

The London School of Economics and Political Science

Who's getting what?

*The dynamics of power, patronage, and clientelism in climate
change adaptation initiatives in Bangladesh*

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Declaration

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Abstract

The research examines existing climate fund disbursement modality, vulnerable needs, compliancy of climate adaptation projects to existing policies and programmes, and current climate clientelism culture in the coastal areas of Bangladesh. The research conducted a vulnerability analysis within climate-prone communities of Charfesson under Bhola district of Bangladesh to understand how vulnerable communities (VCs) perceive their needs and vulnerabilities at the local levels and cross-analysed whether climate funds are directed to address these existing socio-political dynamics. Primary information is collected through 25 Key Informants Interviews (KII) and 13 Focus Group Discussions (FGDs), followed by 95 surveys to validate the collected data. The subjects of the interviews and discussions included vulnerable people living in the areas and officials and experts who had knowledge of the issues under investigation.

Key findings of the research show how resources are channelled to areas with political influence and the real needs of vulnerable populations remain unsatisfied. It reveals the clear presence of political influence in climate fund disbursement, projects' selection procedure, and area of implementation. This political presence is predominant due to concurrent practices of clientelism and patron-client relationship culture within the government. Patrons satisfy clients for their own vested interests. In return, clients return the favour in the way patrons demand. As VCs have no participation in the formulation, implementation, and monitoring phases of climate adaptation projects, they remain deprived because adaptation projects are being custom-tailored as development initiatives.

In conclusion, the study comes up with a new model, titled 'Charfesson Model of Adaptation' which represents the findings of the study; the key players' role and responsibility in all the phases from fund allocation to implementation of climate projects, exposing the barriers for successful adaptation among vulnerable communities. The study argues that though demands are unsatisfied, VCs are somewhat happy as they tend to operate with minimum or no expectations and are satisfied with the smallest gains (Trickle effect). However, the research suggests that to attain the Funds' objectives relevant training with proper monitoring and evaluation of projects is essential with comprehensive vulnerability assessment. Also, policymakers should involve vulnerable communities in decision-making process and implement coordination mechanisms inclusively.

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Acronyms

ADB	Asian Development Bank
BCCRF	Bangladesh Climate Change Resilience Fund
BCCT	Bangladesh Climate Change Trust
BCCTF	Bangladesh Climate Change Trust Fund
BCSAP	Bangladesh Climate Strategy and Action Plan, 2009
CCA	Climate Change Adaptation
FGD	Focus Group Discussion
GoB	Government of Bangladesh
IPCC	Intergovernmental Panel on Climate Change
LGI	Local Government Institutions
LGD	Local Government Division
MDG	Millennium Development Goal
MoDMR	Ministry of Disaster Management and Relief
MoEFCC	Ministry of Environment, Forest and Climate Change
MolGRDC	Ministry of Local Government and Rural Development and Cooperatives
MoWR	Ministry of Water Resources
MP	Member of parliament
NAPA	National Adaptation Program of Action
PKSF	Palli Karma Sahayak Foundation
SDG	Sustainable Development Goal
UN	United Nation
UNFCCC	United Nations Framework Convention on Climate Change
VC	Vulnerable Community
WB	World Bank

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Chapter 1: Introduction

1.1 Background and problem statement

Climate change is already bringing unprecedented changes across the world. Rapidly worsening impacts will be difficult to tackle if the global temperature rise is not retained well below 2 degrees Celsius above pre-industrial levels (IPCC, 2014). In view of this, the Intergovernmental Panel on Climate Change (IPCC) guidelines call for rapid action since global citizens are already living in a climate 'changed' world (Fakhruddin, 2015). Emerging from the overwhelming scientific consensus that global warming is primarily due to anthropogenic activities, global actions call for the mitigation of and adaptation to climate change, supporting the most vulnerable nations, strengthening climate goals and responsible living (Sarker et al., 2020). The landmark environmental accord of the Paris Agreement was adopted by most countries in 2015 with the central aim to strengthen the global response to the threats posed by climate change (Urpelainen and Van de Graaf, 2018).

Climate change can be addressed at two ends; mitigation and adaptation (Adger et al., 2003). Mitigation aims to reduce the emission of pollutants (greenhouse gases, GHG) whereas adaptation looks at how to manage the ongoing and future changes (IPCC, 2007). Both approaches need international and local funding and action as the problem is both local and international in nature. The international community, particularly the developed countries under the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, have expressed continued commitment to reduce carbon emissions and to help vulnerable developing countries by financing in climate change adaptation (Mills-Novoa and Liverman, 2019; Khan et al., 2020).

International funds like the Adaptation Fund (AF), Global Environmental Facility (GEF) and the Green Climate Fund (GCF) were established international mechanisms to finance the adaptation needs of developing countries (Kasdan et al., 2021; Khan and Roberts, 2013). Developed countries promised to mobilise 100 billion USD collectively per year by 2025, taking into account the needs and priorities of developing countries (Mitchell et al., 2021; Pauw et al., 2022). It is widely noted that developing countries, particularly Bangladesh, have

more scope and urgency to engage in climate change adaptation as Saito (2013) and Dovers and Hezri (2010) suggest, because they have emitted low amounts of GHG while also having high vulnerability to climate change (Althor et al., 2016; Adger et al., 2006).

Understanding adaptation needs i.e., ‘what’, ‘where’ and ‘for whom’ is essential for reducing vulnerability (Downing and Patwardhan et al., 2005). In adaptation processes, the core normative focus is on ‘climate risk’ or ‘vulnerability’. IPCC (2007) defines this as the extent to which climate change may damage or harm a system and may also include ‘efficiency’ of fund use (Seballos and Kreft, 2011). By ‘vulnerability’, the IPCC Third Assessment Report describes, *“The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity”* (IPCC, 2001, p. 995). This normative aspect is justified for two reasons. Firstly, adaptation is not simply a development activity but rather a matter of compensational justice. It is established that poor people do not greatly damage the climate, high emissions from rich people do, whereas the poor tend to bear the negative consequences of climate change. Secondly, poor people generally have a lower capacity to withstand the impacts of climate change (Page, 2011). While adaptation can be defined as the ‘adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities’ according to the Fifth Assessment Report (IPCC, 2014, p. 1758).

However, Friedman (2008) argues that *“instead of avoiding the unmanageable, we have to start managing the unavoidable”*. Therefore, adaptation is the main option for developing countries like Bangladesh to respond to climate change (Nath and Behera, 2011). Bangladesh, being located in a low lying deltaic plain, has long-term high climate disaster risk and has been ranked as one of the most vulnerable countries to climate change risks. Bangladesh has taken climate change seriously and has worked with the international community to mitigate and adapt, although emphasising adaptation through extensive policy responses and mobilising domestic and international funds for adaptation. Notably, several studies, including Mallick et al. (2017) and Islam and Walkerden (2015), have found corruption, mismanagement, and

political influences in relief distribution and adaptation interventions. Funding allocations for adaptation projects are dictated not only by local needs, disaster threats, and climate vulnerability but also by political economy factors such as the power of dominant actors (Tanner and Allouche, 2011; Alam et al., 2011; Marks and Lebel, 2015; Stock et al., 2021). Moreover, Eriksen et al. (2015) suggest how institutions are infused with various dimensions of power and politics and these influences outline how governance functions in the long run and determine the effectiveness and outcomes of adaptation.

Razzak et al. (2015), Haque et al. (2019), and Rahman and Tosun (2018), argue that adaptation funding should prioritise vulnerable people's needs for legal and ethical reasons and disbursement and delivery should address the needs of the most vulnerable. Paul and Mitra (2020) and Ciplet et al. (2013) state that adaptation funding is one of the most promising outcomes of the United Nations Framework Convention on Climate Change (UNFCCC). While the developed economies have pledged nearly \$10 billion to the Global Climate Fund (GCF) to support vulnerable populations, providing the funds meet communities' adaptation needs, which still remains a challenge (Ahmed, 2019). Financial accountability is critical to seek the national and international organisations' commitments to secure assistance.

1.2 Climate change and Bangladesh

Bangladesh is a large, low-lying coastal area with a high density of very poor people in coastal regions and a cyclone-prone deltaic geographical location (Abedin and Hosenuzzaman, 2023; Karim and Mimura, 2008). Fifteen percent of its 162 million people live within one-metre elevation (Matthew, 2007; Rawlani and Sovacool, 2011, p. 846) and medium-scale floods often inundate 20-70% of the land mass (Mirza, 2002, p. 128). Bangladesh's coastal belt has been hit by nearly 70 disastrous cyclones in the last 200 years, with nearly 900,000 people killed in the last 35 years (Mallick et al., 2011). Various international climate change vulnerability indices depict alarming futures for Bangladesh. For instance, The Maplecroft Index (2015) ranks Bangladesh as the most vulnerable country globally, GermanWatch (2014) the fifth, and the Global Climate Change Risk Index (1994-2013) the sixth most vulnerable country of the world (Kreft et al., 2013; Maplecroft, 2015).

However, Bangladesh has made remarkable progress in formulating institutional frameworks to combat climate change: for both mitigation and adaptation (Islam and Walkerdan, 2015; Islam, Wahab and Benson, 2020). In 2005, Bangladesh was the first LDC to formulate the National Adaptation Program of Action (NAPA) which was finally reframed in 2009. The NAPA included both urgent and long-term adaptation actions for Bangladesh. In particular, the revised NAPA underpinned 38 adaptation measures, 16 of which were included immediately for implementation by corresponding government institutions (Rahman et al., 2016). In 2008, the government drafted the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) and published a modified version in 2009. At the same time, Bangladesh pioneered the formation of the ‘Bangladesh Climate Change Trust Fund (BCCTF)’ with its own resources and also formed the ‘Bangladesh Climate Change Resilience Fund (BCCRF)’ with funds from bilateral and multilateral development partners. Therefore, in addition to getting international funds, the Bangladesh government has set up a dedicated climate change management fund from its own domestic resources in 2009, that coordinates mainly adaptation (mitigation to a lesser extent) by funding adaptation projects (BCCT, 2023). Since its formation, BCCT has received roughly USD 400 million and distributed these funds to 472 adaptation and mitigation projects (BCCT, 2023).

The Government of Bangladesh took the climate change issue as a top development priority and implemented policy directives to add climate components to all development projects (Islam, Wahab and Benson, 2020). In this view, to review the policy, institutional and financial management system to facilitate funding and investment in mitigation and adaptation activities, it prepared Bangladesh Climate Public Expenditure and Institutional Review (CPEIR, 2012). CPEIR is regarded as an instrument to guide and assist the Ministries of Finance and Planning for better understanding and identifying the scope for climate change-related investments. Following the recommendation of CPEIR 2012, the Bangladesh government developed a Climate Fiscal Framework (CFF) that set guidelines to better plan and coordinate immediate, medium- and long-term climate change-related domestic and international funds efficiently. It also discussed how climate-related finance can be linked to the national budgetary system (Bangladesh CFF, 2014). For implementing the guidelines of CFF, Bangladesh incepted the Inclusive Budgeting and Financing for Climate Resilience (IBFCR) project with the assistance of development partners e.g., the Department for International

Development (DFID), United Nations Development Programme (UNDP), German Agency for International Cooperation (GIZ) and United Nations Environment Programme (UNEP).

Bangladesh has kept pace with international climate requirements and agreements. As a party to the UNFCCC, Bangladesh has submitted National Communications regularly, every four years, reporting the status of greenhouse gas inventories, mitigation and adaptation measures and other relevant information. Following the Paris Agreement 2015, Bangladesh submitted the first Nationally Determined Contributions (NDCs) in 2016 entailing its plan to reduce greenhouse gases (GHG) by five per cent to business-as-usual level by FY 2030 in power, transport, and industry sectors. In May 2016, the Investment Plan for Climate Change (CIPCC) was designed within the framework of BCCSAP. The CIPCC included a five-year strategic outline for planning and coordinating national and international investments in forestry and climate change sectors in Bangladesh. It identified avenues and sectors for investment in targets committed by the Bangladesh Government in the Paris Agreement. For the Paris Agreement (2015) Bangladesh played a leading role among LDCs to reaffirm the commitment of developed states to provide continued support to the developing countries in implementing adaptation and mitigation actions.

1.2.1 The State of Climate Finance in Bangladesh

Bangladesh receives climate funds in two forms (Figure 1-1): dedicated Climate Finance and Overseas Development Assistance (ODA) through Economic Relations Division (ERD) under the Ministry of Finance and also through NGO Affairs Bureau (NGOAB). NGOAB approves and monitors the activities and financing of NGOs in Bangladesh. ERD coordinates and mobilises all foreign assistance influx into the country and has developed a database system to store and provide comprehensive information on foreign assistance. Bangladesh gets funds for climate change projects from four dedicated international climate funds namely LDCF (Least Developed Countries Fund), GEF Trust Fund, PPCR (Pilot Program of Climate Resilience) and GCF (Green Climate Fund).

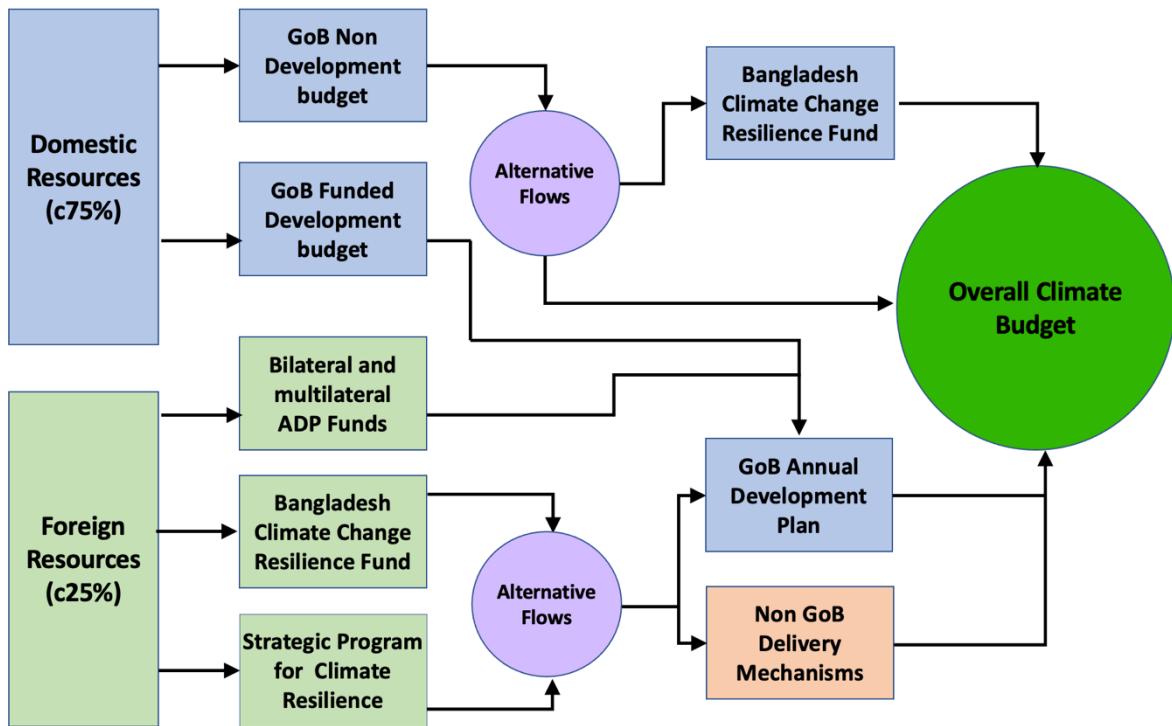


Figure 1-1: Simplified overview of the climate funds flow in Bangladesh (O'Donnell, 2013)

Table 1-1 shows that ERD received the highest amount of funds i.e., USD 4357 million from donors in climate-related projects, whereas the dedicated climate change fund, the BCCRF from external sources received less, USD 71.13 million. From domestic sources, BCCT disbursed USD 378 millions.

The Ministry of Finance generated a report on 'Climate Protection and Development: Budget Report, 2017-18' in 2018 which analysed climate spending of annual revised budgets from 2014-18 under different thematic areas of BCCSAP of six selected ministries namely Ministry of Agriculture, Ministry of Water Resources, Ministry of Disaster Management and Relief, Ministry of Primary and Mass Education, Local Government Division of the Ministry of Local Government, Rural Development and Cooperatives, and lastly Ministry of Environment and Forests (Climate Protection and Development: Budget Report, 2017-18).

