationship between rise in surface temperature and cyclone frequency in the Bay of Bengal. Through analyzing surface water temperature over the period from 1985 to 2009, the study confirmed rise in upper surface temperature by 0.30-0.48°C that made the Bay of Bengal (BoB) more conducive to intensify tropical cyclone with strong possibility of occurring more rough sea events (Chowdhury et al., 2012).

The empirical experience also confirms occurrence of frequent and intense rough sea events both in pre-monsoon and post-monsoon period, the trend which was unlikely even a decade ago. Occurrence of such rough sea events are directly affecting the major means of livings of more than 3.5 million coastal people as they are now being forced to avoid fishing even in the peak fishing days due to frequent cyclone warnings. Again, occurrence of consecutive rough events, often make fishers bound to abandon fishing trips incurring not only losses of fishing days (catch) but also loss of complete investment on a trip what they usually borrow in advance from the local money lenders (Aratdars or Mohajans) against the next catch.

Acknowledging the vulnerabilities of coastal fishers, the national fisheries policy incorporated several measures like social safety net, disaster risk reduction, also an insurance mechanism. However, none of the measures seems to be effective to address damages of productive assets and losses of income that the coastal fishing communities are facing at an increased level.

## 1.2 Study Background and Context

**1.2.1 Coastal Fishing and Fishing Communities:** Coastal small-scale fishing dependent people can be categorized into different groups. Most of the fishers catch fish with boats and gear, although a small number of them do not have boat and fish only with traditional gear (e.g. small push/pull nets) near the shore.

Four types of boats (small manual, small mechanized, medium mechanized and large mechanized) are normally used with different types of nets depending on the target species and fishing season. In Bangladesh, there are 21,097 total motorized fishing boats of which 99.20% are less than 12m in length (FAO, 2012). Normally rich people, who can afford at least BDT 400,000, own motorized boats (BOBP, 1985). In a boat, a group of 5 to 25 people work during a fishing operation that lasts between 12 hours and 20 days (Hasan et al., 2004). In a typical large boat, the fishers group consists of a captain (also called crew leader), driver and normal crew members (BOBP, 1985). The boat captain's income is two to three times higher than a normal crew member (Hasan et al., 2004). "Mohajans" (money lenders), the commissioning agents dominate the wholesale markets and have a chain of suppliers who regularly bring catches. These agents charge 3-6% commission and take 2-4 fish for every 80 fish sold (Rahman, 1994). The agents in turn provide advance money (dadon) to boat owners to make boats and nets. The boat owners are required to sell fish to the agents. After landing, fishermen tend to sell their fish as early as possible to their agents to avoid spoilage because of the inadequate cold storage facilities and unavailability of good quality ice.

**1.2.2 Climate Change Impacts on Fishing:** Impacts of climate change, especially the frequency and intensity of tropical cyclones and associated rough sea events are causing tremendous impacts on fishing, infrastructure and ultimately on the livelihoods of fishing communities. Ahmed and Neelormi (2008) observed a reduction of fishing days during the monsoon due to increased level of rough sea events, rise in cyclone frequency etc that bound fishers to stay home even in the peak fishing season. In Bangladesh's coast cyclones of very high intensity usually occur between April and May, and between September and November (BMD, 2011). Most of these months fall within the fishing seasons and consequently fishing activities are impacted by those cyclones. Traditional fish drying activity are also impacted by increased temperature and variation in rainfall as well as by extreme climate and weather events. On the other hand, gradual rise in sea level and salinity are affecting coastal biodiversity and common eco-system services. As a whole they are likely to be exposed more to climate change impacts (Agrawala et al., 2003).

**1.2.3 National Response Measures:** Though the coastal fishers are facing various recurrent climatic extremes but they are not adequately supported by the national as well as international safeguard mechanisms. On the other hand, they also face many social

challenges, economic deprivation and exploitation, which further trigger their vulnerability and put them beyond the limit to adapt with the changes of climate change.

Given the context, the government of Bangladesh incorporated several measures in the 'National Fisheries Policy 1998' but 'making policy into practice' still a distant reality. For instance, the 'National Fisheries Policy' emphasizes protecting fishers' life and livelihoods, including the fishing boats and gears, under an insurance mechanism. So far no insurance company (both public and private) yet to launch any schemes to support fishers to recover loss and damages of fishing boat and gear. The only 'life insurance' scheme for the coastal fishers launched in 2012 by the state-run agency 'Jiban Bima Corporation (JBC)' became non-functional within a few years of its introduction. There are some common misunderstanding on the insurance measures, hence the said insurance scheme failed to attract the coastal fishers to get the benefit of this scheme.

In general, the poor fishers to some extent are supported by several 'social safety schemes' for instance, the Vulnerable Group Feeding (VGF), Gratuitous Relief (GR), Food for Work (FFW), Test Relief Programme (TR) and Employment Generation Programme. These schemes have been introduced not to address loss and damage, rather to address the extreme poverty situation and wide range of economic inequality (M.A. Awal, 2013). Despite such range of efforts, some 64 percent of the poor households do not have access to any social protection programme in the country (GoB 2014).

**1.2.4 Global Discourses and Response on Loss and Damage:** The introduction of 'Loss and Damage' in the global policy discourse is contextualized by the inadequate mitigation ambitions and adaptation support by the developed countries that put developing countries to a harsh reality of an unavoidable and recoverable loss and damages of assets and properties. Considering the limited scope of adaptation to address loss and damage, developing countries have been consistently arguing for years, to include 'compensation' as one of the approaches, among all others, to address unavoidable and uninsurable loss and damage from the impacts of climate change. The other approaches to address loss and damage comprising with risk management, risk retention and risk transfer. However, demand for compensation as an approach to address loss and damage was always a contentious issue that was denied by the developed countries in the UNFCCC negotiation. Finally, in 2013, world governments agreed on the establishment of the Warsaw International Mechanism on Loss and Damage (WIM) to further discuss context and measures for addressing loss and damage. Establishment of WIM under the UNFCCC provides a clear mandate as well as obligation to the global policy stakeholder to address the inevitable impacts of climate change that have not been prevented by sufficient mitigation or adaptation actions. This promise was reinforced in the Paris Agreement (PA) that include a standalone Article (Article 8) separating the issue of loss and damage from adaptation (PA Article 7). Beside the Paris Agreement, the decisions of the 21st Conference of the Parties (1/CP21

47-51) included a set of decisions e.g. to develop a Clearing-House, establishment of Task Force on Risk Transfer and Displacement etc.

**1.2.5 Limitations of Insurance in Addressing Loss and Damage:** Among the diverse measures of addressing loss and damage, only the ‘risk transfer’ i.e. insurance mechanism has been considered as a preferred option, especially by the developed countries. So far, one of the largest insurance-related commitment has come from G7 leaders. They committed to increase climate risk insurance coverage for an additional 400 million poor climate vulnerable people within next five years (MCII 2015).

Though the insurance has a role to offset Loss and Damage, but it is only a part of the solution. Still many climate induced impacts especially the climate processes e.g. sea level rise, soil and water salinity ingress, and many of the residual impacts of extreme events (e.g. water logging) are uninsurable. Around 80% of disaster related losses remain uninsured globally. This is mainly due to, among other reasons, the disproportionately high cost of coverage for market inefficiencies (DoE 2009).

Again in the context of climate justice, this just should not be expected that the poor people of the least developed countries (LDCs) would pay the insurance premiums to deal with a problem what they did not create.

Given the context of recurrent Loss and Damage scenario and inappropriate policy and measures by the global as well as national policy stakeholders, this study identifies climate induced Loss and Damage that the coastal fishing communities of Bangladesh are facing, and suggests required measures to address Loss and Damage in an equitable manner.