Table 1-1: Total climate change investment from specific domestic and international sources in the last six fiscal years in Bangladesh (from sources listed below)

Category	Climate change funds/ Fund approval organisations	No. of approved projects	Total cost of project (mUSD)
A	<i>Climate Change Dedicated Funds</i>		
1	Least Developed Countries Fund (LDCF)	8	35.34
2	GEF Trust Fund (Climate Change Focal Area)	35	125.48
3	Green Climate Fund (GCF)	3	80.00
4	Pilot Programme on Climate Resilience (PPCR)	6	109.75
5	Bangladesh Climate Change Resilience Fund (BCCRF)	5	71.13
6	Bangladesh Climate Change Trust Fund (BCCTF)	511	378.58
B	<i>Government Organizations approving donor funded projects and programs related to climate change in Bangladesh</i>		
7	Economic Relations Division (ERD)	51	4357.08
8	NGO Affairs Bureau (NGOAB)	38	12.64

(Source: official website of all GEF, LDCF, GCF, AIMS/ERD, NGOAB during May/June 2018)

Table 1-2: Trend of climate relevance in selected six ministries budgets (mentioned above)

Budget Description	Annual Budget (amount in BDT thousand)			
	2017-18	2016-17	2015-16	2014-15
Non-Development Budget	358,797,697	309,209,969	300,456,768	270,827,806
Climate relevant allocation as % of non-development	85,334,676	84,036,986	77,193,807	65,982,855
Development Budget	403,219,100	350,529,332	297,119,124	253,047,122
Climate relevant allocation as % of development budget	61,001,430	53,701,881	46,513,505	28,066,412
Total Budget	762,016,797	659,739,301	597,575,892	523,874,928
Climate relevant allocation as % of total budget	146,336,106	137,738,867	123,707,312	94,049,267
as % of GDP	19.20	20.88	20.70	17.95

(Source: Finance Division, Ministry of Finance)

Table 1-2 shows that climate related allocation from non-development budget increased from FY 2014-15 to 2016-17 followed by a decrease in 2017-18 both in amount and percentage of non-development budget. But from the development budget, climate funding saw a very short increasing trend from 2014-15 to 2015-16 followed by slow decline up to 2017-18. Total budget allocation showed a slight increase from 2014-15 to 2016-17 followed by a downturn in 2017-18. This is due to the reduced influx of foreign funds. Therefore, the imminent challenge in climate change development is to have more external funds.

This research selects BCCT as the main focus of research. Firstly, the formation and function of BCCT is directly linked with the urgency and commitment of the government to the climate change agenda. Secondly, the formation of BCCT from a domestic source has been a benchmark initiative for the LDCs, as it is the first of its kind. Its formation has resonated with the growth and concern of climate change worldwide. It has been a key example that without waiting for the pledged foreign funds, a greatly affected and vulnerable LDC can invest in mitigation and adaptation from domestic resources. Therefore, there are studies that assess the functions and modalities of BCCT to present a positive message of national commitment to the rest of the world and attract the attention of development partners. Thirdly, its formation and successful performance would indicate strengths in institutional capacity for adaptation financing and implementation.

1.2.2 Formation of the Bangladesh Climate Change Trust

The Bangladesh Climate Change Trust (BCCT) is a statutory entity within the Ministry of Environment and Forests established with domestic resources in the fiscal year 2009-10. Bangladesh also enacted the Bangladesh Climate Change Trust Act (2010) in 2010 to endow legal authority to BCCT. The aims of BCCT are laid down in Section 5 of the BCCT Act (2010). It states that the Trust shall have the following aims:

- (a) To make necessary action plan for capacity building for adjustment of the people or groups of people of the affected and risky areas resulting from climate change, upgrading their lives and livelihood and facing long-term risk, and to take measures for implementation thereof; and

(b) To take measures for adaptation, mitigation, technology development and transfer, capacity building and funds for facing adverse effects of climate change on man, biodiversity, and nature.

The BCCT has been set up to execute the plans outlined in the BCCSAP in the most vulnerable locations of Bangladesh. BCCT in principle requires that any project proposal under BCCT must include and articulate some adaptation needs. Public and private institutions can approach BCCT with proposed projects. BCCT scrutinises the project proposal and allocates funds.

The projects outlined by the BCCT are meant to implement initiatives that aim towards climate-resilient development pathways. The projects are also intended to meet the targets of the Sustainable Development Goals (SDGs) to enhance the capacity of vulnerable communities and provide infrastructural and institutional support. In 2014, Bangladesh adopted a cumulative climate budget allocation for five years from the fiscal year of 2015-16 to 2019-20 of 25 ministries or divisions accounting to USD 10.40 billion (MoF, 2019).

1.2.3 Modus Operandi of BCCT

According to Section 8 of the BCCT ACT 2010, the BCCT will be directed and administered by a Board of Trustees (Figure 1-2). The Trustee Board has altogether 17 members with the Minister or State Minister of the Ministry of Environment and Forests as chairperson and the secretary of the same ministry as the member secretary. The other board members are Minister or State Minister of the Ministry of Finance, Ministry of Agriculture, Ministry of Food and Disaster Management, Ministry of Foreign Affairs, Ministry of Woman and Child Affairs, Ministry of Water Resources, Ministry of Shipping, Ministry of Health and Family Welfare, Ministry of Local Government, Rural Development and Cooperation; Cabinet Secretary of the Cabinet Division; Governor of the Bangladesh Bank (central bank of Bangladesh); Secretary, Finance Division, Ministry of Finance; Member, Agriculture, Water Resources and Rural Institution Division, Planning Commission; and Government nominated two climate change experts (BCCT Act, 2010, Section 9). The Trust has a managing director appointed by the government who works as the full-time chief executive of the Board.

The Board of Trustees, according to Section 10 of the BCCT Act (2010), conducts and controls all activities ranging from identifying the scope of funding and policies for selecting and approving the projects to implementing and evaluating the projects. However, the board approves the projects upon the recommendation of a technical committee. The board is also authorised to pursue fund collection from the donors. The board can also alter the allocation schedule and amount upon the advice of the technical committee and can also solve any problem if any project implementation suffers. The technical committee has thirteen members where the secretary of the Ministry of Environment and Forests is the chairman, and the Deputy Secretary of the environment wing is the member secretary. Other members are public servants of the rank of Joint Secretary of different ministries along with two government-nominated external experts. The technical committee has a three-year tenure.

Unlike general development projects, there is no open tendering for BCCT fund projects. BCCT does not prepare climate change projects, rather it receives projects designed by any government or local government institutions, autonomous bodies, and NGOs. The condition is that the projects must fall into six thematic areas and 44 selected fields. There are two different modes of submitting proposals to the Trust. Government agencies submit through their respective controlling ministries, whereas NGOs and private organisations or personnel submit through Palli Karma Sahayak Foundation (PKSF). The Board of Trustees conducts a meeting for selecting the proposals at least once every three months or as desired by the chairman.

The project proposals have to go through the technical committee for selection and review. The technical committee has two sub-committees formed with professional experts. The members of these two sub-committees conduct the technical scrutiny of the proposals. The technical committee holds meetings as the chairman and the chief convenor decides. BCCT ensures and monitors implementation of the BCCT-funded projects. BCCT selects the projects which match BCCSAP's priority actions and programs and are recommended by the technical committee. Accountability is through two channels. The government organisations remain accountable to the Ministry of Finance for financial compliance. On the other hand, NGOs, civil society organisations, research institutions and private sectors are accountable to the

Palli Karma Sahayak Foundation (PKSF). All projects funded by BCCT are required to implement fully within three years (Rahman et al., 2016).

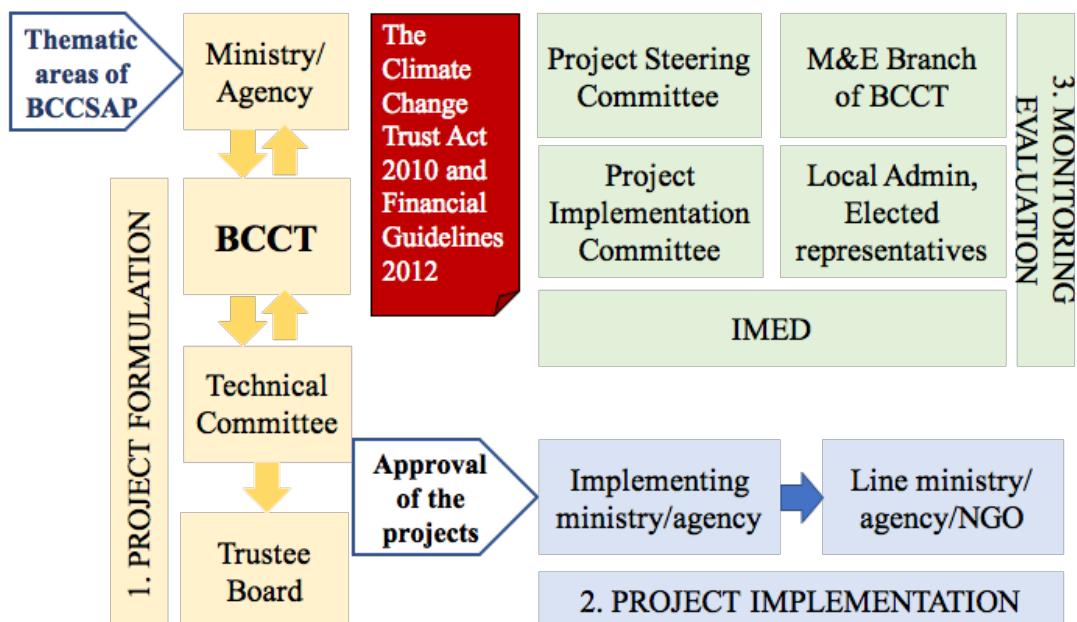


Figure 1-2: Governance structure of the BCCT

1.3 Significance of the research

This study is highly significant for climate change adaptation from both national and global perspectives. Historically, Bangladesh has been identified as one of the most vulnerable countries to climate change. In order to address this climate change issue, governments have been working with the international community in both mitigation and adaptation, where more emphasis remains on adaptation. This is reinforced in the report of the World Economic Forum, identifying the “top 5 global risks in terms of impact”. The 2020 report placed “failure of climate change mitigation and adaptation” as the top risk, which ranked second in 2019 (Bas, 2022). The United Nations lists climate action “Take urgent action to combat climate change and its impacts” among the 17 sustainable development goals (Bas, 2022).

Recognising the urgency, the Bangladesh Government has mobilised more domestic funds in addition to international funds for adaptation. Therefore, it is necessary to revisit the understanding of adaptation processes from both micro and macro levels and identify vulnerable areas and priorities to ensure transparent and effective use of funds. This is where

this research comes into play: the study scrutinises various phases - the patrons' role in project formulation to execution and identifies the challenges through coordinated focus group discussions (FGDs) in three vulnerable sites in Charfesson. To capture the fair views, multiple interviews with local politicians, experts, journalists and Local Government Institutions representatives were also conducted. An important element in this study was to examine the impact of political economy on the vendor (contractor) and beneficiary selection process and the level of participation of vulnerable communities in adaptation.

An interesting finding is that despite having management and allocation of two funds within the government system, not much is known about the effectiveness of these funds in reducing the vulnerability of people, nor does it disclose how allocation decisions have been made and what was the impact in terms of political economy. In order to address this, the study outlines all the loopholes, identified from the ground, and the mechanism of political economy which needs to be reformed for the future policy making for effective adaptation in Bangladesh. The research explores levels of participation in key decision-making processes, so that vulnerable communities' needs and demands are addressed in climate projects.

This study also has opened up the door to explore with an open mind accumulating the facts from the grassroots levels. This also helped to identify the loopholes that have been exploited by the people in project planning for their own interest, ignoring the needs of vulnerable communities. This was also important to understand anomalies in the implementation and planning of climate change projects prompted by their personal experience of encountering capacity loopholes and lack of coordination in the use and even (mis)use of adaptation funds in implemented projects.

The study is also significant because it explores the challenges in the efficient use of BCCT funds for adaptation in a highly vulnerable area like Charfesson. These challenges can be addressed in adaptation interventions, and lessons can be learnt and utilised for an effective adaptation for vulnerable communities in the near future. If the loopholes are closed with transparency and accountability, then criteria from developed countries could be fulfilled for

a much-needed \$10 billion donation to address the needs of vulnerable communities for adaptation (Smith *et al.*, 2011).

1.4 Research Gaps: A patronage and clientelism lens

The effectiveness of domestic climate funds in adaptation projects and their governance, particularly the inclusion of affected community members in decision-making processes, has received limited attention in Bangladesh. Issues associated with political clientelism have recently attracted scholars in several countries (Hagene and González, 2016). The applicability of these ideas in the community context is appropriate and in relation to climate change adaptation underexplored. Hence this research will explore ideas drawn from political clientelism within a wider lens of the political economy of adaptation funding and intervention to understand the effectiveness of the BCCTF. Politics, community engagement, and theory are important as politics dominate most major planning decisions and underlying ideology (Lyles, 2019). This study has both theoretical and practical scope to contribute to knowledge generation in the fields of political economy, climate change adaptation, climate finance and community development literature.

The creation of the BCCT was to supervise the distribution of climate funds without any existing institutions ruling over the allocation of funds and their amounts. Rasid and Paul (2013) conducted a study of this fund. The author referenced some country-level reports from watchdog institutions like Transparency International, Bangladesh (TIB, 2016). Rahman et al. (2016) studied the allocation pattern of the BCCT fund from 2008-2012 in both mitigation and adaptation, considering the regional and thematic distribution of funds and ministry-level fund management. They found a lack of coordination at the thematic and ministerial levels and adaptation funds going to non-adaptation projects. They also found that the fund distribution in themes was not proportionate or justified. For example, it did not finance some established adaptation procedures but instead funded so-called non-climate development projects like drainage systems in municipalities. Rahman et al. (2016) argued that adaptation funding was plagued by corruption, political influence and inefficiency and suggested the establishment of reliable mechanisms in adaptation addressing issues such as corruption. They found that BCCT did little about livelihood adaptation; it funded more traditional

embankments, cyclone shelters and drainage systems in municipalities, neglecting the most vulnerable coastal rural communities. Rahman et al. (2016) used interviews with key informants in ministries and reviewed secondary documents, but they did not interview local people or project implementing authorities.

The proposed study is novel as this is the first study to examine the role of clientelism in climate change adaptation. Hicken (2011) has argued that clientelism as a concept suffers from a lack of consent about its meaning. This study concentrates on clientelism as an electoral mobilisation method, according to Stokes's (2007) study that, "*Clientelism is the proffering of material goods in return for electoral support, where the criterion of distribution that the patron uses is simply: did you (will you) support me?*" (p. 649). Moreover, clientelism is a relationship amid individuals of unequal social and economic status that involves a reciprocal goods and services exchange based on a personal connection, commonly viewed as a moral obligation (Muno, 2010). Clientelism is a phenomenon that has appeared in many different social contexts. This type of relationship has not disappeared with the advent of democratisation or modern states since the late 19th century. Its acceptance into modern institutions has given them a diverse political dimension and clientelist relationships are increasingly being seen as hindrances to the efficiency of institutions and respect for democratic values (Sayari, 2014). The concept of clientelism is rarely discussed and explored in the context of climate change and adaptation.

The concept of patronage will also be considered in this study, which has also not been applied often to climate change adaptation. Aspinall and Sukmajati (2016) consider patronage as a subclass of clientelism. Clientelism implies that the lower member of a dyad is broadly building electoral support, including their voice and efforts to win the votes of others for the patron, a person's vote is the exchange of goods that provides benefits and protection. In addition, patronage can be the volunteering of public resources by officeholders in return for electoral support. Hence, in the proposed study, both patronage and clientelism are discussed in the context of Bangladesh. Moreover, South Asian countries such as Bangladesh and others are widely related to the phenomenon of patronage and clientelism politics, particularly the brand in which social groups classify themselves ethnically (Berenschot and Aspinall, 2020).

Politicians favour their electoral bloc; they support those who have helped them attain political power (Bustikova and Corduneanu-Huci, 2017). While the allocation of such resources creates goodwill in the short term, in the long run, a biased allocation of resources alienates those who feel unable to access such patronage or who have not preferred to become part of patronage, supported by (Paik, 2014). Some studies have discussed patronage and clientelism in the context of economic and political terms, such as Hutchcroft (2014), Brun (2014), De Elvira et al. (2018) and Trantidis (2016). However, studies focusing on Bangladesh are scarce, particularly at the district and subdistrict level and in relation to climate change adaptation.

1.5 Research Questions

This research aims to examine the allocation of projects by the BCCTF and assess the effectiveness of these projects in terms of their meeting the needs of poor and marginalised communities as intended. The research also determines the level of coordination between the affiliated ministry and the local government, in terms of assessing the transparency with which the projects are implemented. It considers the volume, regional distribution, and extent of satisfaction of sample project beneficiaries in the Municipality of Charfesson, under the district of Bhola in Barisal division - one of the most climate-vulnerable zones in Bangladesh situated in the coastal belt. The research also assesses the selection and distribution of the various thematic areas of the BCCSAP which is the mechanism through which the projects of the BCCTF are implemented. The research tries to explore political bias and influence (the roles of clientelism and patronage) over which the project selection takes place to understand how trade-offs within adaptation projects might be acting out (e.g., Eriksen et al., 2015).

The study, therefore, aims to understand the following research questions-

Research question 1: What is the current funding profile of the local climate change funds in Bangladesh, especially Bangladesh Climate Change Trust Fund (BCCTF)?

Research question 2: Are the aims and objectives of the government/ policymakers to achieve climate resilience through BCCT being met in relation to the perspective of sample communities (i.e., vulnerable, and marginalised people)?

Research question 3: What are the current dynamics of the socio-political situation that prevails in these areas and the challenges it brings along which hinders successful adaptation by BCCTF?