### **1.3 Objectives of the study**

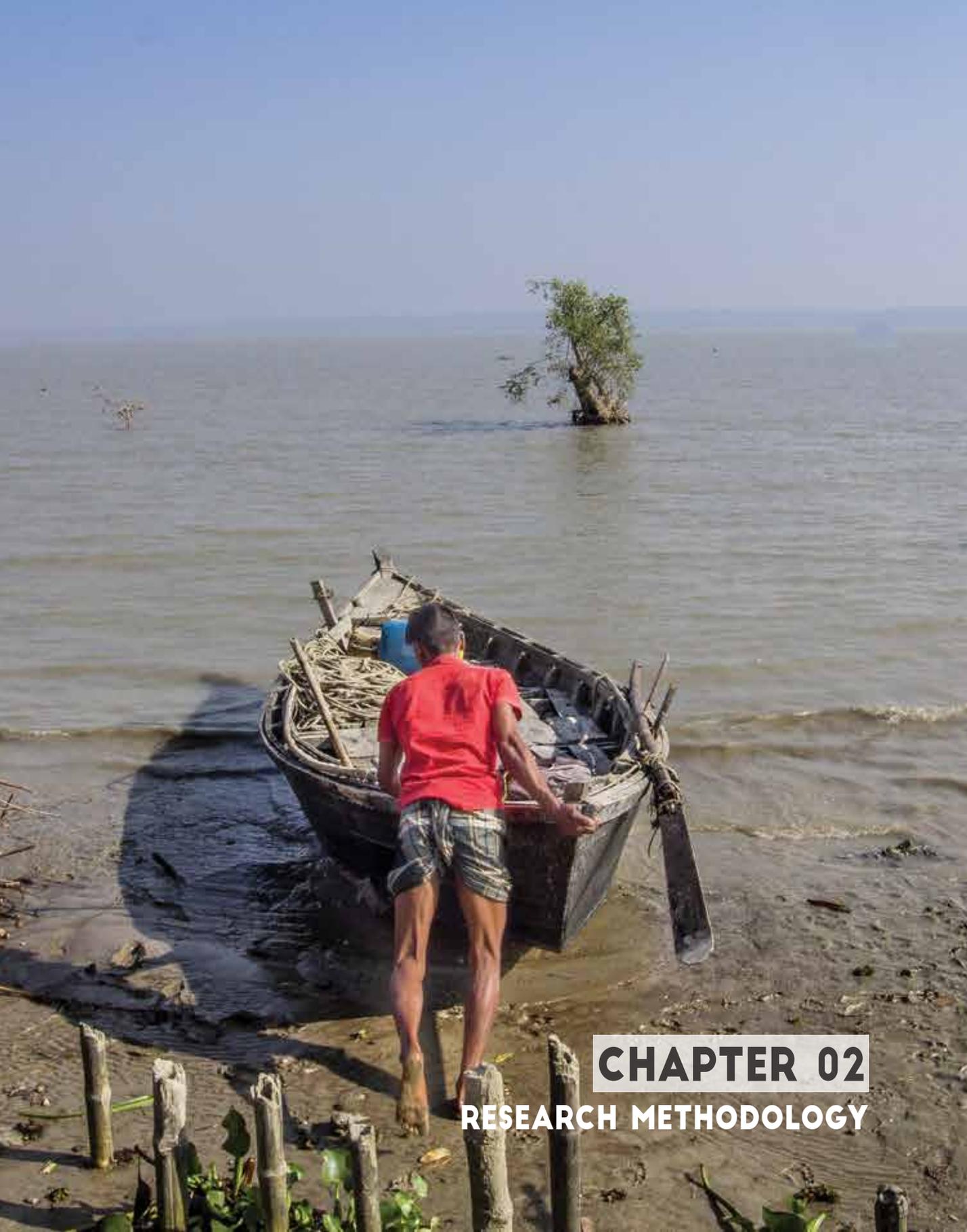
The broader objective of this study is to better understand Loss and Damage associated with the impacts of climate change in the coastal fishing communities are as of Bangladesh and to suggest measures to address Loss and Damage that the coastal fishers are facing now. The specific objectives of the study are:

- To understand and identify the overall scenario of Loss and Damage
- To review and analyze the existing social protection schemes aimed to support coastal fishers to recover damages;
- To suggest a feasible social protection scheme and insurance mechanism to address Loss and Damage.

## 1.4 Thrust Areas

This study will generate information and ideas on the following issues:

- Types, nature & extent of Loss and Damage that are being experienced by the coastal fishers of Bangladesh;
- Existing social safety net program to support supports coastal fishers;
- Baseline scenarios for introducing a feasible and affordable insurance mechanism for the coastal fishers;
- Effectiveness and mandate of the existing insurance schemes, whether they are fitted for addressing the Losses and Damages;
- Likely scheme/product for addressing Loss and Damage of the coastal fishers;
- Likely mechanism for ensuring sustainability.



## CHAPTER 02

## RESEARCH METHODOLOGY

# 2

## RESEARCH METHODOLOGY

### 2.1 Study Areas

The study has been implemented in two Upazilas namely Patharghata Upazila of Barguna district and Cox's Bazar Sadar Upazila of Cox's Bazar district. Most of the people in selected study locations depends on fishing in the Bay of Bengal.

The study employed a wider range of qualitative research tools including in-depth desktop analysis of existing materials to capture the up to date project perspectives from all the available sources. A comprehensive and scientifically robust methodology were developed to ensure the best possible outcomes.

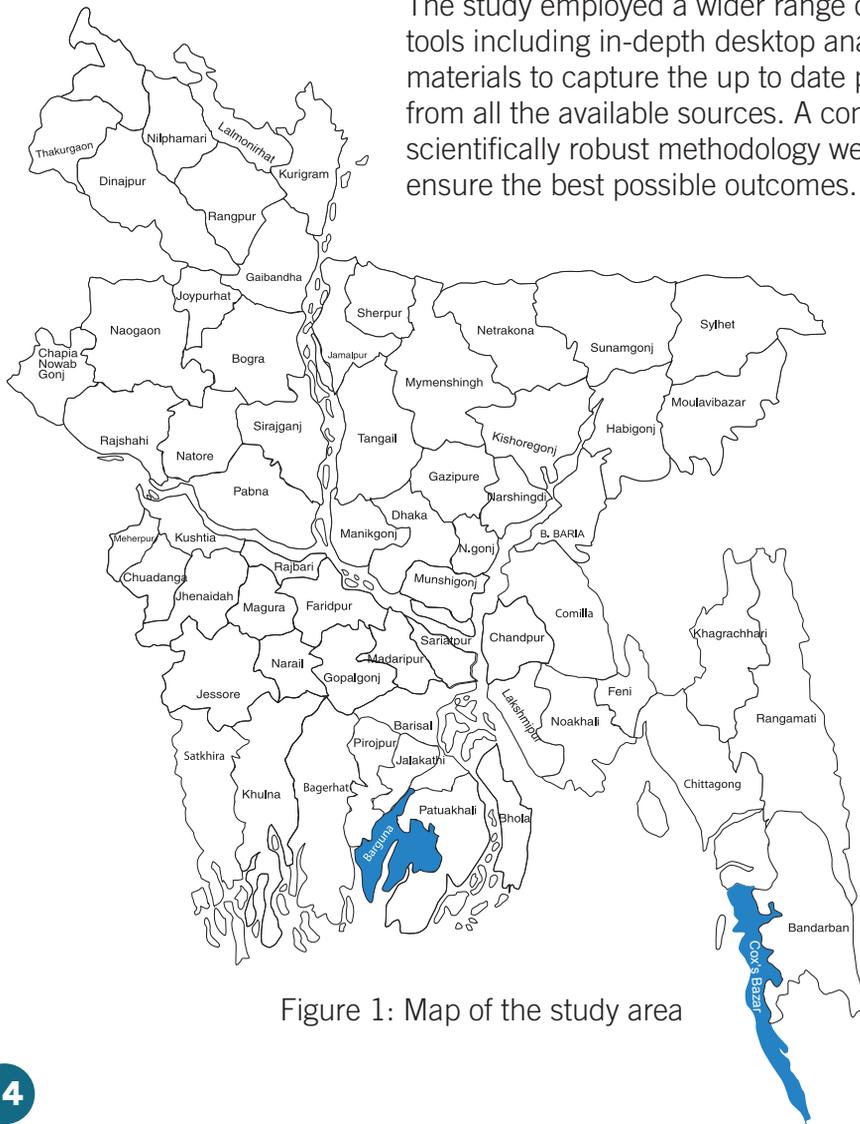


Figure 1: Map of the study area

The study applied a combination of qualitative (FGD, KII and Case study analysis) and quantitative (questionnaire survey) research methods to get first-hand information while literature review also contributed in collecting auxiliary information. To meet the purpose, a multi-method data collection took place. A targeted sampling was used in order to select respondents for quantitative data collection methods.

A semi structured questionnaire survey was conducted over 68 coastal fishermen (34 respondents in each area).

## 2.2 Determination of Sample Size

**Sample size is determined by the following formula:**

Sample Size

$$\begin{aligned} ss &= \frac{Z^2 \cdot P \cdot 1-P}{c} \\ &= \frac{1.645^2 \cdot 0.5 \cdot 0.5}{0.10^2} \\ &= 67.65 \end{aligned}$$

Where

Z = Z value (e.g. 1.645 for 90% confidence level)

P = percentage picking a choice, expressed as decimal

c = confidence interval expressed as decimal (e.g. 0.10)

Correction for Finite Population

$$\begin{aligned} \text{New ss} &= \frac{ss}{1 + \frac{ss - 1}{\text{PoP}}} \\ &= \frac{67.65}{1 + \frac{67.65 - 1}{19579}} \\ &= 67.44 \end{aligned}$$

Where

Pop = Population  
= 19579

The determined sample size is 68.

A total of 12 focus group discussions (FGDs) were conducted, keeping a representational balance in terms of gender, age and socio-economic groups. 12 case studies with local fishermen as well as with other community members were conducted (Table 1). Data was collected between June and November 2016. Separate guidelines and checklists for the FGDs, KIIs and in-depth case studies were developed and followed.