1.6 Thesis Structure:

In the first chapter, I discussed the vitals and basics of the entitled study, such as background, problem statement, aim of the study, research questions, and other facets to develop relevant insights and knowledge about the context of the entitled study. I have conducted the literature review via examining and exploring the current and relevant literature, concepts, and theories about the field of research which I discussed, examined, explored, and incorporated in Chapter 2. Later, in the third chapter, I outlined the methods to gather and extract data regarding the research as well as the obstacles that might hinder the data collection process. For me, it was vital to include an overview of the study area along with its demographic characteristics.

In the fourth chapter, I have discussed the funding profile of the Bangladesh Climate Change Trust Fund (BCCTF), and the mechanism with which funds are distributed to different ministries and regions, and tried to reveal what sort of politics is involved with regard to fund allocation. The next chapter (chapter 5) helps to understand the vulnerabilities of the study area and elaborates the needs, strategies and barriers which were illustrated from the people to adapt to these local climate change impacts.

Chapter six outlines an analysis to understand the rationale of the climate project proposals. The analysis also demonstrates if the adaptation needs, derived from chapter 5, are actually acknowledged, and considered in allocation of BCCTF funds. The key focus of this chapter is to examine whether project formulation and implementation has been executed effectively to meet the adaptation needs of vulnerable communities.

In my final stage of thesis, the discussion (Chapter 7) draws together the key issues and ideas of all the earlier chapters. This critically evaluates the findings in the context of political clientelism and patronage as they relate to climate change adaptation. This draws down the focus on who are the prominent actors in the adaptation process and how they are involved, in what capacity, and to what extent, within the political dynamics. Finally, the study comes up with a new model, titled 'Charfesson Model of Adaptation' which represents the findings of the study; the key players' role and responsibility in all the phases from fund allocation to implementation of climate projects, exposing the barriers for successful adaptation among vulnerable communities. I concluded with a recommendation with research limitations (Chapter 8).

Chapter 2: Literature review

2.1 Introduction

The chapter aims to conduct the literature review via examining and exploring the studies and findings related to this research topic that have been published previously. The literature review is considered one of the most vital aspects of the thesis that is also referred to as one of the critical stages that assists the readers in developing the relevant insights and knowledge allied with the designed topic. Therefore, the literature review has been conducted according to the aims and objectives formulated in Chapter 1 of the entitled study.

The literature review is conducted with the purview of scopes that provide a basis for the fundamental questions of this research. Understanding the theories underpinning the perspectives on the adaptation efforts made to meet the needs of the poor is one of the key goals of the research. In that sense, the literature review aims to seek evidence and basis around the ideas of knowledge, subjectivity, and authority with regard to determining the extent to which they have been incorporated into the general understanding of adaptation. The review aims to address the subjective and normative notions of political patronage and clientelism, which will aid in a deeper exploration of the question of whether different aspects of political economy are internalized within the climate change interventions within the study area.

The sections of the literature review have been segmented according to climate change adaptation relevance to people's perception, political processes, and climate change impacts that should be commensurate with the finance which is allocated to the affected communities as well as the larger adaptive capacity of people. The chapter also takes into consideration of the IPCC's relevance with regards to this topic, scaling down to the local levels where people matter and the processes with which they operate also roll out into behavioural activities. The chapter also dives into transformational adaptation, fairness in allocation, resources, and their sources, along with the ideal scenario of disbursement. Thereby, different scholars' opinions have been subjected to the fundamental basis of the study, which is around the larger ideas of knowledge, subjectivity, and authority of climate change-centric developments

in the local study area of the research. The review has an objective to assess the components of vulnerability with relevance to exposure, sensitivity, resilience, and adaptive capacity. Further to understanding the barriers to adaptation, this chapter is also in line with the bottlenecks of climate finance access and delivery from the national down to the local levels. As such, the theoretical underpinnings of political economics, comprehension of the political economy of adaptation, patronage, and power relations aim to address the gap that the research entails to find to answer the research questions. These thematic topics help address and clarify the origin and existence of political clientelism in the context of adaptation.

2.2 Climate change

Historically, the climate change literature grappled with an attempt to prove scientifically that artificial emissions of greenhouse gases due to the burning of fossil fuels caused adverse effects on the climate. Climate literature also started to look at how to minimise or scale down the emissions of greenhouse gases, i.e., mitigation, alongside increasing recognition of the importance of economics and politics.

A concomitant stream of literature developed on the climate change risks. It was agreed that, intentionally or unintentionally, the poor or developing countries were marked as the victims of climate change. This normative perspective brought a shift in climate change research as adaptation attracted increasing attention over the last twenty years (Adger et al., 2003; Wilby and Vaughan, 2011; Arnall et al., 2014). The literature on adaptation includes vulnerability, adaptive capacity and resilience, barriers to adaptation, climate finance, fund allocation and delivery principles, climate justice, political economy on adaptation, mainstreaming of adaptation and participation or community-based adaptation.

The UNFCCC provides an institutional and comprehensive definition of climate change as "*a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable periods*" (UNFCCC, 1992, p. 23). Thus, UNFCCC conspicuous that the currently perceived climate change combines natural changes and human-induced changes.

In addition, it is found from the Intergovernmental Panel on Climate Change (IPCC) latest report that the global temperature has already risen by around 1.1°C. It also states that global warming is projected to be 1.5° C between 2030-52 if it increases at the current pace. The report also addresses that global warming acts 1.5°C above pre-industrial levels and related global emission pathways in accordance with solidification of the response to the threat of climate change, efforts to eradicate poverty, and sustainable development (IPCC, 2023). Furthermore, human-induced warming reached 1°C above that level of pre-industrial in 2017, i.e., further growing at a rate of 0.2°C per decade (Shukla et al., 2019). In continuation, it can be stated that several aspects have been playing a drastic role, i.e., affecting the climate. If such actions are not tackled strategically, the fallouts for all human beings would be significantly negative, followed by cyclones, earthquakes, and likewise others. These natural threats would be uncontrollable due to human beings' desire to excel and acquire more and over the limit (Meredith et al., 2019).

The UNFCCC has been urging to reduce emissions; however, some studies are sceptical about the future of such mitigation. Sherwood et al. (2014) argue that a further 4°C increase in global temperature is very likely in the next century, which would cause severe climatic changes. Even if GHG emission is mitigated to the desired level, the change that has already happened will take a couple of centuries to fade out fully (IPCC, 2007 and 2014). Unfortunately, the poor will be significant victims of this change. In Asia, many developing countries would suffer; the rising sea level would drown low-altitude coastal areas, poverty would worsen, and many people would lose their lives and livelihoods (Adger et al., 2003). Along with the future increase in temperatures, IPCC (2014) warns that the extinction of species in a significant amount might happen through the 21st century and onward; many species comprising birds and animals will be unable to migrate to suitable climate conditions and adapt at the required speed. Moreover, there will be a severe risk of irreversible damage to the composition, structure, and function of ecosystems.

2.2.1 Climate change adaptation and adaptive capacity

The concept of adaptation in biology and theology is as old as human civilization itself. Adaptation, in its original usage, was a genetic process and output of biological species to

withstand competitive existence within the environment or through natural mutations. Adaptation also holds its presence in social science, particularly in philosophy, and its modern orientation has been observed in anthropology in the 1900s by Janssen et al. (2006) and in the 1940s by Young et al. (2011) to mean the structural changes of a system to respond to external socio-economic variables. However, the specific use of the term adaptation came into climate literature and discourse in the 1990s to include the responses to changes in climate. Though adaptation as a term has gained widespread acceptance, it has yet to have a universally accepted definition. IPCC (2007) defines adaptation as "*adjustments in natural or human systems in response to actual or expected climate stimuli or their effects, which moderates harm or exploits beneficial opportunities*" (p. 6). Therefore, adaptation seeks to avoid or moderate harm in human systems or exploit beneficial prospects (Nagoda and Nightingale, 2017). Hence, it is vital to reduce the current adaptation deficit with effective risk management and adaptation to climate change measures (Sanchez Rodriguez, et al., 2018). Thus, failure to close the adaptation deficit comes with residual damage from climate change. A robust and practical decision in this regard has not been found yet (Abbass et al., 2022)

Moreover, it is found from the IPCC report that under the banner of Climate Change Adaptation (CCA) and Adaptive Capacity, they have also discussed the role of technology and information (Lipper et al., 2017). The latest advances in technology and information are combined with adaptation measures in structural engineering in many applications. For example, many adaptation options have been developed and implemented in the agriculture and food sectors to reduce the adverse effects of climate change on production. Thus, technologies include more effectual irrigation and fertilisation methods and means, growing crops for greater drought tolerance, and adapting planting grounded on projected results to transition from traditional technologies such as floating gardens (Harvey et al., 2018). Technological options for adapting to climate change include hard and soft tech-based methods and approaches, new tech-based elements, and suitable and indigenous adaptation technologies of local origin (Clarke et al., 2019). Using climate change adaptation (CCA) and adaptive capacity, IPCC has stated that centralised high-tech-based systems can increase efficacy under the banner of standard settings; however, it can also reimburse for cascading fiascos in emergencies (Donatti et al., 2019).

Adaptations to changing climatic circumstances are more probable to be executed if they are integrated with or coordinated into programs or decisions that, thereby, deal with non-climatic pressures. Climate change vulnerabilities are infrequently non-climatic conditions (Parker et al., 2019). The climate stimuli effects are felt through social or economic pressures, and climate adjustments by communities, individuals and governments are considered and made under these conditions. Therefore, adjustment costs are often marginal compared to other development or management costs. It can be stated from the findings of the IPCC that adaptation to climate change does not have to take into account climate-related pressures and be in line with existing political criteria, management structures, and development goals (Razgour et al., 2019). Though adaptation has gained widespread acceptance, it has yet to have a universally accepted definition. However, almost all literature converge on the fundamental understanding of IPCC (2014) that adaptation refers to adjustments in either human or natural system performed by humans willingly or occurring naturally.

The definition of adaptation, as outlined in the Intergovernmental Panel on Climate Change (IPCC) sixth assessment report (2023), encompasses three overarching dimensions. Adaptation within the human system is characterized as a dynamic process involving adjustments made in response to current or anticipated climate conditions and their associated impacts. The primary objective of such adaptation measures is to mitigate adverse consequences and capitalize on advantageous circumstances. In the realm of natural systems, adaptation refers to the dynamic process of accommodating and aligning with prevailing climatic conditions and their associated impacts. It is worth noting that human intervention can play a facilitative role in enabling adjustment to anticipated climate patterns and their corresponding consequences. Furthermore, within the context of human systems, the planning of adaptation typically involves a systematic and iterative approach to managing risks, as outlined by the Intergovernmental Panel on Climate Change (IPCC, 2023).

The present discourse aims to delineate the theoretical underpinnings of adaptation within the context of three overarching paradigms. These paradigms encompass the dichotomies of anticipatory versus reactive adaptation, autonomous versus planned adaptation, and incremental versus transformational adaptation. By exploring these paradigms, a

comprehensive understanding of the theoretical foundations of adaptation can be achieved. The existing body of literature has shown a limited focus on the subject of sustainable adaptation. In their seminal work, Eriksen et al. (2011) put forth the notion that sustainable adaptation encompasses a synthesis of four normative principles. Firstly, the authors emphasize the importance of acknowledging the contextual factors that contribute to vulnerability, which may encompass a multitude of stressors. Secondly, they posit that adaptation outcomes are influenced by diverse values and interests, thereby necessitating their recognition and consideration. Thirdly, the authors advocate for the incorporation of local knowledge within adaptation responses, recognizing its potential to enhance the effectiveness and appropriateness of such measures. Lastly, Eriksen et al. (2011) underscore the significance of contemplating the potential feedback mechanisms that exist between local and global processes, highlighting the interconnectedness and interdependence of these scales.

Human and natural systems have the potential to adapt to harsh conditions, but if climate change continues, adaptation will be required to sustain this capacity. Warrick et al. (2017) have incorporated the IPCC findings and stated that under adaptive capacity and climate change adaptation (CCA), adaptive capacity has been considered to vary among countries, regions, and socio-economic groups. The ability to cope and adapt to climate change depends on technology, wealth, skills, information, institutions, infrastructure, and equity that varies amid each country and their plans designed for climate adaptability, such as in developed and under-developed countries.

Adaptability needs to be enhanced to reduce vulnerability, especially in the most vulnerable nations, regions, and socio-economic groups (Noble et al., 2014). The imperative to adapt to climate change is a fundamental requirement for both advanced and developing economies. Policymakers are confronted with the formidable task of effectively facilitating the process of this transition. The integration of climate change adaptation into a comprehensive development strategy necessitates the involvement of both private and public sectors (Bellon, and Massetti, 2022). While studies on vulnerability to climate change now consider adaptation, they hardly go beyond classifying potential adaptation options. However, the

adaptation in human systems dynamics, adaptation decision-making processes, conditions that limit or promote adaptation, and the role of non-climatic factors are little explored. Nevertheless, it is considered one of the critical factors that have instigated several issues behind the regime's means and measures, and associated authorities planned to tackle the fallouts after the climatic effect (Smit and Pilifosova, 2003)

Adaptation in climate literature includes diverse modes of origin and types of actions. For instance, when does adaptation take place? This question divides the adaptation into proactive and reactive types (Adger et al., 2003; Smit and Wandel, 2006; Jones and Boyd, 2011; Runhaar et al., 2012). Proactive adaptation stands to take various measures before climate change impacts occur. In areas vulnerable to cyclones, proactive adaptation involves activities like building cyclone-proof accommodations for vulnerable people, building cyclone shelters, and property-saving measures, among others. Supporting vulnerable communities to have more economic and social capital and establishing early warning systems also feature. This type of adaptation is dominantly observed in developed countries (Ford et al., 2011). Reactive adaptation refers to activities that follow a climate change impact. For instance, after the impacts and losses of Aila and SIDR, two major devastating coastal cyclones, Bangladesh took reactive adaptation measures, including repairing roads, constructing drainage systems, and building new schools. Some measures are both reactive and proactive, including constructing river dams in a river-erosion area. Like Gallopín (2006), some literature extends this classification of adaptation based on the actors; reactive adaptation might stem from both natural systems and human actions, whereas proactive ones are solely planned and performed by human agents.

Others consider the origin or drivers of adaptation as planned and autonomous (Smit and Wandel, 2006; Jones and Boyd, 2011). Planned adaptations are performed by human systems that include collective agents or organisations, whereas the autonomous ones are less formal associated with individual human actions in response to climate stimuli. Finally, Noble et al. (2014) define adaptations as incremental and transformational. Incremental adaptation refers to actions where the main focus is to modify current attributes of the ongoing technological, institutional and governance systems. These include adjusting existing

cropping systems via new varieties, changing cropping times, or introducing efficient irrigation systems.

On the other hand, transformational adaptation aims to change the basic patterns of institutional and governance systems or livelihoods in response to actual or expected changes in climate. The changes move beyond the original state and incremental adaptation. For instance, it might include changing agriculture from crops to livestock, fishing or migration to other less vulnerable areas or professions. It is often more sustainable and growth-oriented (Green Climate Fund, 2013). Transformational adaptation is relevant when incremental adaptation is less likely to deliver results, or is too recurrently expensive, or where current political systems work against equitable and sustainable outcomes. However, unplanned or ill-defined transformations may be less productive or chaotic than incremental ones, as Noble et al. (2014) argued. Noble et al. (2014) further elaborate that those adaptive systems are only as effective as humanity's efforts. While nature will always find a way to run its course, transformational adaptation will be costly in the long run, thus, unlikely to show any immediate results.

Many studies have considered the concept of adaptive capacity. Natural and human systems have in-built capacities to cope with harmful effects or circumstances to varying degrees (Housset et al., 2018). Adaptation is a function of individuals, organisations, and government institutions and their capacity, i.e., resource, capital, technology, and mobility, which can be mobilised to counterplan for or react to climate change. The IPCC defined adaptive capacity as "*the ability of a system to adjust to climate changes (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.*" (IPCC, 2001; p.352). That report observed a limited number of studies on adaptive capacity and promoted the creation of knowledge in this area. Other studies have defined adaptive capacity in different ways. For example, Chapin et al. (2006) defined adaptive capacity as "*the potential for actors within a system to respond to changes and create changes in that system*" (p.104). Moser et al. (2008) looked at organisational capacity and gave an organisational meaning of adaptive capacity as "*the adaptation space within which decision-makers in any system might find feasible [response] options*" (p.646). Ali (1999)

stressed on the relative nature of adaptive capacity across different groups and communities (Ali, 1999, p.109), with some more susceptible than others instead of changing climate conditions.

According to Armitage and Plummer (2010), key aspects of adaptive capacity are mutual learning, knowledge sharing, empowerment of actors, and bridging actors to a common goal. It also includes all types of capital and levels, from government treasury to individual micro-savings. Organisational adaptive capacity is a dynamic attribute that depends on many internal and external factors. Tompkins et al. (2010) argued that the adaptive capacity does not necessarily become efficiently functional if the individual, community, or other actors do not participate in the adaptive process. Moreover, it is a learning process, and knowledge sharing and accumulation are imperative across different contexts, such as Runhaar et al. (2012) focused on institutional urban planning, Kuruppu and Liverman (2011) on water management systems and Gupta (2010) on institutions.

Moreover, as Burton et al. (2002) argued, a sound understanding of adaptation deficit is required to understand adaptive capacity. By adaptive gaps, they meant the difference between the current state and the state required to limit adverse climate impacts. It referred to how much a system needs to improve its steady-state maintenance or transformation to a new scale and model.

As the present study focuses on government institutions, a discussion of the adaptive capacity of institutions is relevant. Knowledge and knowledge generation is the key to an organisation or institution's adaptive capacity with both universal and local dimensions, and it varies across time and space. With limited knowledge about climate change, an organisation will have limited capacity and fewer options to respond to climate stimuli (Runhaar et al., 2012). It may also feel reluctant to respond based on ill-defined or high levels of uncertainty (Jones and Boyd, 2011). Organisational adaptive capacity also depends on decision-making capacity. Lack of knowledge obstructs or slows down the decision-making process. Organisations with sufficient knowledge can assess adaptation needs, analyse a wide range of options, and opt for the optimum one (Chhetri et al., 2012). Moreover, Jianhua et al. (2010) argue that it is

essential for an organisation to have the maximum adaptive capacity possible to ensure its employees have appropriate knowledge of climate change to support adaptation. It should also offer proper training and education to this end, place staff in the right place, and evaluate their skills and experience.

Resources are critical for any organisation to strengthen or support its adaptive capacity (Seddon et al., 2020). In continuation, Depietri and McPhearson (2017) have demonstrated that resources may be internal or external. Internal resources have been considered associated with institutions, including human, financial, infrastructure, logistics, reputation, and technological resources. Thus, internal resources enable the organisation to work. On the other hand, the institution may get internal funds from its revenue generation or external, local, or central governments, foreign donors, local corporate donors, and NGOs. However, an organisation with limited resources cannot have skilled staff and cannot impart proper training to staff. Hence, the internal resource may not have modern and sophisticated logistics, infrastructure, and technologies (Jianhua et al., 2010).

Organisations with access to external resources may strengthen their adaptive capability, as Armenakis and Bedeian (1999) and Chhetri et al. (2012) discussed. In such cases, they may hire skilled staff, improve logistics and technology, and plan and implement appropriate adaptation activities. Organisational systems and cultures are vital to augment adaptive organisational capacity (Tompkins et al., 2010; Berkhout, 2012; Gupta et al., 2010). This literature stresses on the need for clear, structured work plans and procedures, robust planning, monitoring and evaluation system, and the policymaking capacity of an organisation.

Organisations have broader adaptive capacity to formulate clear, attainable, and shared goals, have flexible working plans, encourage growth, and have visionary and collaborative leadership (Plowman, 2000; Wilby and Vaughan, 2011). For government organisations, particularly those having strict legislation and business procedures, compliance with those instruments is imperative to attain sustainable adaptive capacity (Pelling et al., 2008). Furthermore, if institutions are more innovative and participative with people and concerned

stakeholders in formulating plans, the consequent implementation capacity would be much higher (Adger et al., 2003 and Ford et al., 2011).

Lastly, internal organisation politics are vital; for example, it supports developing relevant insights and understanding of the informal conflict processes and co-operations in organisations and their impact on a particular activity (Musah et al., 2019). This is also applied in the stances where financial aid from developed countries is provided to under-developed ones to combat the climatic change fallouts in which internal organisation politics have been considered to play a vital role. Hence, it can be stated, based on the aforementioned findings and with the support of Wigand et al. (2017) study, that internal organisation politics is directly proportional to the actions and measures adopted by the authorities in the context of climatic change as well adaptability. Organisations with more obstructing internal organisational politics will have less adaptive capacity (Runhaar et al., 2012). Plowman (2000) relays the extent of the capacity to formulate plans and how it may contribute to the growth of a community. Individuals in society or working in a particular entity have been considered critical to supporting effective adaptation.

External political context also plays a vital role in the growing adaptive capacity of an organisation. States, particularly where the political system has weak legitimacy and public mandates, demonstrate comparatively less response to people's demands and priorities. When people have less right to protest, their claims for adaptive capacity needs may be reduced (Vincent, 2007; Gupta et al., 2010). Government institutions with low adaptive capacity may have less ability to withstand external changes, as Ford et al. (2011) highlighted. For instance, Cheng et al. (2017) explain that existing evaluations of adaptation options come with severe limitations. Economic benefits and costs are the main criteria, but they are not satisfactory enough to adequately ascertain adaptation measures' appositeness. However, external factors have also been considered key players in climatic change and adaptability, further discussed and explained later.

2.2.2 Defining vulnerability and resilience

Crucial to adaptation is the concept of vulnerability to climate change - adaptation serves to reduce vulnerability (Tompkins et al., 2010). This term has been extensively used to connote risk and vulnerability to natural disasters or impacts (Grothmann and Patt, 2005; Eakin and Patt, 2011). In climate change, literature has been documented since the 1990s (Janssen et al., 2006). However, the concept lacks a broad consensus on its definition. IPCC (2007) has tried to address this and presented a functional definition of vulnerability as "*the degree to which a system is susceptible to and unable to cope with adverse effects of climate change, including climate variability and extremes*" (p. 200). This definition has two dimensions. First, a system's general state, i.e., its weakness or intolerance to climate stimuli and second, susceptibility (inability to cope with climate stimuli).

Moreover, McLeod et al. (2015) reframed vulnerability as a "*function of a system's exposure and sensitivity to stress and its capacity to absorb or cope with the effects of these stressors*" (p. 440). A system includes biophysical, social, economic, and political aspects (Reid and Vogel, 2006; Schipper and Pelling, 2006; Tschakert, 2007). Biophysical vulnerability focuses on the physical loss experienced by a system due to interactions with hazards (Nicholls et al., 1999). Looking at only biophysical vulnerability would be very reductive. It is well established with robust evidence and high scholarly consensus that vulnerability to climate change is closely associated with socio-economic and political factors (e.g., Noble et al., 2014). According to Allen (2003), isolation of vulnerability to climate stimulus from the broader social context bears risks in treating symptoms rather than causes. Rai et al. (2014) delved into the different aspects of biophysical vulnerability and explained the varying extent of biophysical vulnerabilities, along with how each of them is very particular in the type of physical loss they inflict on humanity. Social vulnerability is also not less important than biophysical vulnerability, which is determined by factors such as livelihoods, access to resources, poverty, and inequality. These are the basic factors of development and good governance (Blaikie et al., 1994; Paavola and Adger, 2006; Tschakert, 2007). It can be argued that addressing social vulnerability provides an ultimate long-term goal of adaptive capacity. These basic determinants of social vulnerability closely determine the vulnerability of communities and individuals to all types of climate and non-climate stresses. An individual with a broader

livelihood, higher access to resources and social equality has less susceptibility and more capability to cope with climate variations and extreme events. Therefore, the relationship between climate stress and social vulnerability generates a functional outcome. Observing the significance of social vulnerability, Adger et al. (2004) argued that it is a determining factor that influences biophysical vulnerability as well.

This thesis adopts the overall conceptualisation of vulnerability conceptualised in Turner et al. (2003) and Dow et al. (2006), that vulnerability is the function of three distinct variables; exposure to stresses, sensitivity to such exposure and resilience, as shown in the following figure (Figure 2-1). However, the Fourth Assessment Report AR4, IPCC viewed vulnerability to be composed of three components, namely exposure, sensitivity, and adaptive capacity (IPCC, 2007). But, IPCC (2012) focuses only on sensitivity and adaptive capacity but incorporates the exposure into concept of risk. The stress here includes both the climate and non-climate ones like social, economic, and political, according to Adger (2006). This inclusion has been recently prevalent in climate literature, as adapting to climate events and processes involves a focus not just on climate stresses but on their conjugation with non-climate stresses, and it is sometimes very impossible to disintegrate non-climate stress from climate ones. Both of these stresses change in intensity, scale, space, timing, frequency, and duration.

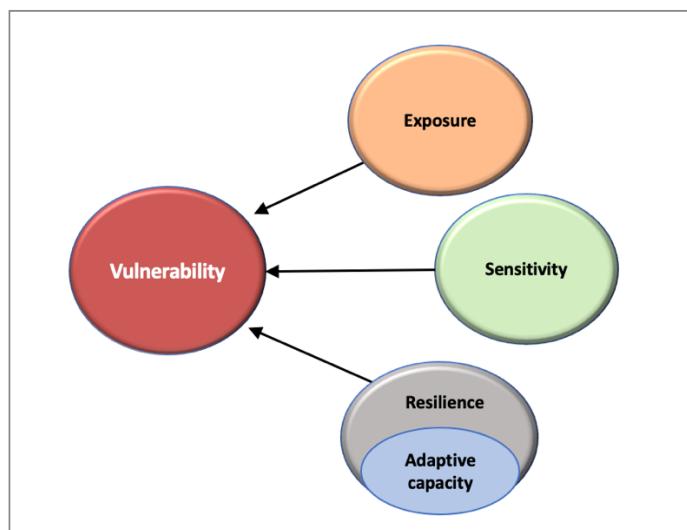


Figure 2-1: Components of vulnerability capacity (Adger, 2006)

Exposure comes first as it introduces the concept of vulnerability. Vulnerability is directly and positively related to exposure. The more the exposure, the more likely the vulnerability. Exposure also has varied meanings and scopes, like trends and shocks (Allison and Ellis, 2001) or contexts, conditions, and trends (Sconnes, 1998). Exposure is not always applicable to cause vulnerability if a system is not sensitive to the exposure of stress. Sensitivity is thus directly and positively related to vulnerability. The more sensitive a system is to climate stress; the more is the vulnerability. For instance, some crops are more sensitive to saline water. Therefore, the more exposure to saline water, the more is the vulnerability of that crop to salinity due to climate change. Sensitivity represents "*the degree to which a system is modified or affected by perturbation*" (Adger, 2006; p.270). Sensitivity by default does not exclusively mean negative but sometimes may bring positive outcomes, as Alwang et al. (2001) argued. Vulnerability is configured as the mix of exposure, sensitivity, and adaptive capacity (Adger, 2006; Parry et al., 2007). The understanding of vulnerability maintained in this thesis is very close to the latter understanding of vulnerability.

Resilience is a concept introduced by Holling (1973) in the subject of population ecology, and it was fairly used in applied mathematics, modelling, and applied resource ecology, as Folke (2006) documented. By resilience, he meant the capacity of a system to maintain its existence of multi-stable states in an ecological system. In climate change, the term is a nascent one. It is often synonymous with adaptive capacity but differs in deeper meaning. Resilience is more than adaptive capacity. Resilience is defined by IPCC (2014) as "*the capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding in ways that maintain their essential function and structure, whilst also maintaining the capacity for adaptation and transformation*". It is clear from the definition of adaptive capacity and resilience that adaptive capacity means the capability to reduce harm and adjust to variability or extreme conditions. Whereas resilience is not only the adjustment or abatement of harm but includes the maintenance of essential identity of attributes of the system. Thus, the adaptive capacity falls within resilience.

2.2.3 Barriers to adaptation

Many studies, such as Robinson (2017) and Ansharyani (2018), identify barriers to the adaptation of different kinds, including institutional, social, informational, financial, and cognitive (Adger et al., 2007), plus a lack of monitoring of the progress of adaptation, and a lack of political will to mobilise funds (Moser and Ekstrom, 2010). Eriksen and Lind (2009) identified political influence as a barrier to adaptation in their study on drought in Kenya. Nielsen and Reenberg (2010) identified social inequality, poverty, and religious tensions as essential barriers. Given the size and variety of specific adaptation options across sectors, communities, individuals, and locations and the diversity of participants (public and private) tangled in most adaptation ingenuities, it is likely unbearable to list specific adaptation measures. It is, therefore, vital to implement and improve the knowledge of the limits and possibilities to improve adaptability and reduce vulnerabilities (Bruinsel, 2020).

Without planned adaptation, various groups will adapt baseless things to change climatic conditions and are considered one of the critical barriers in setting up effective strategies. Associations and economies have adapted to the climate over the centuries. Nevertheless, the losses from major climate-related events are increasing in some sectors due to development patterns that are still vulnerable to changing climatic conditions and climate change (Cossens, 2018). The ecological, economic, and social costs of relying on autonomous and reactive adaptation to the cumulative effects of climate change are significant. They can principally be avoided through projected planned adaptations.

Furthermore, Biesbroek et al. (2013) found three barriers that specifically and directly related to climate change adaptation: i.e., the long-term impacts of climate change versus the short-term dynamics of politics and decision-making; the reliance on scientific models to identify, understand, and communicate the problem and propose solutions; and the inherent uncertainties and ambiguities of climate change. Amundsen et al. (2010) showed that top-down approaches could limit the locally owned bottom-up approaches. Thomalla et al. (2006) identified people's views as another possible barrier to adaptation, one in which mindsets of belief can perceive natural disasters as punishment of God and hence not to be avoided.

2.3 Climate finance

Climate finance is a significant part of the international response to climate change for mitigation and adaptation, in accordance with UNFCCC, which is considered to be an international framework that is to combat risky human intrusion with the climate system by easing greenhouse gas meditations in the atmosphere (Islam et al., 2021a). The ultimate goal of UNFCCC is to stabilise greenhouse gas concentrations in the ether at a level that prevents dangerous interference with the climate system within a timeframe that lets ecosystems adapt and naturally sustain development.

Regarding UNFCCC, it is found that climate finance refers to national, local, or transnational funding from private, public, and other finance sources to aid measures to adapt and mitigate climate change (UNFCCC, n.d). Even though UNFCCC has been playing an active role in setting up the best means and methods so that fallouts of climate can be tackled, that originated due to human inventions and continuous trials of different nuclear and similar other techniques (Mojid, 2020).

The scholarly articles present varying viewpoints regarding the allocation of global climate finance to developing nations. There is a commitment made by developed countries to collectively mobilize an annual amount of USD 100 billion by the year 2020. This financial commitment is aimed at addressing the climate change mitigation and adaptation requirements of developing nations. In a comprehensive analysis conducted by Atteridge and Canales (2017), an examination of published data was undertaken to ascertain the extent of financial commitments specifically directed towards climate change initiatives in a select group of 15 Pacific countries during the period of 2010-2014. The findings of this study revealed that a substantial sum of US\$748 million was committed to these countries, primarily in the form of grants, thus emphasizing the philanthropic nature of the financial support provided. In a study conducted by Jakob et al. (2015), an integrated energy-economy-climate model was employed to evaluate the potential scale of financial transfers to developing nations. The findings indicate that by the year 2020, these financial transfers could amount to nearly USD 400 billion annually. Notably, Sub-Saharan Africa stands to receive substantial financial inflows, potentially reaching up to 14.5% of its gross domestic product

(GDP). This study, in addition to its primary focus, also delineates three prominent mechanisms by which substantial financial inflows can potentially engender detrimental consequences for the receiving economies. These mechanisms include heightened volatility, the manifestation of Dutch disease, and the proliferation of rent-seeking behaviour and corruption. In the study conducted by Román (2016), an examination of the global distribution of economic impacts related to climate finance was undertaken. The findings of this research affirm the significance of spill-over effects that are engendered by climate finance, constituting an average of 29% of the overall impact.

In addition to this, Anik and Khan (2012) argue that climate change financial issues are considered as budgetary matters by authoritative powers rather than political processes subject to various challenges. For example, various studies by Kissinger et al. (2019) have commented on poor leadership. They suggest that a global international-level climate fund is vigorous to be created to manage each financial source efficiently. The following sections explore some of the issues associated with climate finance relevant to the context of Bangladesh.

Concerning the role of UNFCCC and Bangladesh, Billah et al. (2018) and Chiba et al. (2019) depicted that Bangladesh, a party to the Convention, signed the Convention on June 9, 1992, and ratified it on April 15, 1994. The Secretary of the Ministry of the Environment, Forests and Climate Change is the national focal point of the Rio Convention. Bangladesh is a more vulnerable country exposed to varying temperatures, rising sea levels, increased hot days, cyclones, dry days, droughts, and floods. After that, a large part of the coastal land is submerged in the sea. Therefore, the Bangladesh development sector faces a significant challenge (Khan et al., 2021).

Similarly, Baillat (2018) depicts that Bangladesh has taken many policy measures, including adding section 18A (regarding voting) to the composition of the UNFCCC. In addition, Bangladesh has integrated climate change into all relevant sectoral policies, including national five-year and forward-looking plans. The UNFCCC and Bangladesh both are aimed to set some effective means so that quality results can be attained. Therefore, they incorporate the

aspects discussed and proposed by UNFCCC in their several acts and directives, envisioned climate change, and have worked and divided the fiscal aspects adequately. In contrast, Fatemi et al. (2020) have stated that this is partially true even though Bangladesh has integrated some practical work proposed by UNFCCC; still, some areas are not intelligent and prolific for Bangladesh to combat climate change.