**Table 1. An overview of methodological tools**

<b>Data collection methods</b>	<b>Instruments</b>	<b>Sources of data</b>	<b>Total unit</b>
FGDs	Guideline	Fishing Community	12
In depth case studies	Guideline	Local Fishermen	12



## **CHAPTER 03**

### **SOCIO-ECONOMIC STATUS OF THE COASTAL FISHERS**

# 3 SOCIO-ECONOMIC STATUS OF THE COASTAL FISHERS

This chapter describes common socio-economic status of the coastal fishers living in the selected study areas. Several indicators like monthly income, secondary occupation, fishing types, boat ownership etc. have been considered in analyzing the socio-economic status.

**Table - 02: Monthly income of the coastal fishers**

Monthly Income	Barguna		Cox's Bazar	
	Frequency	Percentage	Frequency	Percentage
<2000	*	*	*	*
2001 - 4000	2	5.9	1	2.9
4001 - 6000	6	17.6	6	17.6
6001 - 8000	12	35.3	11	32.4
8001 - 10000	6	17.6	6	17.6
10001 - 12000	4	11.8	2	5.9
12001 - 14000	2	5.9	*	*
14001 - 16000	2	5.9	1	2.9
16001 - 18000	*	*	*	*
>18000	*	*	7	20.6
<b>Total</b>	<b>34</b>	<b>100.0</b>	<b>34</b>	<b>100.0</b>

Source: Field Survey 2016

Fishers' monthly income as presented in Table 2 shows that majority of the fishers in both the study areas belong to low and medium income group with monthly income ranging between BDT 6000 to 8000 (US\$ 75 to 80 per month). In both cases fishers usually keep certain portion of their catches for family consumption and sell the rest.

**Table - 03: Secondary occupation of the coastal fishers**

Secondary occupation	Barguna		Cox's Bazar	
	Frequency	Percentage	Frequency	Percentage
Agriculture	15	44.1	3	8.8
Day labour	2	5.9	1	2.9
Business	0	0	2	5.9
Others	10	29.4	1	2.9
Nothing	7	20.6	27	79.4
<b>Total</b>	<b>34</b>	<b>100.0</b>	<b>34</b>	<b>100.0</b>

Source: Field Survey 2016

In Barguna, as high as 44.1% the fishers are involved in agriculture as their secondary occupation. In contrary to this, only 8.8% fishers in Cox's Bazar are involved in agriculture as options for agriculture and related activities are very limited in Cox's Bazar district. On the other hand, rate of unemployment especially during fishing ban period is reported maximum 79.4% in Cox's Bazar compared to 20.6% in Barguna. During the dearth unemployment situation, the fishers are forced to take loan from the local Mahazan and Aratdars with of unreasonably high interest rate, and often with the condition of mandatory selling their catch in advance at a lower price.

**Table- 04: Types of fishing**

Types of fishing	Barguna		Cox's Bazar		Average
	Frequency	Percentage	Frequency	Percentage	
Seasonal	5	14.7	1	2.9	8.8
Round the year	29	85.3	33	97.1	91.2
<b>Total</b>	<b>34</b>	<b>100.0</b>	<b>34</b>	<b>100.0</b>	<b>100.0</b>

Source: Field Survey 2016

Four prominent fishing seasons exists in Bangladesh; namely winter (December to February), pre-monsoon/summer (March to May), monsoon (June to September) and post-monsoon (October to November). The amount and composition of catches varies from season to season, for instance Monsoon (June to September) is the main fishing season while all the fishers get involved in fishing and festive mood prevails in the fishing communities. However, majority (91.2%) of the fishers get involved in fishing round the year, usually 241-260 days in a year. Only a small percentage e.g. respectively 14.7% in Barguna and 2.9% in Cox's Bazar responded to be engaged in other agricultural activities for certain number of days instead of fishing.

**Table- 05: Ownership of fishing vessels (boat) and fishing gears**

Ownership of boat	Barguna		Cox's Bazar	
	Frequency	Percentage	Frequency	Percentage
Fisher himself	8	23.5	10	29.4
Non fisher	23	67.6	24	70.6
Joint ownership	3	8.8	*	*
<b>Total</b>	<b>34</b>	<b>100.0</b>	<b>34</b>	<b>100.0</b>

Source: Field Survey 2016

The small scale coastal fishers usually fish with locally made mechanized boat and different types of fishing gear, predominantly the gill net. However, most of the small scale coastal fisher do not own either both or fishing gear. They either work as a fishing labor for wages or under a contract of catch sharing with the boat/gear owners. In both the study areas, more than 70% of fishers do not have fishing boat of their own. Though a small percentage of fishers, around 9%, in Barguna poses fishing both under joint ownership, but there is no such evidence of having boat under joint ownership in Cox's Bazar.

**Table- 06: Types of fishing gear**

Fishing net	Barguna		Cox's Bazar	
	Frequency	Percentage	Frequency	Percentage
Chandijal	21	61.8	5	14.7
Seine Net	5	14.7	1	2.9
Shangla Net	*	*	1	2.9
Behindi Net	2	5.9	22	64.7
Others	6	17.6	5	14.7
<b>Total</b>	<b>34</b>	<b>100.0</b>	<b>34</b>	<b>100.0</b>

Source: Field Survey 2016

The small-scale coastal fishers use a variety of fishing gear especially the gill net with of different types and mesh sizes. These nets are locally known as Chandijhal, Shanglajhal, Behundijhal, and others seine nets. While most of the fishers in Cox's Bazar (64.7%) uses Behundijhal, fishers (61.8%) in Barguna uses Chandijhal, a special type of gillnet with 100 mm mesh size generally catch Hilsa, Pomfret, Mackerel, Croaker, Eel, Red Snapper, Grunter, Shark, Catfish, etc. Large-mesh gillnets with 180-200 mm mesh size are used for catching Indian Salmon, Sea bass, Grouper, etc. On the other hand, Behundijhal, a fixed bag net with a rectangular mouth, is used to catch shrimp, Bombay duck, small Anchovies and immature Hairtails. Fishermen occasionally uses Shangla net, Stake nets and other seine nets and long line.

**Table- 07: Duration of fishing trip**

Duration of fishing trip	Barguna		Cox's Bazar	
	Frequency	Percentage	Frequency	Percentage
Daily	1	2.9	2	5.9
2 - 4 Days	2	5.9	2	5.9
5 - 7 Days	20	58.8	5	14.7
8 - 10 Days	9	26.5	19	55.9
11 - 13 Days	2	5.9	*	*
14 - 16 Days	*	*	3	8.8
> 16 Days	*	*	3	8.8
<b>Total</b>	<b>35</b>	<b>100.0</b>	<b>34</b>	<b>100.0</b>

Source: Field Survey 2016

The duration of a fishing trip can be lasts from 1 day to 20 days, depending on the availability of fish. In the peak season, each fishing expedition lasts for 8 to 10 days. In the non-peak season, each long-distance trip takes from 5 to 7 days. The fishing trips in Cox's Bazar coastal areas are substantially longer than Barguna and each trip takes 8 to 10 days, depending on the season. During peak fishing season, fishers usually undertake subsequent fishing trips and stay away from their families, however takes the opportunity of meeting family members at the intervals of subsequent trips and if the time of unloading catch at the landing sites.

**Table- 08: Cost involved in a fishing trip**

Cost per trip	Barguna		Cox's Bazar	
	Frequency	Percentage	Frequency	Percent
<1000 BDT	1	2.9	1	2.9
1001 - 10000 BDT	6	17.6	4	11.8
10001 - 20000 BDT	6	17.6	1	2.9
20001 - 30000 BDT	2	5.9	2	5.9
30001 - 40000 BDT	7	20.6	9	26.5
40001 - 50000 BDT	2	5.9	10	29.4
50001 - 60000 BDT	4	11.8	1	2.9
60001 - 70000 BDT	1	2.9	1	2.9
70001 - 80000 BDT	2	5.9	1	2.9
80001 - 90000 BDT	*	*	*	*
90001 - 100000 BDT	*	*	1	2.9
> 100000 BDT	3	8.8	3	8.8
<b>Total</b>	<b>34</b>	<b>100.0</b>	<b>34</b>	<b>100.0</b>

Source: Field Survey 2016

Fishing costs includes all the operational and input costs for a certain duration. The operational cost of a fishing unit can be broadly categorized as running cost, maintenance and miscellaneous cost, and crew cost. Running cost consists of outlay on fuel, ice and food for the crews at the sea. Expenditure on food, fuel and other items varies according to the type (power) of fishing boat and duration of fishing trip. A regular fishing trip, usually from 8 to 10 days, requires BDT 40000 to 50000 (US\$ 500 to 625). Around 50% of this investment is spent on engine oil; remaining is on ice, food and other miscellaneous cost.

**Table- 09: Operational cost of a fishing trip**

Cost	%		
	Oil	Ice	Food
<5000	10.3	33.8	20.6
5001-10000	20.6	42.6	25
10001-15000	10.3	11.8	22.1
15001-20000	11.7	7.4	10.3
>20000	47.1	4.4	22.0
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Field Survey 2016

**Table- 10: Income/Profit distribution of a fishing trip**

Work type	Barguna		Cox's Bazar	
	Frequency	Percentage	Frequency	Percentage
Salary based	0	0	7	20.6
Equal sharing of benefit	16	47.1	18	52.9
One part of the benefit	18	52.9	2	5.9
Others (Beri/cigarette/pan)	*	*	7	20.6
<b>Total</b>	<b>34</b>	<b>100.0</b>	<b>34</b>	<b>100.0</b>

Source: Field Survey 2016

The coastal fishing community follows a pre-set, customary system of catch or profit sharing that has been practicing since long. Two types of sharing systems are found in the study areas; (a) sharing of both profit and loss equally (b) one part of benefit.