Bangladesh has also established two bodies, as Bangladesh Climate Change Trust Fund (BCCTF) and the Bangladesh Climate Change Resilience Fund (BCCRF) (Rahman et al., 2022). Bangladesh has always been very sensitive to climate change and climate-related disasters due to its geographic location and, thus, amid the two fundamental approaches to combating climate change, i.e., adaptation and mitigation (Pervin, 2019). In addition to this, the focus for Bangladesh is mainly on adaptation. Although Bangladesh is a climate-sensitive country and contributes less than 0.35% of global emissions, it actively participates in joint global measures to reduce greenhouse gas emissions (Rahman et al., 2020). Therefore, since 2009, the BCCTF carried out 789 projects with an investment of 443 million US dollars to implement the strategic measures of the Bangladesh Climate Change Strategy and Action Plan. In addition, the BCCSAP has been more in line with advances in science, technology, and knowledge since its inception (Bhandary, 2021). Lastly, the Environment and Climate Change Sectoral Action Plan were adopted to mainstream adaptation to climate change as part of the Annual Development Program (ADP) in the development planning and implementation process, which includes a strategy for developing green growth as an immediate action (Haque et al., 2019). Henceforth, the regime recently adopted the Bangladesh Delta Plan 2100, a comprehensive 100-year strategic plan that gradually mitigates sustainable development through a delta adjustment process (Haque et al., 2019).

2.3.1 Fund allocation and delivery principles

General principles of allocation of adaptation funds require that funds be delivered and used transparently, efficiently, and equitably. Many studies analyse the allocation and delivery principles of international climate funds and propose different operational frameworks to ensure transparency, efficiency and equity in fund allocation and implementation (Mallick et al., 2011). Mitchell et al. (2008) emphasise four criteria: country ownership, vulnerability,

mutual accountability, and harmonisation at the recipient end in fund allocation. Klein and Persson (2008) urge donors to maintain clarity and provide easy and equal access to adaptation funds and allocate funds to sectors that aim at development first, along with adaptation needs, and select countries that can show excellent and predictable outcomes.

Barr et al. (2010) present a comprehensive analysis of contemporary scholarly literature on allocation principles and propose three aspects of allocation decisions. These are climate vulnerability, adaptive capacity, and implementation capacity. They recognise the inherent complexity and subjectivity of quantifying a country's vulnerability. Barr et al. (2010) graded vulnerable countries into four groups and put Bangladesh as the most vulnerable. They also ranked countries' adaptive capacity considering their national income, education, longevity, and other socioeconomic aspects and ranked Bangladesh second. Lastly, they arranged countries into four groups in terms of implementation capacity. Bangladesh was ranked second in its institutional, political, and technical capacity to implement adaptation funds transparently and efficiently. The authors suggest that donors prefer a country with the highest adjusted vulnerability with higher implementation capacity than the same net vulnerability but lower implementation capacity. They propose that this framework would demonstrate more visible and predictable adaptation outcomes.

At the national level, a research and advocacy project under the Adaptation Finance Accountability Initiative (AFAI) questioned by whom and how adaptation finance was used and whether adaptation money reached the poorest and most vulnerable people in Nepal, the Philippines, Uganda, and Zambia (Terpstra et al., 2013). They proposed a national allocation guideline based on transparency, ownership, responsiveness, participation, and equity principles. Persson and Remling (2014) also stressed on efficiency and equity in fund allocation. To them, efficiency refers to maximising overall social benefits, and equity means allocating funds in proportion to the level of vulnerability and population affected. Analysing the allocation decisions of the Adaptation Fund, a fund established under the Kyoto Protocol of the UNFCCC, they concluded that aspects of equity had been reduced to disbursing equal lump sum grants to vulnerable countries due to the very complex and contested interpretation of equity and scarcity of funds. Barrett (2015) argued for focusing on the

constitutional setup regarding fund allocation and the lack of transparency in the process without a critical assessment tool.

Developed countries under the banner of UNFCCC pledged to provide finance to the developing countries for adaptation, but there remains some scepticism about commitment and progress in this area. Paavola and Adger (2006) contend that developed countries will delay to provide adaptation funds to developing countries. Donner et al. (2016) studied the delivery mechanisms of adaptation finance to developing countries and found multiple channels and types of international funds. Sometimes, it was unclear whether they were for adaptation or regular development programs. In addition, funding mechanisms depend on the economic and political relationships with the parties. There was also debate regarding whether multilateral institutions like the World Bank, UN institutions, or bilateral systems should manage the process. They calculated that from 2008 to 2012, adaptation funds increased into Oceania only by 3-4%, whereas it should have been 37% of all overseas aid. This happened because the climate funds were misplaced in development heads. Against those backdrops, they suggested some robust and comprehensive single datasheets to monitor the adaptation finance of all types.

In addition to international inequality, climate justice regarding finance is essential at national and sub-national levels (Barrett, 2013, 2014 & 2015). Barrett (2013) argued that the effectiveness of local-level adaptation funds should be measured whether the adaptation funds aimed at the vulnerable needs and strengthened resilience in Malawi. Barrett also studied the influence of three variables, namely climate vulnerability, government interest and donor interest, on funding decisions. He found no particular government interest but strong donor interest and priority in adaptation funding in physical vulnerability rather than socio-economic sectors. Barrett (2015) found a satisfactory level of equity in fund allocation and implementation at the local level in Kenya.

2.4 The political economy of adaptation

Over the years, the dominant climate change literature reduced and framed the climate change process as biophysical, technical, economic, and policy-related discourses (Klein et al., 2007; Smit et al., 2001; IPCC, 2007 & 2014). But based on grass-root experiences of climate change adaptation processes in Africa and Asia, scholars have increasingly used socio-political lenses to deconstruct dominant climate change adaptation discourse, highlighting it as a socio-political process (Eakin and Lemos, 2006; Eriksen and Lind, 2009; Manuel-Navarrete, 2010). To Eriksen et al. (2015), adaptation is “all through” a political process.

As adaptation resources are scarce and demand is high, Klein and Möhner (2011) found a strong influence of political economy in delivering the Green Climate Fund. Seballos and Kreft (2011) reviewed the implications of political economy in the Pilot Program for Climate Resilience (PPCR), a starter project of the World Bank (WB). They found the influence of politics in defining vulnerability and selecting pilot countries. For example, Yemen, a member country of the PPCR sub-committee, used their influence to be included in the PPCR program by replacing Mauritania. From the Kenyan experience, Eriksen and Lind (2009) explained how the transformation of livelihoods and competition for adaptation resources generated socio-political conflicts and competition in local and national politics and argued that adaptation in Kenya was a political process.

Tanner and Allouche (2011) were the first to define political economy about climate change as “*the processes through which ideas, power and resources are understood, negotiated and implemented by different stakeholders at multiple scales in adaptation processes*” (p. 44). They studied the role and presence of political economy in international-level adaptation frameworks, starting from the formation of the UNFCCC, defining vulnerability, framing allocation principles, negotiating for adaptation funds, and redefining donor-recipient relationships. Finally, they elaborated with evidence and logic on how the authority of international funding was rolled out from the global North to the South and how the concept of aid and charity was transformed into grants and rights of compensation to the developing world.

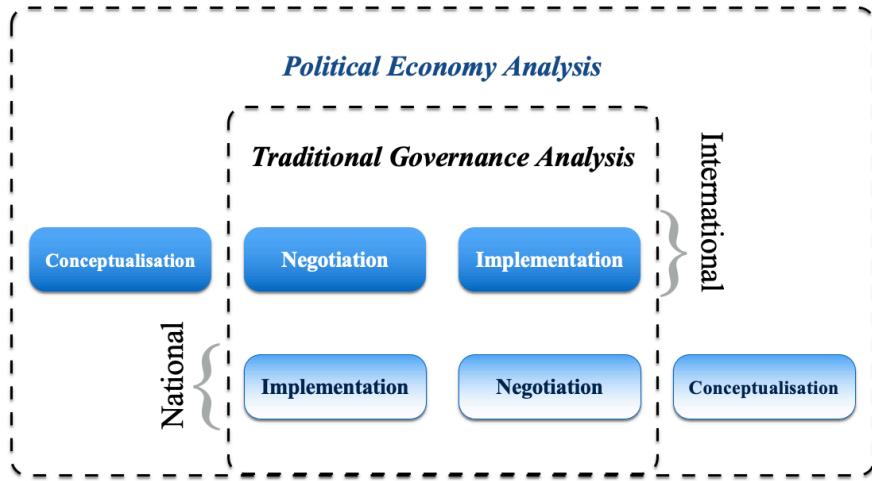


Figure 2-2: Political economy of adaptation (Source: Tanner and Allouche, 2011)

As shown in Figure 2-2, Tanner and Allouche (2011) propose adaptation at both national and international levels as a process of conceptualising and identifying vulnerabilities or risks, incorporating them in planning processes, and then allocating adaptation resources and implementing adaptation plans. They found a strong correlation between the concept of power and ideas, as policy determinants. The “idea” works in this conceptualising, identifying, and planning process. “Power” operates at all levels, particularly in allocation processes. In fact, according to Tanner and Allouche (2011), multiple ideas or ideologies like bio-environmentalists, institutionalists, market liberalists and others, all exist and influence climate change finance processes at all stages.

Eriksen et al. (2015) examined the political dynamics of adaptation and proposed a three-dimensional theoretical and analytical framework to conceptualise how politics is embedded in adaptation. First, they argued that it is essential to enquire into authority, knowledge, and subjectivity in adaptation processes (See Figure 2-3). First, the author defined Authority (Figure 2-3) as both formal power and legitimacy of institutions and organisations involved in adaptation like national and international governments, NGOs, and local government bodies. Power (Figure 2-3), in this sense, operates and permeates within and between these diverse spectrums of institutional authorities creating new knowledge and subjectivity. Authorities are contested, reinforced, imposed, accepted, and controlled by different formal and informal

actors through which different actors materialise their stakes, which can lead to social inequality in adaptation processes (Eriksen et al., 2015).



Figure 2-3: Interactions framing the politics of adaptation (Source: Eriksen et al., 2015)

Second, Knowledge (Figure 2-3) is the product of and means to construct power in global and local politics around climate change. Climate change is attracting business, advocacy, academic, corporate, and other interests from developed countries in the name of green and sustainable development and creating new knowledge (Beck et al., 2014; Hulme, 2011; O'Brien et al., 2015). Ayers (2011) termed this as the adaptation paradox, i.e., adaptation is essentially experienced as local, but the framing and meaning are primarily Western and expert driven. Therefore, many of the most vulnerable to climate change do not have to only deal with increased climate risks but also engage with external and contested domains of Western knowledge (Beck et al., 2014).

Third, Subjectivity (Figure 2-3) is described as a social process through which power functions in certain times, places, and contexts to create and differentiate diverse conflicting and converging social identities like “power over” and “the power to act” in adaptation. Subjectivity is the exercise of power to uneven social relations and identity (Eriksen et al., 2015). Unlike governance that focuses on uniformity, subjectivity is political and allows people to think, posit and work heterogeneously. Therefore, the same climate change regime may be accepted by some people but rejected by others. When this Subjectivity is combined

with Authority and Knowledge, climate change institutions, practices, policies, and economics interact mutually to produce new vulnerabilities.

Eriksen et al. (2015) expanded this theoretical base of Authority, Knowledge, and Subjectivity into four analytic propositions. First, all adaptation decisions, processes and interventions are embedded in arrangements of authority, affecting what decisions are taken, by whom, which interests are valued in decision-making, and the outcome of differential vulnerability. Second, authority and knowledge in adaptation are dynamic and self-reinforcing: authority is legitimised, reinforced, and challenged through the use of knowledge, and knowledge serves as a basis for challenging or asserting the legitimacy of authority. Third, new subjectivities emerge about climate change, with contradictory effects on power and vulnerability. Fourth, adaptation takes place in the context of existing, dynamic patterns of social relations in which subjectivities are reinforced, challenged, and transformed as a means of engaging with, controlling, and innovating in the face of change. Arnall et al. (2014) have similar views to Eriksen et al. (2015). They studied discourses on the politics of climate change in developing countries. They maintained that climate change, particularly adaptation, evolved as a physical phenomenon and became a cultural concept where politics and economics interplay. They argued that knowledge, power, and scale interact in the competition for adaptation resources, leading to hegemony over resource control. They also maintained the presence or influence of an expert scientific regime at international and national levels operating in adaptation, noting the contradiction that adaptation is widely considered as a locally practised phenomenon.

2.4.1 Bangladesh climate funds

As stated by Bhandary (2021), so far, 38 countries have created their local-level climate funds to take necessary actions against climate change. For example, government-based established funds have succeeded in the Philippines, Brazil and Indonesia (Nakhooda et al., 2015; Sheriffdeen et al, 2023). The development of such funding channels provides an extensive array of options that support the priorities and efforts of the country. If configured correctly, such systems' potential benefits can be huge and ensure that local-level funds contribute to adaptation.

In the context of Bangladesh, climate finance essentially refers to the flow of funds for adaptation programs and, to a limited extent, for mitigation and working programmes for sustainable development of the country against climate change (Rahman et al., 2016). Nevertheless, the Government of Bangladesh has established its pledge to undertake both mitigation and adaptation efforts as part of its sustainable development agenda (Rahman, 2021). This financial and technical assistance is mandatory for Bangladesh from donor countries if they want to combat the fallouts due to several climate challenges (Mills-Novoa and Liverman, 2019). Therefore, the government in Bangladesh has also been promoting mitigation efforts by running solar energy projects, reforestation programs in major climate hotspots, and programs to encourage the use of new technologies (Kibria et al., 2018).

Hence, the Bangladesh Climate Public Expenditure Review and Institutional Review was conducted in October 2012 by the General Economics Division of the Bangladesh Planning Commission. The proposed review analysed that the political, institutional, and financial arrangements of the groups involved in climate protection in Bangladesh have a notable impact and influence on the process of aid and funding (BCPEIR, 2012). Furthermore, while the review mainly focused on government financial policies and activities, it also recognised the role of civil society and international organisations.

2.4.2 Mainstreaming adaptation into national policies

Adaptation to be sustainable should be taken as a long-term process and mainstreamed into national development policies (Urwin and Jordan, 2008; Ayers et al., 2014). Drawing on policy directives of Britain, UNDP, and the EU, Urwin and Jordan (2008) showed that to integrate mitigation and adaptation activities in national policies and identify spaces where conflicts and barriers arise. Though adaptation is philosophically different from routine development activity, it is often not functionally different. For example, education, healthcare, and agricultural extension are adaptation needs for vulnerable people as well as normal development activities. Taking the case of Britain and Norway's adaptation program, Urwin and Jordan (2008), found remarkable conflicts and differences in coordinating local bottom-up and top-down central institutions. The existing EU policies, including those of Britain, were formulated long before the climate regime evolved. The policies of climate and non-climate

sectors were not well designed to facilitate the integration of adaptation in mainstream development and economic policy.

Sova and Schipper (2019) argued that among the LDCs, many countries had made some initial progress identifying adaptation needs like the NAPA in some sectors and have been implementing some programs but have lagged in mainstreaming these adaptation needs at national policy levels. In a study regarding Bangladesh, Ayers et al. (2014) presented a four-step framework for mainstreaming adaptation into national policies, which includes- first, raising awareness and building scientific capacity; second, targeted information and training to policymakers, planners, civil society, research community; third, pilot activities on adaptation and mitigation involving governments, private sector, and NGOs; and lastly, mainstreaming adaptation in national and local planning. The authors identified many challenges like inadequate institutional capacity and coordination among ministries and other agencies, interruptions inflows of funding, delays in fund disbursement, brain drain of trained officials etc., for achieving the desired outcome. However, they argued that Bangladesh had made significant progress in all four steps mentioned above.

2.4.3 The political economy of adaptation in Bangladesh context

Alam et al. (2011) found political economy factors in Bangladesh, along with international actors, in the post-Aila and SIDR (an extremely strong tropical storm in Bangladesh in 2004 and 2007, respectively) adaptation activities and in framing the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) and National Adaptation Program of Action (NAPA). They examined how the bureaucratic, political, civil society, donors and World Bank are engaged in controlling the authority over the fund and in policy formulation. In addition, an international donor, the Department for International Development (DFID-UK), wanted to use the World Bank to have control over the pledged adaptation fund, whereas Bangladesh argued to have direct access without any intermediary, supported by (Dhakal and Mahmood, 2014). Alam et al. (2011) showed how the role of line ministries changed, and the debate between adaptation versus development was echoed in Bangladesh and worldwide. Studies by scholars including Dhakal and Mahmood (2014) and Mahmud and Prowse (2012) investigated the efficiency of Multipurpose Cyclone Shelter (MCS) projects and relief activities

after devastating cyclones Aila and SIDR. However, it is vital to note that since these activities transpired after the disaster had occurred, they can be termed as damage control processes rather than adaptation processes. Both studies discovered corruption and anomalies in planning and implementing MCS. Dhakal and Mahmood (2014) revealed counterproductive findings like 'maladaptation' by the MCS management committee and also by the locally elected MCS committees. Maladaptation means when the MCS does not serve the adaptation purpose but rather produces the opposite. The lack of sufficient capacity for shelter, as well as little to no maintenance and absence of female facilities, made the MCS maladaptive.