- Equal sharing of profit: Under this system, all the all expenditures related to a fishing trip is deducted from the catch-value, then the surplus money is equally divided among the boat owner and the crews. In case of losses, the crew would have to bear the losses also.
- One part of benefit: After deducting the expenditures of a fishing trip, the remaining catch value is divided into two share (60% for the boat owner and 40% for the crews).

A different type of profit distribution system is also found in Cox's Bazar, where following the deduction of all operational costs the boat owner gets 55-60% share on the total catch value, net supplier gets 30-35% and the remaining 10-15% goes to the maji (boatman) and the fishing labors. However, some exceptions are observed in Barguna where Mahazon, who provides fishing boat and nets and bears all operational cost, gets 95% of total catch and the boatman and others labor get only 5% of the catch. Again out of 5% catch share or catch value, the boatman gets 3% remaining 2% is for all the fishing labors. Only in the peak Hilsa season, the boat owner employ boatman with a monthly salary of BDT 8000 to 10,000 (US \$100 to 125) and fishing labor with BDT 3000 (US \$37.5) for a month.

**Table - 11: Cost benefit sharing**

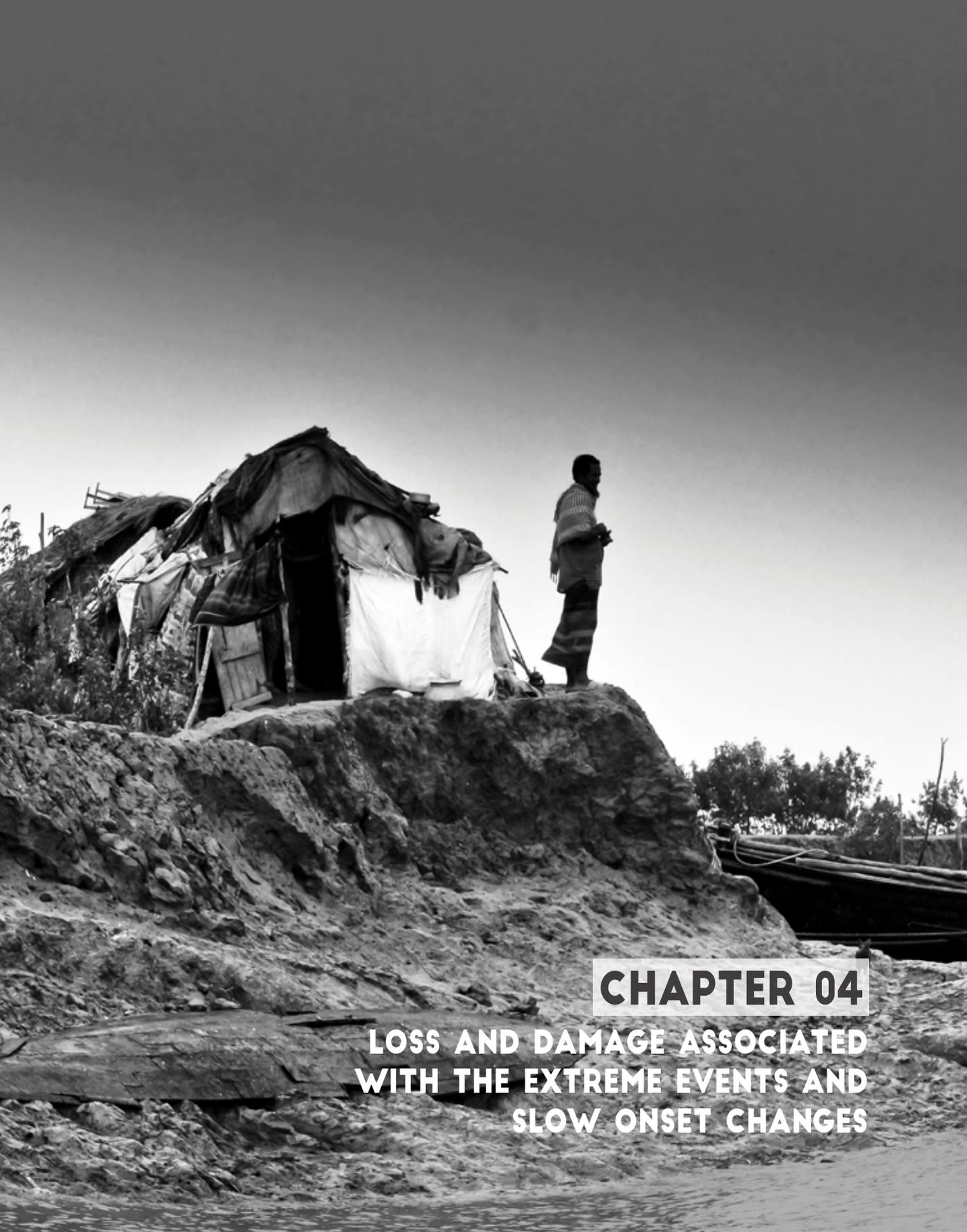
	Lean period	Peak period
Fishing effort (days on the sea)	7-10	3-4
Average catch (TK)	35,000	90,000
Average boat expenses (TK)	15,000	7,500
Net income (TK)	20,000	82,500
Boat owner (TK)	10,000	41,250
The 16-man crew (TK)	10,000	41,250
1 Captain (3 parts)	1,622	6,689
1 Driver (1.5 parts)	810	3,345
14 Fishermen (1 part each)	7,568	31,216
Per fisherman	540	2,230

Source: Field Survey 2016

Table 11 illustrates cost benefit sharing of lean and peak fishing period. In the lean fishing period fishers need to undertake long distant trip, which usually lasts for 7 to 10 days, compared to 3-4 days in peak period. However, net income from a shorter fishing trip in peak period which is around BDT 82,500 (equivalent to US \$1032) is comparatively much higher than a longer trip in the lean period.

The half of the net income from a fishing trip goes to the boat owner, remaining half goes to the 16 member fishers' group comprising of 1 captain, 1 driver and 14 fishermen. The share of income to the fishers group again divided into 18.5 portions; captain gets 3 portions, driver 1.5 portions and the 14 fishermen get portions each. For instance, a fishing trip in the peak period catches Hilshworth of BDT. 90,000, investing BDT 7,500 as operational cost. Hence the net income out of this trip stands to BDT 82,500.

From this net income the boat owner gets BDT 41,250 (50%), the fishers group (1 captain, 1 driver and 14 fishermen) gets the remaining BDT 41,250 (50%). The income of fishers group again distributed at a ratio that the Captain and the driver will get respectively 3 times and 1.5 times what an individual fisher would get. Considering fisher's income as a single share then the total share to the income of 16 member fishers group stands to 18.5 (14 for fishers, 1.5 for driver and 3 for the Captain). With this distribution system each of the 14 fishers gets BDT 2,230, driver gets BDT 3,345 and the Captain gets BDT 6,689.



## **CHAPTER 04**

**LOSS AND DAMAGE ASSOCIATED  
WITH THE EXTREME EVENTS AND  
SLOW ONSET CHANGES**

# 4

## LOSS AND DAMAGE ASSOCIATED WITH THE EXTREME EVENTS AND SLOW ONSET CHANGES

This chapter provides information on the extent of Loss and Damage that the climate vulnerable fishing communities are facing. This chapter also discusses land use change, loss of income opportunities due to rough sea events and unfinished fishing trips. Finally this chapter provides a comprehensive discussion on the barriers that the two fishing communities usually faces .

**Table - 12: Loss of fishing days due to frequent rough sea events**

	Frequency	Percentage
One time	1	1.4
Two times	3	4.3
Three times	16	22.9
Four times	23	32.9
Five times	10	14.3
Six times	9	12.9
More than six times	8	11.4
<b>Total</b>	<b>70</b>	<b>100.0</b>

Source: Field Survey 2016

A successfully completed fishing trip generally requires about 14 days. If a depression turns to a 'potentially dangerous cyclone, the respective authority issues cyclone warning (signal level 3 or above) calling/ forcing fishers to shelter near the coast. In that situation fishers abandon the trip, even it is only half-way of the trip, and back to shore to take shelter. Throughout the year in 2016 at least 32 percent of fishermen abandoned their fishing trip for four times and returned to shore to safe their potential investment. The second largest figure shows that 22.9 percent fishers abandoned their fishing trip for three times in 2016.



*In the last nine months, I had only about 30 days of fishing. Once the warning signals are up, it's not safe to go for fishing for almost a week. – Abdul Jalil, a fisher of 35 years in the coastal town of Cox's Bazar, explained.*



# THE EMPTY BOAT



Fishing with a lift net and small boat (Dingi Nouka) used to be a common scenario in Barguna. Nowadays these boats are remaining tied and idle as fishers do not dare to fish with this small boats as the frequency of rough sea events has been increased alarmingly.

"With high hopes, I went down the river taking my boat and net, but it was a big disappointment. I heard that the port advised to hoist a local warning signal yesterday. As soon as I received the cyclone warning, I leave my nets and head back to the shore. This year is the worst year of my entire fishing life. For the fifth time I've stopped fishing in the sea due to likely cyclone". - Kalu Gazi (34)

"When we were young, we'd go out for an hour and come back with enough fish for a day but now we go for eight hours, we fish deeper, fish farther out, and still come up with less than half the fish compared to my younger days" said Nuru Mia.

Nuru Mia also added that "Around 15 to 20 years back, cyclone warnings (signals) were not as frequent as they are now. When you get signal (cyclone warnings) you can't go beyond the near-shore areas because the cyclone may intensify any time.

Asked what they would do if they could not fish, Nuru Mia laughed. "We can't do anything. When we catch fish, we eat. Our only asset is the sea."

**Table - 13: Number of fishing off days per signals in 2016**

Number of Days	Frequency	Percentage
01-05 Days	40	58.8
06-10 Days	25	36.8
11-15 Days	2	2.9
16-20 Days	1	1.5
Total	68	100

Source: Field Survey 2016

Fishers mentioned that issuance of signal number 3 or above in a seaport is considered as 'potentially dangerous' and signifies highly rough sea conditions and they had to come back to the shore. Moreover, fishermen who were staying home during warnings could not go to sea for fishing. They have to wait for favorable fishing weather. Most of the respondents (58.8%) said that for each warning they are forced to stop fishing for 1-5 days. About 36.8% fishermen stayed coast for 6-10 days without fishing for each signals.



*"I was born here, so my parents and grandparents. I am forced to give up my 30 year's profession as a fisherman". Said Mobarak (50) pointing to the river. According to him- the number of rough sea events (they mean signals) are in increasing trend. He added that the most of the fishermen are no longer fish in the shallow water around the island because of decrease in catches, now they need to travel 10-15 hours to the deep sea in search of catch. This year (2016) they have faced increasing numbers of rough sea events (signals) that forced them either to stay home or back home without any catch. Once the cyclone warning signal goes up, it's not even safe to go for fish almost a week. If a trawler owner abandons a fishing trip due to bad weather, the fishermen return home with empty hand.*

*In the last six months Mobarak got only 30 fishing days, which he believes is linked to warming up of the sea water.*



**Table - 14: Relation of fishing with the signals (Cyclone warnings)**

	Barguna		Cox's Bazar	
	Frequency	Percentage	Frequency	Percentage
Fish decreased due to rough weather	9	26.5	14	41.2
Stop fishing due to rough weather	23	67.6	18	52.9
Authorities lift ban on fishing	1	2.9	2	5.9
Do not go for fishing	1	2.9	*	*
Total	34	100.0	34	100.0

Source: Field Survey 2016

In both the study areas, the fishers stated that they abandon fishing trip when the captain felt that a cyclone is going to occur. During peak season fishers often have to return to shore with incomplete fishing trip that incur an average financial loss of BDT 3047.

In Cox's Bazar a major portion of respondents (52.9%) stated that they stop fishing due to rough weather, however 41.2% respondents mentioned decrease of fish due to rough weather. In Barguna, 67.6% respondents stated that they stop fishing due to rough weather.

**Table - 15: Relation of fishing with signals**

Cost benefit analysis	Lean period	Peak period
Fishing effort (days on the sea)	7–10	3–4
Average boat expenses Food (TK)	15,000	7,500
Boat owner (TK)	10,000	41,250
Per fisherman loss	1563	3047

Source: Field Survey 2016

The fisher's communities in Barguna claimed that they faced an average 8 warning signal throughout the year in 2016 and the time intervals among these signals were often short, which either forced them to stay out of fishing or abandon fishing trips – the latter being economically draining.

**Table - 16: Repair and maintenance of boat**

Areas	Average Costs of Repairing	Longevity (Months)
Barguna	30,000	3 Months
Cox's Bazar	20000	3 Months

Source: Field Survey 2016

At the end of the fishing season the boat owner takes preparation for the next season, primarily by repairing the boat which usually takes 5 to 7 days and costs approximately BDT 30000 in Barguna and BDT 20000 in Cox's Bazar. Fishers claimed that the longevity of fishing boats are decreasing due to intensity of tidal force and salinity, therefore boats require regular or frequent maintenance and the cost of repair and maintenance has also increased over the years.

**Table- 17: Observed changes in weather pattern in last 10 years**

Changes in Climate	Barguna (%)		Cox's Bazar (%)	
	Yes	No	Yes	No
Changes in temperature	91.4	8.6	100	0
Changes in sea level rise	80	20	91.4	8.6
Changes in tidal level	71.4	28.6	88.6	11.4
Decreased winter period	80	20	62.9	37.1
Erratic rainfall	82.4	17.6	76.5	23.5
Increasing salinity	85.7	14.3	91.4	8.6

Source: Field Survey 2016

Almost all the respondents in this study areas observed significant changes in the weather pattern over the last 10 years. They observed significant rise both in terrestrial and sea surface temperature. As stated by respondents of Conapara village in Moheskhal, sickness of the on-board fishers has also increased due to rise in temperature and heat content of the sea water.

Respectively 80% fishers in Barguna and 91.4% in Cox's Bazar observed rise in sea level as the sea is gradually approaching towards their homestead. Around 80% of the respondents reported strong tidal action with increased tidal height, especially in the full-moon days. This also has increased salinity of the coastal waters as observed by 88.5% of the respondents. Most of the fishermen (71.45%) observed gradual shortening of winter season. Moreover, rainfall pattern also became erratic.

**Table- 18: Major barriers experienced by Fishermen**

Forms Barriers	Observed by the fishers
Natural	<ul style="list-style-type: none"> <li>• Higher frequency and duration of cyclones;</li> <li>• Increased rough sea events;</li> <li>• High temperature;</li> </ul>
Technological	<ul style="list-style-type: none"> <li>• Absence of radio signal in the offshore;</li> <li>• Inaccurate cyclone forecast;</li> <li>• Lack of safety equipment and navigational instruments;</li> <li>• Poor quality boats and engines;</li> </ul>
Socio-Economic	<ul style="list-style-type: none"> <li>• Low income;</li> <li>• Lack of access to credit;</li> <li>• Lack of education;</li> <li>• Lack of scopes and skills on livelihood alternatives;</li> <li>• Coercion of fishermen by the boat owners;</li> </ul>
Institutional	<ul style="list-style-type: none"> <li>• Unfavorable credit schemes;</li> <li>• Lack of enforcement of fishing regulations;</li> <li>• Lack of access to fish market;</li> </ul>
Others	<ul style="list-style-type: none"> <li>• Extremely insufficient and/or no safety protection mechanisms;</li> <li>• Non climatic shocks like abduction and ransom by pirates;</li> </ul>

Source: Field Survey 2016

# NON CLIMATIC SHOCKS: PLIGHT OF A COASTAL FISHERMAN



It was almost noon on a day in the hot month of May, Kashem Mia (51) was looking towards the sky. He lives in a small house in the village of Padma. His house is the last house at the northern end of the village. All he has to live on a boat and a tiny piece of land inherited from his father. Last week Kasem abducted by 7/8 robbers who demanded BDT 20,000 ransom for release. Finally, he get freed paying BDT10,000 the pirates also took away his fishing boat, nets and ropes.

"Abduction of fishermen by pirates has become a regular feature in the area near to the Subdarban. A week before, robbers abducted me along with my boat. They took me to their hostage and demanded ransom if I want to live. In some cases, though rare, the abductors do not hesitate to kill the fishers if their demands are not met" – as said Kashem Mia

This is how the Bay of Bengal has become a dangerous place for the fishers. During peak fishing season (Poush to onward 3 months and Falgun to onward 3 months) the fishers lend money from the local money lenders (Mohajans/Dadandar) with high interest or commission on their sales. If they fail to pay back the lend then the Dadandar seize their boat and net.

- **Natural:** Almost all the fishers stated that the frequency and duration of cyclones have increased over the past 20–30 years. They particularly mentioned the devastation of Tropical Cyclone Roanu<sup>1</sup> that destroyed fishing boats and gears and troubled the fishers returning to the coast for a safe shelter.
- **Technological:** Some technological barriers are similar both in Barguna and Cox's Bazar. Some 11.16% of boat captains in both the areas claimed that they fail to receive the weather forecast because of not having radio signals in the offshore. Though majority of the near-shore fishers gets radio signal but in most cases the cyclone forecasting are not communicated in proper way and they fail to get back to the coast in time.

**Table- 19: Source of cyclone warning signal**

Source of signals	Frequency	Percentage
Radio	31	45.59
Mobile	23	33.82
Local volunteers	6	8.82
Do not get any signal while fishing at deep sea	8	11.76
Total	68	100

Source: Field Survey 2016

Most of the fishers argued that a few hours are not enough to return to the shore with less powerful engines and without navigational instruments. In adverse weather events, a less- capacity boat also becomes a serious threat to fishers' life and fishing assets.