In their study, Mallick and Vogt (2011) revealed that MCSs were built in comparatively better locations where influential people lived. In contrast, they were expected to be built in the most vulnerable locations. They found that vulnerable communities did not have the opportunity to participate in adaptation project planning and implementation processes. As a result, vulnerable communities showed reluctance to take shelter in MCS in times of crisis. They also found instances of corruption in adaptation activities. Sultana and Mallick (2015) studied the post-Aila situation in coastal Bangladesh and described the impacts of disaster on the lives of poor people. They identified effective adaptation activities by local poor people, insufficient and haphazard relief and adaptation activities of government agencies, and a positive role of microcredit in building resilience. To them, a pro-poor long-term policy is required to create climate-resilient coastal communities. Mahmood (2010, p.103) elaborated on instances of corruption in which various adaptation activities, managed by corrupt officials, were only performed half-heartedly. Ayers (2011) conducted a case study on the formulation of the NAPA to investigate how vulnerable people participate in pre-adaptation processes in Bangladesh.

In Bangladesh's NAPA, coastal communities have been identified as the most vulnerable to climate change (Dewan, 2015). Extreme climate events such as cyclones, tidal surges, floods, river erosion, and salinity severely affect coastal livelihoods. Almost 80-90% of the coastal community depends on agriculture and fisheries. Therefore, the NAPA suggests multi-scale adaptation. Bangladesh piloted a CBA to Climate Change through Coastal Afforestation (CBACC-CF) as a priority project of the NAPA that is commonly known as 'Fish', 'Forest' and

“Fruit” (Triple F Model) (Ahammad et al., 2013; Nandy and Ahammad, 2012). In coastal areas, 59% of the land is used for agriculture, 13% for fisheries, and 11% for mangrove forests (Sovacool, 2018). Different livelihood pieces of training like agriculture, fish cultivation, tree plantation, and duck rearing were included in the project, as 70% of the land was affected by salinity. Before taking that adaptation program, a livelihood survey was conducted. The ditch and dyke system was designed for poor people to cultivate fish, produce fruits, and grow trees. Thus, this program was participatory and was argued to increase the income manifold. It gave insights that local ownership and access to resources and local institutions can make the innovative adaptation successful.

Sovacool and Linnér (2016) identified political processes in adaptation activities through the use of power in Bangladesh, i.e., through enclosure, exclusion, encroachment, and entrenchment. To them, enclosure means how powerful people grasp adaptation resources, exclusion is how vulnerable people are deprived of their rights, encroachment means acquiring vulnerable people’s resources for adaptation, and last but not least, entrenchment is the process through which vulnerabilities are exacerbated in lieu of their alleviation.

2.4.4 Participation of local people

Questions about the participation of vulnerable people in adaptation processes, from strategy design to implementation, have drawn significant attention in the adaptation literature, for example, Storbjörk (2010), Ayers (2011), Tompkins and Eakin (2012) and Dodman and Mitlin (2013), Reid et al. (2014). Community-Based Adaptation (CBA) has been a major focus area. By CBA, Reid and Huq (2014) meant “a community-led process, based on communities' priorities, needs, knowledge and capacities that empower people to plan for and cope with impacts of climate change” (p.291).

Many researchers, such as Younus (2017) and Masud et al. (2021), have highlighted community participation's functional and normative merits. Some of those studies also evaluated CBA projects. Sultana and Mallick (2015) argue that adaptation is a micro-level process that depends on specific contexts (time, space, and body). Its success depends on how vulnerable people are receptive to adaptation initiatives. They find that adaptation

brings better results when the people are engaged with it in their social settings and allowed to apply their earlier experiences from hazards and emergencies, such as coping strategies, traditional skills, and local environmental knowledge, in reducing the impact of hazards. The authors also underscored that adaptation is need-based, but the needs should not be externally defined or imposed but rather accepted and owned by vulnerable people.

Barrett (2015) compared decentralized and devolved structures of adaptation finance allocation in Kenya. He found more beneficial outcomes for vulnerable groups when devolved institutions ensured participation rather than decentralised frameworks. In this case, decentralization could not ensure effective community participation. Decentralization in Kenya meant that adaptation financing was delegated to the local government institutions where the political and cultural settings were alike the national or central government. In contrast, Ensor et al. (2018) have stated that the devolution ensured participatory and needs-based allocation of adaptation finance and allowed local vulnerable people to assess their own needs regarding climate variability and change.

In addition to this, Anderson et al. (2014) described the need for constructing “common pool resources” through the effective participation of local people in adaptation procedures. Rawlani and Sovacool (2011) investigated the outcome of a community adaptation program through afforestation in coastal Bangladesh and found positive results in generating resilience and strengthening the institutional adaptive capacity of government agencies. In addition, since the 1960s, Bangladesh has planted more than 1,400 hectares of mangroves under a community adaptation program (Forsyth, 2017). The community adaptation program includes 9,000 hectares of mangrove afforestation that have increased Bangladesh's carbon sink capacity by 637,200 tons per year and profited more than 20,027 coastal residents via professional diversification. This is one of the key factors which has been completed successfully under the community adaptation program in Bangladesh (Shammin et al., 2022). In addition, this program supports ensuring sustainability through mitigation and adaptation measures. It is implemented in fragile coastal areas of Bangladesh, where the severity of climate change exacerbated by storms is relatively high. As part of this project, mangrove plantations were established to shelter and protect exposed coastal areas exposed to

cyclones and strong storm surges. Therefore, to enrich and maintain coastal vegetation, the project introduced a few commercially imported mangrove species into the area (Nandy and Ahammad, 2012). Lastly, Younus (2017) has researched the feasibility of CBA in Bangladesh regarding relief and rehabilitation and recommended that CBA could be a sustainable solution to corruption and inefficiency in adaptation.

However, some studies critique CBA. For example, even the very notions of community, adaptation, vulnerability, and participation that CBA applies to include heterogeneity, ambiguity, and contestation, are subject to dominant socio-political power relations (Adger et al., 2007; Nielsen and Reenberg, 2010; Baker et al., 2012; Cannon, 2013). These issues might undermine the success of CBA. In particular, Regmi et al. (2016) studied CBA in Nepal. They found that socio-political complexities discouraged and obstructed effective participation and, therefore, suggested the devolution of adaptation frameworks to ensure effective participation. Other experts like Dodman and Mitlin (2013) suggest that community participation usually articulates the immediate needs or urgency without grasping the technical aspects of climate impacts and underweight the long-term needs. Conway and Mustelin (2014) drew experience from adaptation projects to recommend achieving effective and wide-level participation, including vulnerable groups. They promoted the need for experts, knowledge brokers and periphery organisations to be included in CBA consultation processes. The illustrated examples where youth and children's participation were encouraged in the Pacific to build better resilience.

2.5 Patronage and clientelism

Patronage and Clientelism, as the words, inherently mean function in or appropriate for those political or socio-economic systems where there is a lack or absence of good governance and/or democratic norms. Patrons literally mean a form of alternative government or authority that provides public or private entitlements or benefits or rights and security or favours to some people to make them loyal or blind to it. On the other hand, clients being deprived of getting those entitlements either from state or family inclines towards the patrons and make themselves subservient or loyal to the patron.

There is plenty of scholarly literature on patronage and clientelism in different aspects: where does it take place, how does it function, and how does it develop or transform? Clientelism overall, and specifically political clientelism, is a deeply rooted political behaviour, and therefore, modifications to official political regulations are merely secondary effects and lack the ability to modify the fundamental structural patterns. This viewpoint proposes that the rivalry among politicians that emerges from shifts towards democracy, primarily driven by the necessity to secure voter approval, actually amplifies the occurrence of political clientelism (Springborg, 2017). In addition to this, the subject of economic development that limits clientelist politics presents an intriguing area for exploration. Existing literature that examines this connection tends to concentrate primarily on vote purchasing, leading to theories that underscore the significance of diminishing levels of poverty and the expansion of the middle class. It's generally observed that clientelism is less pronounced in rural areas, whereas it thrives in relatively prosperous provincial capitals that rely heavily on the state. Berenschot (2018) contends that the concentration of economic control contributes to the prevalence of clientelism, as it suppresses open public discourse and hampers the efficient oversight and regulation of political and business elites.

On the other hand, clientelism vote mobilization stands out as a significant electoral strategy in numerous democratic nations and regimes characterized by electoral authoritarianism. Nevertheless, the comparative analysis of this practice, which involves trading personal favours for electoral backing, remains notably lacking in development. On occasion, it's possible to effectively draw comparisons regarding the nature of the networks that facilitate this exchange, the rewards politicians provide in return for votes, and the extent of control politicians, particularly political parties, exert over the allocation of state resources. These comparisons result in the recognition of distinct categories of patronage democracies, particularly those centred around communities and those centred around political parties (Berenschot and Aspinall, 2020). Through sharecropping or a wage payment system, the farmers are forced to take out loans from the landlord to alleviate great economic difficulties in areas with an intense rural populace where landowners have a monopoly on the labour market, like Brazil's northeast sugar region (Rodríguez, 2018).

Scott (1972) denotes a patron-client relationship as a sophisticated exchange between roles and relationships. It is a relationship involving a patron who is typically an individual of higher socioeconomic status who uses their resources and power to influence and favour. The patrons may also provide protection and benefits to the client or both. It is interesting to note that when patron-client systems are not exclusive to Southeast Asia and are widely observed, especially in Latin America, Africa, and less developed regions of Europe, examining these structures could hold broader significance for comprehending politics within preindustrial societies. Equally important is evaluating how patron-client relationships intersect with electoral politics, giving rise to distributional demands that frequently result in inflationary fiscal approaches and the susceptibility of regimes to revenue losses (Scott, 1972). On the other hand, the client is one of lower status and reciprocates by offering support, assistance, and even personal services to the patron (Okano, 2019).

Due to the advent of democracy and a right-based economic and political regime, the top-down authoritative relationship between patrons and clients becomes somehow reciprocal and political. The political systems looked at reducing socio-economic inequity and promised to offer equal rights and equity where there remained less scope for patronage and clientelism. But still, it works. Therefore, clientelism and patronage provoked important research methods that offered important theoretical developments that have evolved into complex and changing ethnographic fields, supported by Piattoni (2020). Piattoni (2020) also refers to the supporting evidence that shows the notion that clientelism can contribute to economic development.

During the 1960s, political clientelism and patronage emerged as major analytical concepts in political and social change studies. Political clientelism holds a firm position in party politics. In addition, political clientelism and patronage can be defined as a strategic process. Political parties and regimes transfer material goods and services to society's poor and marginal groups to secure electoral support and consolidate political power. Even with the advent of democratization and advancements in development, elites continue to endure in developing countries (Beg, 2021). In short, political patronage requires two parties: the patrons who can use their political power or influence to help, protect, or benefit another person, and a client

who benefits from the patron in exchange for political loyalty or some other service. This enables them to regulate the behaviour of elites, uphold their unity, manage executive functions, and counteract the influence of civil society (Lee, 2020).

How does political patronage work within the established inclusive governance or bureaucratic systems? Political patronage and clientelism have been defined adequately in Anne's (2021) study. Wang and Wissenbach (2019) also examined the recently introduced Standard Gauge Railway (SGR) initiative in Kenya. This paper delves into the influence of clientelism on large-scale infrastructure endeavours by evaluating the initiation and execution of a Chinese-funded and -built railway project in Kenya. The study suggested that the impact of clientelism on ensuring project management and governmental responsibility is varied and contingent on the inclusivity of the patron-client network.

By distinguishing between patronage, which involves the distribution of material resources for gain, and clientelism, which signifies a personalized power dynamic, one can illustrate how local political machines function as the fundamental underpinning of modern-day politics (Aspinall et al., 2022). On the other hand, it is also found from Weiss (2020) analysis that political patronage is the practice of allocating government funds as a reward for political support and electoral support. It is important to note that while research on hazards and vulnerability often illustrates the creation of risky environments, in-depth comprehension of state authority is frequently overlooked. Coates (2020) also uncovers connections between urban environmental management, state control, and the perpetuation of vulnerability. An executive or public authority helps the formation of political authority who become their patrons in return. Political parties also hold sway in administrative functions and campaigns centred around policies. As a result, parties transitioned away from depending solely on clientelism as a governing tactic in elections, the dispensation of policies, and bureaucratic matters (Kuo, 2018).

Some nations follow a political spool system in which the political patronage practice is normalised, and the party that wins the elections is likely to turn public services over to friends, family, and supporters to consolidate the patronage. Here the patronage offers

exclusive clients to form a popular mass capable of grasping political power at the expense of good governance. On the other hand, in situations where services were adequately institutionalized before reforms, the capacity of political parties to incorporate political patronage into service administration is diminished. Conversely, in cases where institutionalization is limited or absent, the presence of empowered or represented recipients serves as a safeguard against political manipulation (Kekez, 2018).

Political patronage is criticised for not bringing expected socio-economic development and reducing inequality. The patronage inherently is an exclusive process whether governance, as well as development, is inclusive. The relation and network that exist in patronage and clientelism are not considered prolific as they support and offer benefits to one end or those clients who have supported the patrons to attain certain power and authority. Connections are evident in election campaigns, particularly in how the interactions between candidates and voters are influenced by patronage and shaped by clientelism. Despite differences in environments and circumstances, two predominant themes consistently emerge: Firstly, the crucial role of patronage distribution as the prevailing mode of campaigning, and secondly, the significance of informal clientelism networks of intermediaries in propelling local campaigns (Tomsa, 2019).

Within international dynamics, various institutional frameworks and interactions have been prevalent in many parts of the world and in different forms. For instance, Kutlay (2019) mentions about the effectiveness of the Greek state was shaped by interactions between actors and institutional frameworks within the context of domestic and international dynamics, following a path-dependent trajectory. On the other hand, situations which are unprecedented also play a role in a similar spectrum. For instance, Prasetyono et al. (2020) present research that intertwines the COVID-19 situation, revealing that the patron-client relationship between the village head and residents remains robust. The village head serves as both the formal leader and the informal guardian, playing a pivotal role in protecting the village during the pandemic. On the other hand, conflict plays a role in intensifying corruption due to the erosion of state institutions and the disruption of checks and balances in periods of political turmoil and conflict. Instances of political instability and conflict provide

opportunities for corrupt individuals and networks to broaden their scope of control and exploit their granted authority for personal benefit. However, environmental clearances serve as crucial regulatory mechanisms that enable governments to direct the allocation of public goods and address negative externalities by overseeing harmful impacts and distributing benefits from project developers. While some experts argue for central governing bodies to oversee environmental approvals for significant ventures, in developing economies characterized by inadequate formal institutions, local politicians still retain the ability to exert influence over this procedure (Kopas et al., 2021).

How do patronage systems work with voting or democratic cultures? In a democracy, it is theorised that voters rationally evaluate the political leaders, keeping little space for political patronage. But Kutlay (2019) and Vij et al. (2018) found two categories of clientelism voters who are well-defined by Tasnim (2021) that loyal voters are not influenced by the different blandishments made by the other parties or patrons. Loyal voters entirely support their parties irrespective of the rewards or benefits. Moreover, opposition voters are the other type. Studies such as AMATA (2018) and Momand (2019) depicted that opposition voters are difficult to persuade. In addition, opposition voters do argue and, at the same time, react to extreme versus moderate policy positions. Therefore, both types have been seen to be involved in patronage and clientelism. It is further noted that there are many types of strategies implemented for electoral support, like swing and core voters; however, in the proposed work, the core voter is discussed by the researcher (Pagdhare, 2017). This is because swing voter strategy is critical and different from core voter strategy. It shifts the votes of a particular group in favour of another political group. Swing votes usually occur when the patrons manipulate or try to influence the voters by providing the beneficiaries, they require the most (Bayer, 2018).

In addition, the core voter strategy, defined by Kopas et al. (2021), where the author addresses that core voter strategy has been considered different in ideological methodologies and traditional views. It is the most used and incorporated strategy under electoral support, patronage, and clientelism. Studies like Auyero and Benzecry (2017) and Vij et al. (2018) have shown that core voter strategy has influenced more votes. Many voters vote anyway,

independent of the rewards and benefits. They are the loyal voters who continue to provide their support and efforts for their patrons (Nichter and Peress, 2017).

Moreover, Grindle (2016) has highlighted many incidents where political parties invest more in a certain group using the fundamentals of clientelism to gain the highest votes and secure their position in politics. In Bangladesh, examples of such stances can also be seen either at the time of the independence from Pakistan or in the cases of fortifying the reign of a certain politician (Huq, 2016). Therefore, many target the major problems in a particular area and mitigate those problems before the elections. By doing so, votes are being changed in their favour. Usually, the lower middle class of society is targeted where poverty, unemployment, illiteracy, and infrastructural issues prevail the most. Nonetheless, this strategy has to be implemented in ways that will not fail and will be successful. Through this research, this lens that is allied to patronage and clientelism, as well as voters, is used that would help to understand the influence and persuasion of patrons, via their actions, about how clients could be influenced to obtain future votes concerning Bangladesh.