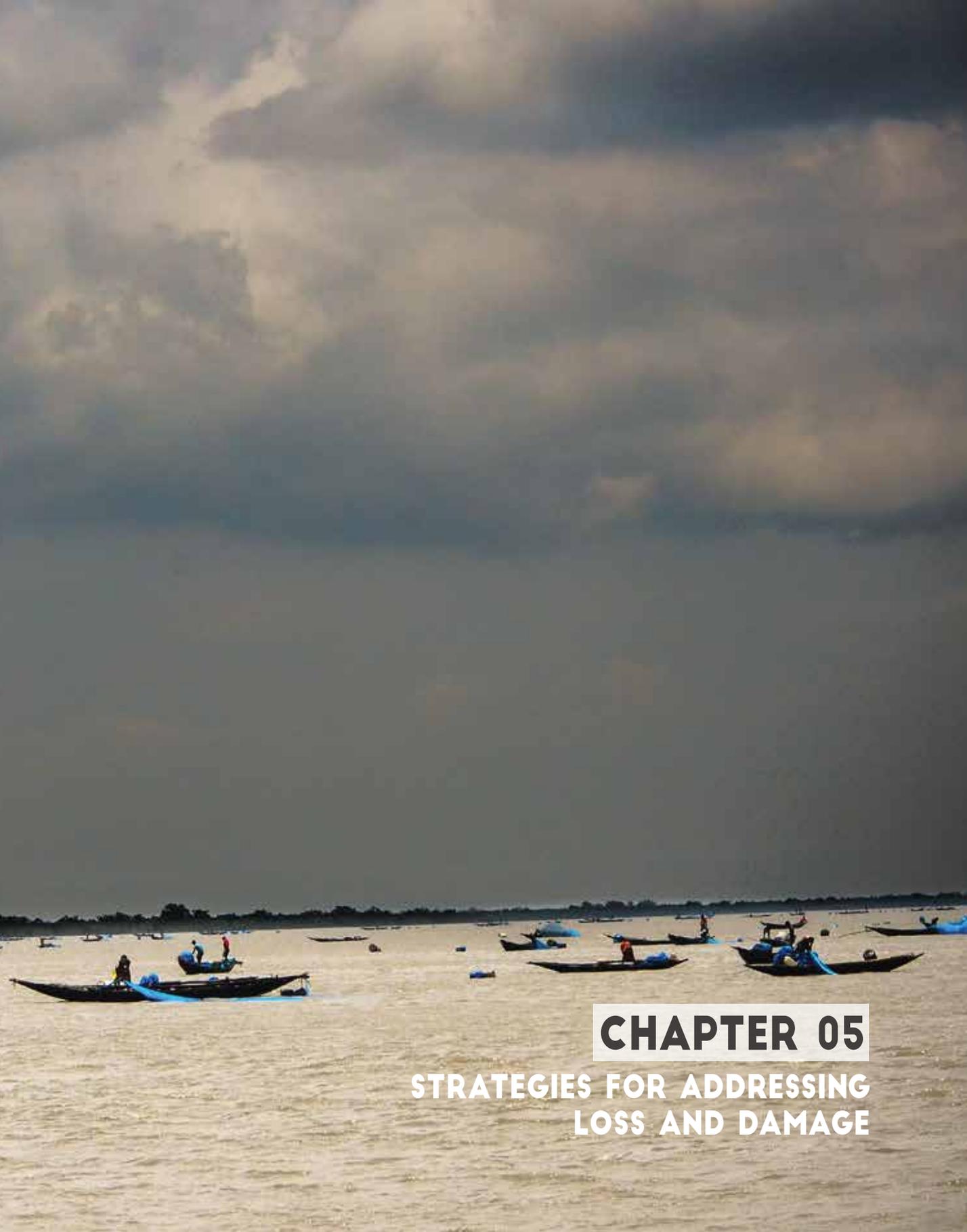
- **Economic:** In both the areas fishers consider fishing a risky activity and most of them simply do not want to continue to fish. They identified their low income level and inaccessibility to the formal credit systems as the major barriers of investing to alternative income generating activities.
- **Social:** Social structure and customary system of production/ profit sharing is also a key factor that limits their economic growth and well being. As opined by all the respondents, their economic condition would have been better if they would own 'means of fishing' such as craft and gear. The uneven distribution of the catch of a fishing effort as well as dependency on the Mahajans and Aratdars for credit support bound them in a cycle of exploitation, which they fail to overcome due to not having

<sup>1</sup>Roanu is the first tropical cyclone of the annual cyclone season and stroke the coast of Bangladesh and Sri Lanka on May 22, 2017. The cyclone caused death of around 30 people in Bangladesh and approximately 200 people in Sri Lanka. It stroke much harder in Sri Lanka and caused damages of 1.7 to 2 billion US\$.

alternative livelihoods skill. Though most of the fishers want to give-up fishing but they are scared to do so unless having a preferred option for livelihood earning. Most of them are in this occupation for generations, therefore, changing occupation for them does not only possess operational difficulty but also related to sentimental issues; Lastly, by the very nature of the occupation, the coastal fishermen have to live in the poor coastal villages, if they want to continue with the same profession they cannot move better places in far away, as a result they continue fishing even knowing all the challenges and uncertainties.

- **Institutional:** In both the communities, the fishers don't have access to the formal credit schemes which reinforce their economic barriers. Almost all the fishermen reported that obtaining formal bank credit requires assets as collateral; they also are not aware on the credit system and scopes. Because of their inaccessibility to the institutional credit facilities on reasonable terms, the fishers are forced to depend on informal credit at high rates of interest and perpetual indebtedness.

All the fishers acknowledged that Bangladesh government is providing incentives to the affected fishermen communities under a social safety net programme. They claimed that more than 50% beneficiary of that safety net scheme are not fishers. Enlistment to the scheme as a beneficiary is often depends on the choice of local political leaders who favors his/her followers/voters to be enlisted. Again government has introduced another food assistance programme to support fishers during the period of banning on fishing. According to them the food assistance provided by the government, in most cases, do not help poor fishers due to mismanagement and corruption.



## **CHAPTER 05**

### **STRATEGIES FOR ADDRESSING LOSS AND DAMAGE**

# 5 STRATEGIES FOR ADDRESSING LOSS AND DAMAGE

The global discourses on addressing Loss and Damage identifies three key approaches to address Loss and Damage. The approaches include risk reduction, risk retention (social safety nets and contingency funds), risk transfer (insurance) (UNFCCC 2012). However all three approaches are to either reducing or transferring risks of extreme events, which may not be appropriate for addressing Loss and Damage from slow onset processes.

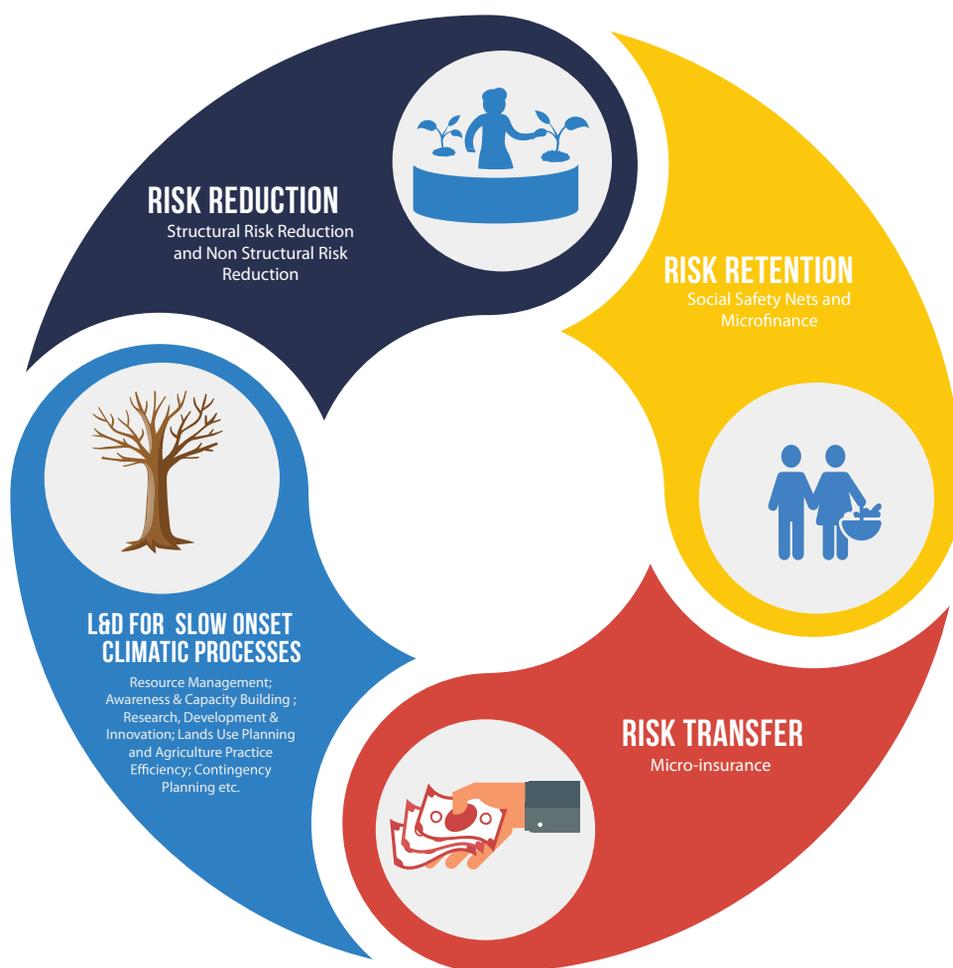


Figure 2: Approaches to address Loss and Damage

In national context, Bangladesh also undertakes several measures, which may not objectively have introduced to address Loss and Damage associated with the impacts of climate change, but they somehow contribute recovering income and opportunity loss caused by the impacts of climate change. This chapter describes the measures that the government of Bangladesh undertakes so far;

**Social Safety Net:** The government of Bangladesh introduced a special safety net scheme for the coastal fishers who are not legally allowed to fish from January to April, the breeding period of Hilsa. During this banning period each fishers’ family is supposed to get 160 kg rice as the compensation of their income loss. Though fishers do not get the full amount of rice officially allocated but still it is a good support mechanism. In addition to this special scheme, there are several other safety net schemes for the rural poor and helpless people.

**Table 20: Social safety net frequencies**

Social Safety Net	Responses	
	N	Percentage
Rice support (20 Kg)	14	26.9%
Fishers ID Card	24	46.2%
Food for work	1	1.9%
Old allowance	5	9.6%
Disable allowance	1	1.9%
VGF	5	9.6%
Relief support	2	3.8%
Total	52	100.0%
Dichotomy group tabulated at value 1		

The most implemented safety net supports are; coastal fishers’ support scheme (also called as Fishers ID Card), food for works, old allowance, disable allowance, vulnerable group feeding (VGF) and other relief support. It has been observed that only 46.2% fishers are registered (with ID) to get support from the fishers’ support scheme. Only 26.9% got 20kg rice support with their card during banned period; only 9.6% of the respondents got VGF support and 1.9% got support from the food for work scheme.



## “ ID CARDS PROVE THAT FISHERMEN ARE NOT PIRATES

Abdul Aziz (45) is a Fisherman who has been fishing in the Bay of Bengal for almost 20 years. He smiled brightly when we asked them about catching of Hilsa this year, he said "this year we netted plenty of big fishes and we are happy with our income. However, the peak season of catching Hilsa is about to end. Following the trend of the previous years, government has imposed a ban on catching, selling, transporting and hoarding of Hilsa for 22 days from October to November."

"How much did you earn during the ban period?" - We asked.  
"Last year we didn't have any income during the ban period, we got 40KG of rice showing the identity card (ID). As there was no work during the months of the fishing ban, It was very difficult to support our families with rice only" - he replied.

A little ahead, a group of fisherman swings their net, they added that "It's very common that the coast guard mistake fishermen as pirates. Even few days ago, we were mistakenly arrested by some coast guards but they let us go when we showed them our ID card."

**Microfinance:** The main sources of financial capital to the poor are the informal and the institutional credit market. The chief actors of the informal credit markets are the dadandars and the moneylenders (relatives/neighbor), while the NGOs and banks are considered as the actors of institutional credit market. But their access to the credit from the scheduled banks is limited due to lack of bankable assets. NGOs provide loans only to their organized poor members, and offer the subsequent loan only after repayment of the former one.

**Table 21: Types of Microfinance**

Types of credit	Barguna		Cox's Bazar	
	Frequency	Percent age	Frequency	Percent
Institutional	18	62.1	5	27.8
Relative/Neighbor	5	17.2	4	22.2
Dadandar	6	20.7	9	50.0
<b>Total</b>	<b>29</b>	<b>100.0</b>	<b>18</b>	<b>100.0</b>

Source: Field Survey 2016

The survey result revealed that the major of credit the coastal fishers, especially in Cox's Bazar, is Dadan (50%), while majority of fishers (62.1%) in Barguna have access to institutional credit. In Barguna, Only 20.7% respondents took loan from Dadandar and 17.2% from relatives/neighbor. On the other hand, in Cox's Bazar, 27.8% of the fishers 'received credit (loan) from different NGO's and 22.2% from relatives/neighbor.

**Table 22: Interest rate on credit**

Interest rate on credit	Barguna (%)	Cox's Bazar (%)
1-5 %	23.5	50
6-10 %	38.3	28.6
11-15 %	38.2	21.4
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

Source: Field Survey 2016

The Dadan is a sort of informal transaction built upon an uneven lending contract (often verbal) which usually took place between the fishers and fish traders (locally called aratdars) or boar owner. According to this lending contract, the fishers are made bound to sell their catch only to the lender usually at a price which is about 20%-40% less than the regular market price.

This contract also could be on commission basis on the sale value of total catch, e.g. 5% to 10% of sale value or BDT 5 – 10 for per kg of catch. Most of the fishers resort to the Dadandars (i.e. fish trader cum money lender) for finance, as a consequence they have to handover all their catches to the Dadandars. In commission based dadon system, the fishers have to sell their catches to the buyers (paikers) through the shops/warehouses (arat) of Dadandars, and the Dadandars reap 5%-10% commission from the fisherson the revenue. The outstanding principal of such lending system often be used to tie the borrower to the Dadandar over a longer period of time, which may result in further indebtedness. However, these credit arrangements tend to vary, and new forms are emerging. For example, there are so-called “new” Dadandars in the Latifpur – Kumira area (Chittagong District), who charge 20% on the market transactions. They are not fish traders, but money-lenders who may have acquired their capital in other types of business (e.g. poultry production).

**Table 23: Seasonality of financial crisis**

Months	Baishakh	Jaistha	Ashar	Srabon	Vadra	Ashin	Kartik	Agrahay	Poush	Magh	Falgun	Chaitra
	Apr-May	May-Jun	Jun-Jul	Jul-Aug	Aug-Sept	Sept-Oct	Oct-Nov	Nov-Dec	Dec-Jan	Jan-Feb	Feb-Mar	Mar-Apr
Need for Cash and Credit	△△△ △△△		△△△△ △△△	△△△△ △△△△			△△△ △△△					
Financial Crisis	△△△	△△△ △△△ △	△△△△ △△△△	△△△△ △△△△						△△ △△ △		

Table 21– shows the seasonality of financial crisis when fishers require instant cash and credit and survival. As presented in table 21, the fishers critically suffer from financial crisis in the months of May to August, following the months January-February and April-May given the context of less fish availability and irregular fishing operation.

**Micro-insurance:** In 1972, following the independence of Bangladesh, the then government nationalized insurance industry by the Bangladesh Insurance Nationalization Order 1972. The Nationalization Order 1972 was amended in 1984, which allowed

private insurance companies to operate along with the nationalized companies e.g. Sadharan Bima Corporation and Jiban Bima Corporation. At present there are 62 insurance companies, of which 2 are state-run and the rest are privately owned. However, there is no effective insurance scheme for coastal fishers.

A scoping study on sustainable insurance mechanism for the poor coastal fishers was conducted jointly by Action Aid, European Union, CODEC and INAFI Bangladesh where the study reviewed the existing social safety net programme and relevant schemes that can be fitted for the coastal fishers. The study also analyzed primary information from the relevant stakeholders including fishers and insurance companies. The study reported that there is no specific social protection mechanism or insurance scheme for fisher folks in Bangladesh. However, the study revealed that 13 products of 8 life insurance companies match the demand and affordability of the fisher’s client to some extent. Current registration system covers only large fishing trawlers and most insurance companies are not willing to offer any insurance for these boats since moral hazard is considered to be very high. Some of the life insurance schemes offered by general insurance companies covers both accidental death and disability. Moreover, the study identified four types of insurance products for the fishers: life insurance, health insurance, boat insurance and insurance for fishing nets based on the analysis from demand side (Hasan R.A. et. al., after 2009).

**Table 24: Fishermen knowledge on insurance**

Insurance	Barguna		Cox's Bazar	
	Frequency	Percent	Frequency	Percent
Idea about insurance	24	70.6	20	58.8
Meet with insurance agent	14	41.2	10	29.4
Insurance in local area	24	70.6	28	82.4

Source: Field Survey 2016

Most of the respondents respectively 70.6% in Banrguna and 58.8% in Cox’s Bazar know about insurance. They perceive insurance only as a life insurance ‘operates through a formal bank. About 41.2% and 29.4% respondents respectively in Barguna and Cox’s Bazar met insurance agent and know about their policy. About 70.6% and 82.4% fishermen respectively in Barguna and Cox’s Bazar avail insurance in local area.