2.5.1 Patronage: Conceptual framing and relevance

To gain electoral support from the core supporters, goods and services are reallocated to people who do require them, affecting the entire system for their benefit. Hence, in the proposed research, such areas have been explored and investigated profoundly and adequately. The relationship pattern between the patrons and clients plays a massive part in distributing resources and benefits. Materialistic needs and security influence the support of the clients for the patron. Moreover, this is being manipulated by the other party, the patron. Therefore, the research used the patronage concept understanding in the context of Bangladesh as this country has been the key focus of the entitled study. The researcher has used patronage to posit cases of several climate change projects in the Charfesson area and their overall implication on the extent of adaptation needs being met. Theories of clientelism and poverty are internalised in the study through a connectedness that is both applied and observed. The class differences usually influence the support of the clients largely. The lower middle class of society are typically manipulated more than the upper class (Scott, 1972). The lower middle class is deprived of the necessities. As a result, they are more exploited by the

leading parties. Due to extreme poverty, patrons can influence them with worldly goods and swing the votes in their favour.

The research underscores the inherent systemic correlation between patronages influenced by clientelism within the political estate. Existing theories, such as those proposed by Eriksen et al. (2015) and others that have been discussed in this review chapter, help to understand political clientelism in adaptation and development sectors, which ought to be climate change projects meeting the needs of the poor and vulnerable. To test the theories of subjectivity, whereby the perception of implementers is analysed, i.e., the understanding of whether what patrons believe to be real climate change problems posing risks for the poor addresses their inherent vulnerabilities or not, the research addresses its respective indicators. Understandably, institutions and organisations relevant to climate change adaptation are diverse. This aids in framing the realities in Bangladesh that power operates in different formal and informal organisations and between various actors of different scales. The debate relating to management has been used in this research to discuss climate change politics and realise how processes can be mediated through influence and negotiation. The following idea will help to understand many things: including whether climate change priorities have been well kept in mind, whether the priority areas that address climate change under the Bangladesh Government strategy papers have been maintained and managed, and whether they have somewhat been distracted due to the inclusion of power. The level of governance has also been tested through this lens. Finally, it gives a clear understanding of the influence of support in implementing projects meant to serve the poorest and vulnerable.

Auyero and Benzecry (2017) argue that clientelist politics are deeply ingrained in everyday life, and the behaviour of loyal clients should not be solely attributed to logical decision-making or normative behaviour. Instead, their actions are influenced by a clientelist habitus, a set of cognitive and emotional political tendencies formed through ongoing interactions within close circles associated with brokers. If clientelism hampers efforts to promote democratic governance, adjustments are necessary for fair and rule-based political systems (Grindle, 2016). In the context of Bangladesh, enduring patron-client relationships carry more weight than brief broker-style connections, influenced by the prevailing socio-political culture

(Huq, 2016). The dominance of patron-client ties depends on the specific socio-political context of each community (Huq, 2016).

To effectively address the impacts of climate-induced migration, Bangladesh requires a comprehensive spatial planning approach that evaluates vulnerabilities and potentials in specific regions and urban centres to mitigate migration effects (Rana and Ilina, 2021). International humanitarian aid is vital after natural disasters in low- and middle-income countries. While aid distribution can be influenced by donors' foreign policy goals, recipient countries' power dynamics need further exploration (Bommer et al., 2018). Inclusive adaptation planning faces challenges nationally and locally. Climate measures often encroach on resources like village property, public lands, and communal spaces, inadvertently reinforcing class and ethnic inequalities. This can trap marginalized individuals in a predatory patronage system, exacerbating human insecurity and conflicts. Planners must be aware of the negative impacts on marginalized groups and work to eliminate such practices (Sovacool, 2018). Conversely, the state often fails to deliver social benefits effectively (Hagene, 2016), and the poorest individuals are vulnerable to urban patron-client relationships (Walters, 2021).

Nugroho and Windyastuti (2021) demonstrate that political communication between village heads and community members forms village communities (clients), orchestrated by village heads (patrons) for material and non-material motivations. These motivations include the leader's authority, charisma, and benefits exchanged for political support. Evaluating political progress in emerging democracies relies on achieving democratic governance, promoting citizen engagement, transparency, accountability, and fair resource distribution (Kungu, 2020). In Bangladesh, power dynamics often revolve around patron-client interactions, sustained by moral closeness and personal connections (Ruud, 2019). "Political clientelism" describes modern connections between leaders and the impoverished in Latin America, involving goods and services exchanged for support (Auyero, 2001). It's a consensual agreement characterized by personal bonds and exchanges benefiting both parties (Hilgers, 2009). Recently, efforts have focused on integrating climate change strategies into social protection systems, but limited knowledge exists about integration and mainstreaming

processes (Kundo, 2023). International climate adaptation funding is increasing, but concerns arise about aiding the most vulnerable. Power dynamics affect access to benefits, contributing to inequality in international adaptation initiatives (Browne and Razafiarimana, 2022). Tasnim and Tasnim (2021) explore political frameworks' impact on civil society's vigilant role, including elites, patron-client relationships, and political parties. These structures influence civil society's strength, interconnectivity, political dynamics, and democracy (Stokes et al., 2013). Clientelism involves parties providing advantages in exchange for votes, driven by consequences more than goodwill (Abinales, 2020). Vote-buying in the Philippines highlights competition and transactional nature, empowering voters through bidding competitions (Abinales, 2020).

2.6 Theoretical Premises of the Research

The research aims to apply the relativity of knowledge among the vulnerable communities whether the clients have clarity in differentiating developmental acts with adaptation, which tests the theory of knowledge and subjectivity by Eriksen et al. (2015). The theoretical base of 'Authority', 'Knowledge', and 'Subjectivity' in various discourses shows that climate change adaptation's political economy is theoretical and applied. The following section will elaborate on the theoretical premises of the research. Several theories have discussed political clientelism, patronage, political economy, and governance issues, all of which will be helpful in understanding their emergence and existence in climate change projects and initiatives. As introduced earlier, political economy analysis focuses on unpacking power arrangements in an operating environment to understand how change occurs and might happen. In some cases, the distribution of power and wealth between different groups of individuals, and the processes that create, sustain, and transform these relationships over time. Through a framework that takes political economy as its starting point, the research aims to understand who the significant political and economic actors and elites are and how they influence adaptation processes in Bangladesh. In addition, the work examines what power and authority actors possess to support an understanding of "power to" versus "power over". All this is to ensure that the development of decisions and projects can be consistent with the climate change conditions.

The proposed research employs these theories from several perspectives. Eriksen et al. (2015) examined the grey space of political dynamics of adaptation and proposed a three-dimensional theoretical and analytical framework to conceptualise how politics is embedded in adaptation. The idea of this research is to explore the types of ways knowledge can be incorporated into the climate change system, both from the client's side and that of the patrons, to serve the larger goal of meeting the needs of the most vulnerable. Knowledge is the most fundamental parameter to assess institutional gaps and the influence of power and politics within such a setting. First, however, one must understand the difference between what ought to be done and what has already been done. Poor people have needs, more than once, to meet the basic demands, but their needs must be met under full affirmation that they realise their priorities and under what circumstances they will be fully met. Therefore, Knowledge, Authority and Subjectivity have been referred to in his work adequately. The Eriksen's framework is the main basis for understanding and linking this through political economy, focusing on patronage. Hence, all three framework elements have been explained in the following sections.

Context of Authority

The concept of authority, as defined by Eriksen et al. (2015) highlights that adapting to climate change draws attention to formal organisations and institutions at various levels that need legality to make decisions about environmental governance, as well as to some of the less formal contexts where authority for governance is recognised. Institutions are often understood as the "rules of the game" or referred to as norms, practices, and values that guide formal and informal organisations. Authorities are contested, reinforced, imposed, accepted, and controlled by different formal and informal actors through which different actors materialise their stakes, creating social inequality in adaptation processes (Eriksen et al., 2015). The research aims to look at the political economy of adaptation through the lens of authority. By authority, Eriksen et al. (2015) mean both formal power and legitimacy of institutions and organisations like national and international governments, environment departments, NGOs, and local regime bodies that administer vulnerability.

Understanding authority is also intertwined with managing resources and the environment's overall adaptive capacity (Bhuiyan, 2015). The use of authority and how it is contested provides a tool in this research to explain the mechanisms of existing inequities further. Authority helps mediate the long and tedious project approvals process locally. While a lack of information is excusable, knowledge insufficiency at such expert levels is not. Hence, if this is being done on purpose with an intention that deviates from what ought to be, the patron's knowledge of climate change is not coming to full use. Moreover, there are political and executive authorities in the climate change adaptation regime in Bangladesh, where the political overrides the executives through political patronage.

Context of Subjectivity

Eriksen et al. (2015) have also defined subjectivity as helping us link the exercise of power with unequal individual, agency and social relationships. Instead of focusing on the ability to act, the subjectivity concept is important for the relative emergence of the exercise of power through discourses and dominant practices and, ultimately, for the internalisation, resilience, and reproduction of these practices and discourses.

Eriksen et al. (2015) also quoted that individuals and groups are often unconsciously subverted to hegemonic cultural codes and practices that shape their recognition by society and often reflect inequalities based on gender, class, race and other categories of social differences, geographic location or disability. Subjectivity is described as a social process through which power functions in certain times, places and contexts to create and differentiate diverse conflicting and converging social identities like "power over" and "the power to act" in adaptation. Subjectivity has also been referred to as the exercise of power to uneven social relations and identity. Unlike governance that focuses on uniformity, subjectivity is political and allows people to think, posit and work heterogeneously. Hence, the same climate change regime may be accepted by some people but rejected by others. When this subjectivity is combined with authority and knowledge, climate change institutions, practices, policies, and economics interact mutually to produce new vulnerabilities. In this research, 'Subjectivity' theory will help explain what is observed, help

to provide a realistic understanding of context and understand interest and incentives and how they shape and constrain action.

The theory of subjectivity also helps to understand the several ways to address vulnerability and meet the needs of climate-prone communities. It is essential to understand the various forms of resistance and how the different civil society actions influence the politics of adaptation. This theory has a crucial influence on reframing the political understanding of adaptation. Therefore, the adaptation decisions, processes, actions, and interventions are quite embedded in the arrangements of subjectivity and authority. Henceforth, the proposed study uses knowledge and authority to be self-reinforcing and dynamic. Hence, it fits into various case studies and field samples of the research. It has also been kept in mind that new subjectivities are evolving and emerging about climate change. However, it has contradictory impacts on power and vulnerability. All these help to understand that adaptation occurs in changing patterns of social relations. Hence, adaptation is well coined as a socio-political process. This is exactly what will be taken as a basis through the estimated assumptions of the theories discussed in the research.

Context of Knowledge

As Eriksen et al. (2015) explain, knowledge is acquired from various sources, even though an asymmetry of knowledge can lead to several problems. Knowledge can be tested through perception analysis and finding the gaps between needs and demands in the climate-prone community. The practice of a patron who uses authority to approve climate change adaptation or mitigation projects nevertheless implements it for development purposes and to gain influence in their communities may be explained through knowledge asymmetry. It could be such that the patron lacks knowledge for which the differentiation between people's demand for adaptation and development becomes blurry to them. The theory of favouritism plays a critical role in viewing this concept, whereby one may allow a cluster of communities to benefit from another cluster that should have been focused on first.

The above framework will suffice in outlining a holistic knowledge understanding, authority, and subjectivity related to the existence of political clientelism in climate projects. That will help fully grasp the idea of patronage and the political economy of adaptation.

2.7 Patrons, Clients, Broker and Supporters: A netted relationship of Clientelism

To further understand clientelism, the relationship between patrons, clients and brokers must be understood clearly. For example, during the implementation of climate change projects, the patrons have a large role in bringing the funds to the locality (Gürakar, 2018). However, the implementing agency and intermediate bodies help realise these projects at the ground level, which has been argued by Klíma (2019) and Sigman (2019). Similarly, Muhtadi (2019) has also depicted a practice of attaining the projects' tender to meet the needs of the projects to be implemented in Bangladesh. However, it remains a matter to fully grasp how much of these projects truly serve the purpose of climate change. In Bangladesh, under clientelism, several activities for their benefit are operated, thus affecting the plans, policies, processes, and procedures required for tackling the climate and associated disasters (Sakib, 2020). Therefore, any development activity beneficial for the communities is not operated at the passable level. Thus, such a political facet has been considered the key stage that makes Bangladesh more vulnerable to the climate (Nichter, 2018).

While patrons want to satisfy a group of people for their vested interest, in return, the clients are obliged to return the favour in the way that the patrons demand (Auerbach 2018). In Bangladesh, such an aspect has also been explained with Lewis (2017) and London (2018) that in Bangladesh, a mediator plays the role of arbitrating the task flow from the patrons to the grassroots. These communities are called the broker's community who help implement the projects. Nevertheless, the mediation actions and measures adopted by the brokers are questioned on a substantial scale as they are considered to be influenced by the ins and outs of patronage and clientelism (Spater, 2019). It is also important to underscore that the research tries to look at whether clients are core supporters or swing voters for the electoral support of the patrons (Cruz, 2017).

The patron-client relationship is an intricate relationship that surrounds favour in exchange for a favour. The patrons have their full control on which they can exercise their power. There is a need to analyse how politics and power underpin the social processes that formal and informal institutions act. The research looks at how that may play out in climate change contexts. Power has been a widely conceptualised subject across social sciences and there have been various classifications to it (Eriksen et al., 2015). Power and politics shape how environmental and societal changes co-emerge, and intersecting those social relations through various actors, time and space is essential. This research also uses this framing to know the intersecting relationships and the ladders that follow between the ultimate power holder and the grassroots within a climate change adaptation framework in a vulnerable community setting.

2.8 Summarising review of the literature and theoretical premises

The theories discussed in this chapter emphasise adaptation as a socio-political process that can be studied through the complementary ideas of authority, knowledge, and subjectivity. This approach allows for a conceptual framing of adaptation politics, taking into account the adaptation needs within a community and considering the ultimate drivers of vulnerability. This research will examine projects or interventions aiming to address adaptation in the context of authority, knowledge, and subjectivities. While no one can determine whether adaptation trajectories will fully address the fundamental causes of vulnerability, this research asks who has knowledge and information and is authorised to govern and guide change.

Recent experiences with adaptation in Bangladesh report the presence of corruption and lack of coordination in post-disaster activities, building on earlier literature about the role of patronage and clientelism (Vij et al., 2018). However, no authoritative literature has focused on the design, delivery, and performance of native climate funds like BCCTF (Rahman et al. 2016). In addition, there is a gap in work on the political processes of adaptation and how they relate to ideas of patronage in Bangladesh, whether funds have reached the vulnerable people, or how the allocation decision took place. Given that in Bangladesh, resources are limited, and distribution requires some authority, power should not be misused, and

adaptation processes should not ignore governance mismanagement (Tanner and Allouche, 2011).

Authority, knowledge, and subjectivity recognize the importance of all actors in climate change adaptation efforts and are cognisant of how power and politics play a role in the space of vulnerability. These ideas potentially guide a pathway for creating social resilience and can play a role in bringing about social transformation. The literature, therefore, showed that the vulnerability of Bangladesh to climate change is well established. Furthermore, the issue of distributive justice and inequality has been discussed at the international climate policy level and described how the developed countries, bilaterally or multilaterally, agreed to channel funds to developing countries, including Bangladesh.

There is a broad spectrum of policy literature on allocation principles that emphasise the issue of equity in terms of targeting the most vulnerable people and the efficiency of fund use. Community participation in adaptation procedures has also been strongly promoted as a common ground for reflecting equity and efficiency in adaptation activities. However, the funding of BCCT has declined to suggest that there already are or may be problems ahead. Therefore, both academic and applied needs with reference to the subjective demands of the poor are needed to answer these questions to make informed assessments about how Bangladesh has undertaken a critical state-led adaptation process.

Chapter 3: Methodology

3.1 Introduction

This chapter will discuss in detail the methods used to gather and extract data regarding the research as well as obstacles that hindered the data collection and how they were overcome. An in-depth analysis will be provided regarding the various ethical issues that arose during the fieldwork as well as limitations to the approaches. Potential improvements are also identified in order to reflect how future research could be improved. The chapter also includes an overview of the study area along with its demographic characteristics, and the rationale for the selection of the study area and the sampling strategy used.

3.2 Study area selection and sampling strategy

The reason for choosing Bangladesh for the study was because it is one of the countries that is most exposed and vulnerable to the impacts of climate change (see literature review chapter). Having a range of low-lying coastal areas along with a comparatively high density of impoverished local population, researchers suggest that approximately a one-metre rise of the sea level would be enough to impact approximately 14.8% of the 162 million residents who live within the proximity of one-metre elevation (Rawlani and Sovacool, 2011, p. 846).

However, other climatic risks such as drought, flood and cyclones are also prominent, resulting in an increase in poverty and loss of livelihood. According to the emergency event database (EM-DAT) of the Centre for Research on Epidemiology and Disasters (CRED), there were casualties of human lives due to tropical cyclones - approximately 163,000 people died over the period of the last 30 years (1988-2018). Bangladesh also faced significant financial losses of US\$ 2.43 billion due to tropical cyclones, which is almost half of the total damages caused by all other natural disasters in the country during the same period (Ahsan et al., 2020, pp.2-3). Thus, this cyclone prone, climate vulnerable, coastal region was chosen for this study.