**Table 25: Fishermen willingness for insurance**

Insurance		Barguna		Cox's Bazar	
		Frequency	Percentage	Frequency	Percentage
Insurance could change current poverty situation		33	97.1	25	73.5
Interest in insurance for coastal fishers		33	97.1	30	88.2
Time of premium payment	Monthly	29	85.3	25	83.3
	Half-yearly	5	14.7	2	6.7
	Yearly	*	*	3	10.0

Source: Field Survey 2016

As high as 97.1% respondents in Barguna and 73.5% in Cox's Bazar stated that the insurance could improve their economic situation. Again 97.1% respondents in Barguna and 88.2% in Cox's Bazar showed their interest of having insurance policy and willing to pay insurance premium ranges between BDT 150 and 300 for life insurance and BDT 500 for fishing boats and nets. About 85.3% respondents in Barguna and 83.3% in Cox's Bazar showed their willingness to pay monthly premium. Respectively 14.7% and 6.7% respondents in Barguna and Cox's Bazar prefer half yearly premium payment. Some respondents (10%) in Cox's Bazar also expressed that they prefer annual premium payment.

**Index Based Insurance at Union Level:** Index based insurance is relatively new but innovative approach to insurance provision that pays out benefits on the basis of a pre-determined index (e.g. level of loss) for loss of assets and investments, primarily working capital, resulting from weather and catastrophic events. Index is developed measuring weather condition and damage level. Possible indices include frequency and intensity of weather signals, wind speed, level of injury, periods of missing fishermen etc. When an index exceeds a certain threshold, farmers receive a fast and efficient payout.

It has been observed that it was fishers prefer index based insurance policy as it provides clear line of damage level for claiming insurance benefits. The fishermen suggested to operate the insurance at union level for effective management. Fishers' Identity Card could help the insurance company selecting appropriate client for their product.

**Table 26:- Fishermen's demand to insurance**

Claim Benefit	Barguna (%)	Cox's Bazar
Claim for damaged trawler and net	75.5	58.8
Claim for death by disaster	94.1	73.5
Claim for damaged house by disaster	96.7	84.7
Claim benefit for severe injury	91.2	91.2

The survey revealed that about 94.1% respondents in Barguna and nearly 74% in Cox's Bazar prefer life insurance to cover accidental death by disaster in the sea. Moreover, out of total interested fishers, about 91.2% prefer to have health insurance to claim benefits for severe injury.

**Table 27: Compensation demand:**

Compensation	Trawler (%)	Net
<10%	*	*
11-20%	*	3.4
21-30%	*	*
31-40%	3.4	*
41-50%	76.2	69.5
51-60%	*	3.45
61-70%	*	*
71-80%	6.9	3.4
81-90%	3.4	*
91-100%	10	13

Source: Field Survey 2016

Discussions with the fishers revealed that almost everyone has lost many of their fishing assets due to natural disaster. Therefore, most of the fishers e.g. 96.7% in Barguna and 84.7% Cox's Bazar require support for constructing houses damaged by the disaster. Among the fishers having own boat are willing to insure their boats and nets. Most of the fishers (76.2%) said that they would claim half of the loss in case of trawler damage, only 10% of the respondents deserve to have full compensation.



## **CHAPTER 06**

### **CONCLUSION AND RECOMMENDATION**

# 6 CONCLUSION AND RECOMMENDATIONS

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The coastal fishers, whose only means of livings is open water fishing, are struggling to continue and survive with this ancestral occupation as the sea is behaving abruptly with frequent and intense climatic events.

The study revealed that the climate change affects all the livelihood assets that not only reduced income preferences, also reduces the other options of livelihoods earning.

Though government is implementing several programmes/schemes to support fishers to recover from losses of income opportunities, especially during the restrictions on fishing, still large segment of coastal fishermen remain outside of this support programme. Lack of proper management are depriving poor fishermen to get appropriate support.

On risk transfer, the state run Jibon Bima Corporation launched community insurance in 15 coastal district with a target to cover 2 million coastal fishermen. Under this scheme, the fishers required to pay a yearly premium of BDT 1240 (US\$ 15.5/year) to get life insurance coverage of BDT 2,00,000 (US\$ 2500). However, these schemes couldn't attract the coastal fishers and finally abandoned.

Given the above context and based on fishers' perception and findings the study recommends the following measures for:

1. To address climate induced Loss and Damage, a comprehensive database is essential. Linking with the database, a pre assessment mechanism is also recommended (can be linked with index based insurance).
2. Index based insurance at Union Level could be the most appropriate approach for coastal fishermen of Bangladesh. Because, in this insurance system there must be a suitable indicator variable (the index) that is highly associated with the climatic events. Organizations will offers policy holders a payout based on the external indicator which triggers a payment to all insured clients within a geographically defined space such as union level. This insurance policy could minimize basis risk and therefore to maximize its value to the insured population.

Like other LDCs Bangladesh yet to develop index based crop insurance and any insurance mechanism for the fisher community in the coastal areas. Dedicated

financing mechanism on Loss and Damage could address the most critical and important issues on payment of premium and to attract insurer and reinsurer for effective functioning of the insurance scheme for the climate vulnerable people. Bangladesh could also raise the issue in the international forum and could seek support from climate finance window such as Least Developed Countries Fund (LDCF), Adaptation Fund (AF) and the Green Climate Fund (GCF) under UNFCCC.

3. Microfinance programs could be more successful in addressing Loss and Damage from climate change through flexible repayment terms during fishing ban period or any climatic events. Appropriate monitoring from upper level is also recommended.

As perceived from the filed level discussion, micro finance can be an important tool to address Loss and Damage, but to adequately tackle climate change concerns repayment schedules should be more flexible and products should be accompanied by capacity building and training programs. The micro savings scheme could be linked up with the micro finance scheme so that climate vulnerable people could get the support in their need. PKSF already started practicing this kind of approach for sustainability of micro finance scheme as well to support the poor people in times of their emergency need (PKSF, 2015).

4. Micro insurance policies and programmers should be implemented within comprehensive risk management frameworks.

Micro-insurance can play a role in addressing Loss and Damage but programs and policies need to be tailored those who need them most. Piloting the feasibility of Insurance Scheme could be initiated at first instance. In Bangladesh, there is a very limited experience on the existing insurance scheme introduced for the fishing sector. Private sector might not be interested to come forward for piloting or to make feasibility study of insurance schemes for the climate vulnerable community. Government insurance sector such as Jibon Bima Corporation may come forward and to take pilot scheme for the coastal fishing community and make feasibility study for introducing suitable insurance schemes. Right now there is no dedicated funding window for Loss and Damage and to support the insurance mechanism for the climate vulnerable people under UNFCCC.

5. There is lack of understanding on insurance mechanism, the phenomenon of "insurance illiteracy" can be addressed by ensuring that policies are simple and easily understandable. .

6. Public-private partnerships can integrate micro insurance products with 'broader social objectives'. Government could facilitate this process by implementing policies that required insurance companies to enroll a certain number of low-income households.
7. New fishing technologies need to be invented and introduced. Other adaptation options include mechanization of boats and fishing technology, development of alternative fish species aquaculture technique and provision of alternative livelihood for vulnerable fishermen.
8. Proper management of existing social safety net should be ensured. More focus on alternative livelihood activities should also be ensured.
9. The findings of the study indicate that majority of the farmers in the coastal areas were usually vulnerable to different types of seasonal shocks and disasters mainly due to the special geographical condition of the region. It could be concluded that without strengthening the capacity of farmers in haor in terms of their livelihoods and farming, they would not be free from any form of vulnerability of permanent inundation.

The existing social safety net programmes are not the effective solution of their poverty. The Government should undertake specific poverty reduction programmes for ultra-poor in the areas. Such programmes should include encouraging the private entrepreneurs to establish factories and business in vulnerable areas instead of Dhaka and big cities, initiating special programmes for income generation (training, microcredit, advisory service and marketing opportunity) in collaboration with the NGOs, distribution of khas land (Government owned land) and water bodies among the Community Based organizations of ultra-poor farmers and fishermen, undertaking special poverty reduction programmes in coastal areas, working with NGOs and other organizations towards fair distribution of social safety net benefits, promoting appropriate agricultural technologies for resource poor farmers etc.

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Christian Commission for Development in Bangladesh (CCDB) has been working in Bangladesh since 1973 to create a just and caring society where the poor, marginalized and vulnerable people can claim and enjoy human rights and justice for a sustainable livelihood with dignity.

Acknowledging climate change as a priority development issue to be addressed in Bangladesh, CCDB has been implementing several projects to build community resilience to climate change impact since 2007. Moreover, CCDB has taken several initiatives to introduce adaptive technologies in the areas of agriculture, water, etc. Capacity building on climate change adaptation and mitigation is another one of the priority areas of CCDB's climate change program. This initiative is playing a significant role in building skill and knowledge of different stakeholders including NGO professionals. CCDB's Climate Change Unit is also heavily involved in some research on agricultural adaptation, loss and damage, ICT in climate change, etc. In addition, CCDB is in the process of establishing a Climate Technology Park- an interactive climate learning center, first of its kind in Bangladesh to provide solutions regarding adaptation and mitigation technologies since 2016. The ultimate objective of CCDB's climate change program is to promote pro-poor climate resilient low carbon sustainable development in Bangladesh and beyond.

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