There is a cumulative total of eight administrative divisions in Bangladesh. Three of them, named Khulna, Chittagong, and Barisal, are located in the south along the coastal zones. They are appropriately titled coastal divisions due to their strategic geographical position that

exposes them to climate related disasters including cyclones, salinity, flood, tidal surges, and river erosion (Minar et al., 2013; Haque and Jahan, 2016). Hence, it is no surprise that BCCT has provided the highest portion of climatic funds to the coastal divisions since its inception in 2009. Among these divisions, it is Barisal that received the highest allocation of funds during the years 2014 to 2018, followed by Chittagong (BCCT, 2017). Therefore, Barisal is a suitable division for this study. Table 3-1 provides a comprehensive ranking of the three coastal divisions along with other divisions based on the amount of funds provided by BCCT in their relative order. Figure 3-1 shows the division wise distribution of total BCCT funded projects: Pirojpur, Bhola and Patuakhali districts under Barisal division received the maximum number of projects and so were chosen for analysis within the Barisal division.

*Table 3-1: Ranking of Coastal Divisions based on amount of funds received from BCCTF since 2009 (*calculations avoided for projects and funds allocated to multiple divisions) (Source: BCCT, 2017)*

Division	FY 2009-2018			FY 2014-18		
	Total number of projects	Total funds allocated (in mUSD)	% of total allocation	No. of projects	Funds allocated (in mUSD)	% of total allocation
Barisal	113	76.79	28%	80	43.00	41%
Chittagong	91	65.09	24%	42	15.21	14%
Dhaka	64	48.41	18%	32	13.90	13%
Rajshahi	43	17.60	6%	33	10.12	10%
Khulna	49	30.37	11%	29	7.85	7%
Rangpur	31	14.36	5%	20	5.07	5%
Sylhet	26	12.60	5%	17	5.52	5%
Mymensingh	22	10.03	4%	16	5.09	5%
Total	439	275.25		269	105.77	

Scoping visits were made to each of these three districts. Out of these Bhola and Patuakhali were chosen. The following criteria were considered: the chosen districts lie in close proximity to the Bay of Bengal. Due to this, they have relatively high exposure to climatic change disasters with vulnerable communities that are at high risk from climate change. These districts are categorised under the cyclone high-risk zone of Bangladesh (Figure 3-2). Along with being high-risk zones, they also receive a large amount of attention by both government

and non-government institutions. Nevertheless, a thorough investigation and assessment of the overall requirements of these vulnerable communities has yet to be fulfilled will allow the researcher to evaluate the extent of climate risk. These districts and their population have already experienced adverse effects in regard to climate change. The extent of their exposure will be measured by collecting data from sample communities. Each of the districts received BCCT funds and so the benefits of the funds can be assessed alongside their social and economic details.

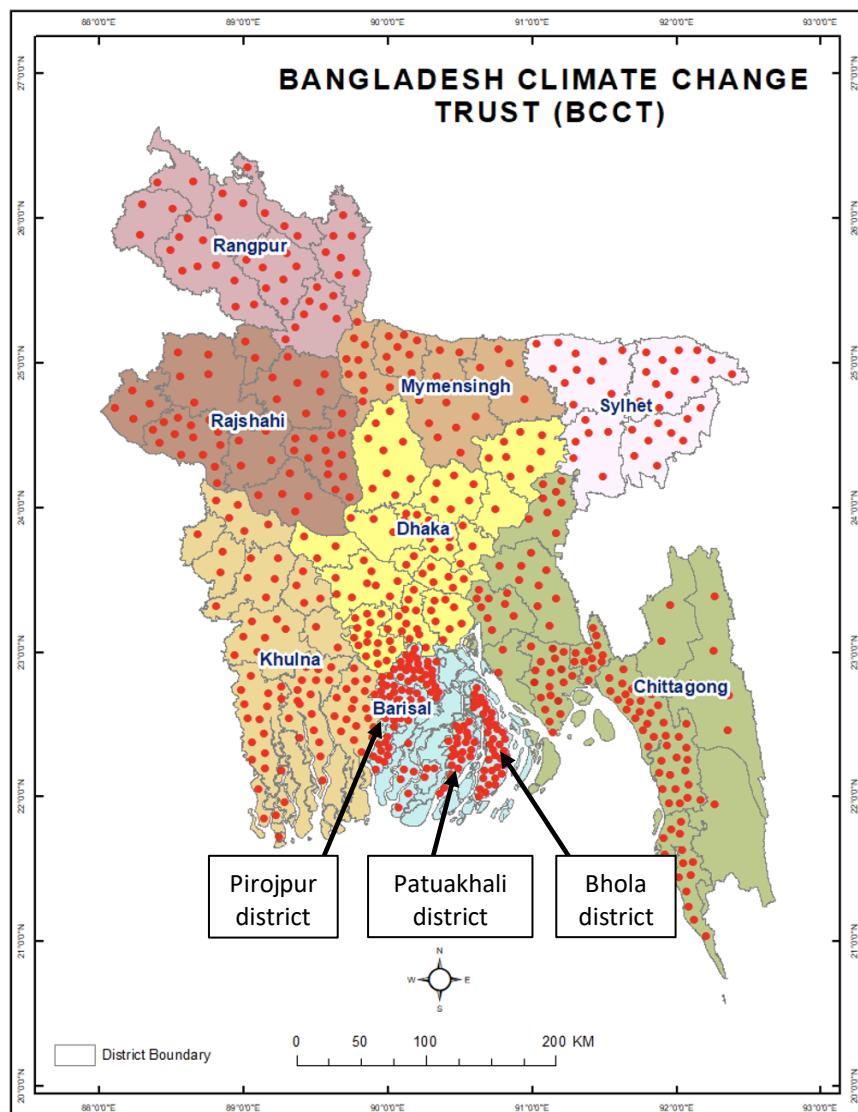


Figure 3-1: Country-wide distribution of BCCT funded projects (red circles) showing all divisions. (Source: Author illustration)

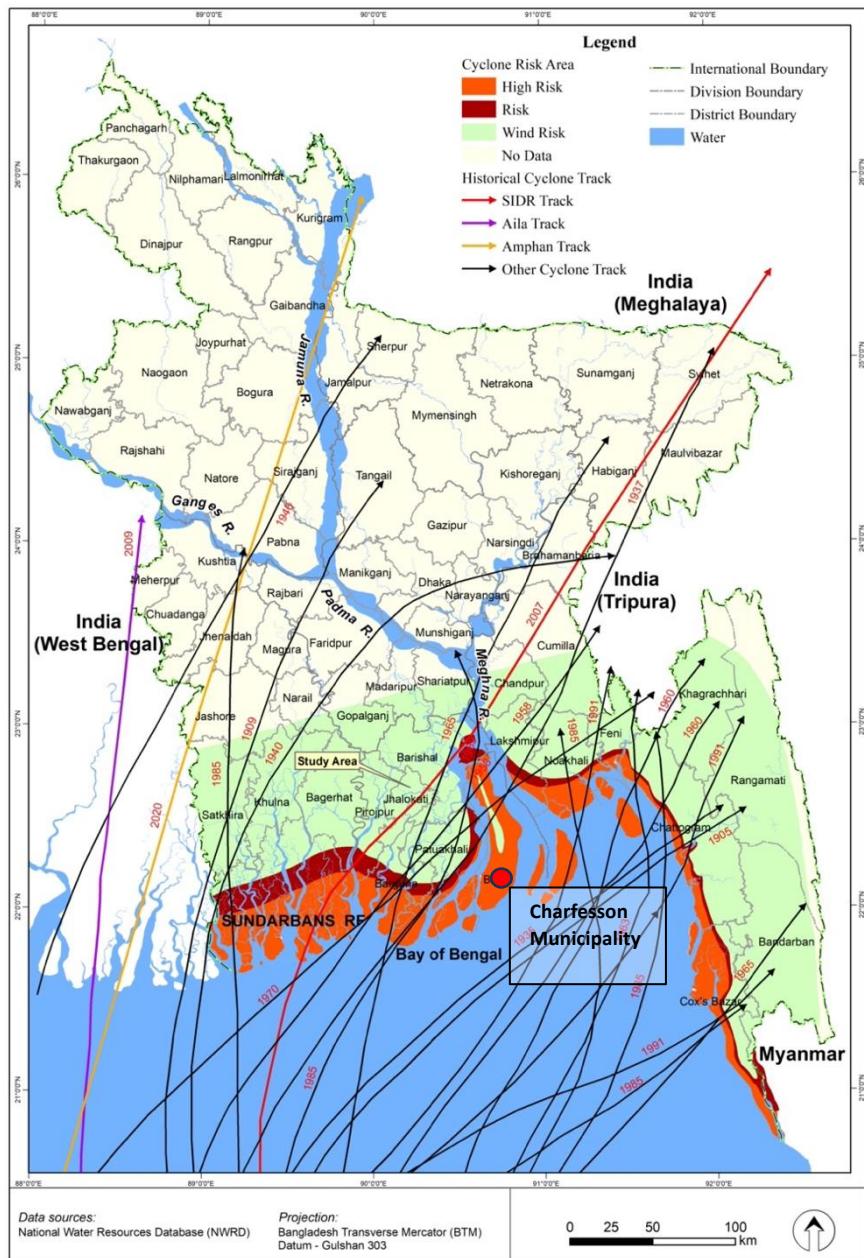


Figure 3-2: Cyclone tracks across Bangladesh. (Source: Banglapedia, 2021)

Local Government Institutions (LGIs) in Bangladesh are usually led by public representatives. They are categorised as Zila Parishad (District level), Upazila Parishad (Sub-district level) and Municipality, and Union Parishad (Union level, consists of 9 wards, lowest tier). Various municipalities take shape within the urban part of the upazilas (sub-district). The small municipality that was chosen within Barisal division namely *Charfesson* is well known for their vulnerability (Dasgupta et al., 2015) and the fact that they received the highest allotment of BCCT funds as compared to other municipalities of their respective district (BCCT, 2017). Figure 3-2 shows Cyclone tracks across Bangladesh and highlights that the coastal regions of

Bangladesh (that include the two districts mentioned above) are far more exposed to cyclones than inland areas.

3.3 Scoping of selection areas

Bhola, a district island where Charfesson is located, lies in the southwestern part of Bangladesh, being at the longest mouth bar island in the estuarine part of the Bay of Bengal. Bhola has received major attention because of the diversity in physiography and also due to the potential coastal resources from which a number of Income Generating Activities (IGA) could emerge, such as shrimp farming, crab culture, fisheries, and agricultural production.

Charfesson is a sub-district of the district of Bhola in the Barisal division. It has a population of over 63 thousand households and a total area of 1440 square kilometres with 21 unions and 68 villages. Charfesson sub-district has a total population of 5,18,817 people with almost equal fractions of males and females. The literacy rate is 67.62 percent (Population and Housing Census, 2022). Rising sea level and land erosion have affected the shape and size of Bhola since 1960.

This study focuses on adaptation activities in the coastal areas of Bangladesh, Barisal division. To finalise the study area for data collection, scoping visits were carried out in Charfesson in Bhola district. Approximately one week was utilised in each visit to examine the various adaptation activities undertaken to safeguard the coastal areas. The visits were valuable as they allowed ample time to critically assess the various logistical arrangements and the feasibility of data collection. Before the scoping visits, a draft questionnaire was prepared for local key informants, focus group discussion and survey. Four research assistants from a local university located in Patuakhali (Patuakhali Science and Technology University) were specifically chosen due to the fact they were majors in Environment related studies and had academic knowledge on climate related disasters, adaptation, and other related issues. Their awareness of the issue and knowledge pertaining to the surrounding areas of the districts were helpful in conducting the research, as they advised on the type and framing of questions for the interviewees.

A training workshop was held in order to train the research assistants on the methods of conducting interviews and gathering data by doing mock interviews with each other. These interviews were individualised and unique, based on the district in question where that interview would be held. Specific questions regarding the personal opinions of each interviewee were also included. These mock interviews benefited the assistants in the field, and their relaxed body language and careful consideration, which they had acquired experience of in the workshop, encouraged the interviewees to open up to them. By the time the scoping visits were officially underway, the assistants had a thorough understanding of each question and the ethical issues involved in getting respondents to engage with the interview and FGD. The key characteristics of the municipality, finally selected for primary data collection after the scoping visit, are given in Table 3-2.

Table 3-2: Key characteristics of Charfesson Municipality (Source: Adopted from field data)

Charfesson Municipality	
Name of the Municipality	Charfesson Municipality (Bhola district)
Population	41,562 (Population and Housing Census, 2022)
Area	19.73 Sq. km
Density	2173 per Sq. km
Literacy rate	83.09% (Population and Housing Census, 2022)
Religion (Majority)	Muslim
Major livelihoods	Small business, agriculture, fisherman, service, day labour
Land use pattern	Homestead, cropland
Crops	Rice, moong beans, chilli, peanut, vegetables
Climate stress	Waterlogging, changed pattern of season, salinity, cyclone
Key problems or needs (climate/non-climate)	Lack of drainage system, lack of drinking water, decreasing cultivable lands, landless people

3.4 Data collection

Multiple methods were used for data collection comprising both qualitative and exploratory methods. Secondary sources were used to provide quantitative data regarding the funding

amounts of the BCCT. Key informant interviews (KII) and focus group discussions (FGDs) were used to collect the primary data. An in-depth reading of the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) and BCCT Act, as well as numerous research papers, provided secondary data and insights. The data assessment period went back 30 years to give context to past climate events and livelihood transitions.

3.5 Primary data collection

The time period of main data collection was approximately three months between January and April of 2018 and another set of visits in January 2020. In this, a total of 95 surveys (a total of 100 out of which 5 abstained) followed by 25 KII and 13 FGDs were conducted. Approximately 33-34 surveys (total 95) and 4 FGDs (total 12) were conducted in each of the three sites. Another FGD was also done with the Executive Engineers who were involved with the formulation, implementation and monitoring stages of the climate adaptation projects in the study area. The subject of these interviews, surveys and discussions were vulnerable people living in the area as well as officials and public representatives who had existing knowledge of the research topic. The location of the first phase of fieldwork was the municipality of Charfesson in Bhola. The research assistants were spread out and visited residents' homes near the project areas to implement the surveys. Community managers, government and non-government fieldworkers, as well as union heads, were scouted to be part of the FGDs and requested to meet at a particular time, where facilitation and recording of the debates and conversations took place.

3.5.1 Key informant interviews (KII)

A semi-structured method was used for the KII as structured interviews leave little room for exploration of topics and to get really detailed insights. By employing a semi-structured approach in the interviews, one ensures that the interview acts as more of a discussion where the interviewee provides an in-depth self-narration to the interviewer. This enables the interviewer to stay on topic and simultaneously have enough room in the discussion to squeeze in new and pertinent questions to reveal useful information. The interviewee can give their own views and thoughts regarding the topic at hand, which is vital for a case study where such perspectives support deep understanding (Kurukulasuriya et al., 2013).

KIIs were conducted with 25 participants to examine local climate funds distribution across different regions and to obtain a wider understanding of the climate risks the residents of the coastal areas face on a regular basis and how BCCTF activities are (or are not) building resilience. The KIIs comprised BCCTF Trustee board member (n=1), Technical committee member (n=1), Climate finance experts (n=4), BCCT officials (n=5), LGI (Local Government Institutions) head (n=7) and miscellaneous local govt. agencies staff (n=4), and non-government local experts (n=3). The adoption of receptive interviewing methods allowed the interviewee the liberty to answer the questions however they wished, and by asserting control in the interview, they were able to provide unprompted information that otherwise may not have been divulged (Brinkmann, 2013; Wengraf, 2001). Because of the fact that all these interviewees enjoyed a position of power in their respective posts, it was important to sample their opinions. Guides were consulted on how to make officials feel relaxed so they could provide useful information.

While random sampling can be a useful data collection tool, it would hinder the process of KII where the keyword being 'Key Informant'. Random selections would not necessarily provide candidates who possess in-depth knowledge of the study matter or those who have positions of authority. These people need to be sought out by purposive and snowball sampling methods. It was especially difficult to access the heads at LGI. By accessing websites, their names and contact details were collected, and formal consent was taken by phone verbally, along with a fixed time of appointment when the interview could be conducted. By talking in the comfort of their own offices, respondents generally appeared relaxed and answered questions more readily.

All the KIIs were conducted by the researcher after following an in-depth interview guide. By asking neutral questions and invoking their opinions, the interviewees appeared relatively comfortable to talk. Interruptions were kept to a minimum as the flow of data would be affected. Each interview lasted about 45 minutes. The respondents gave permission for the recording of interviews. There were two different sets of interview topics/questions, one for the local public representatives and one for high-level govt. officials having experience in BCCT. Table 3-3 lists the main questions used to guide the interview.

Table 3-3: Prominent interview Questions for KII (public representatives)

Questions
<ol style="list-style-type: none"> 1. Please mention the five main challenges for vulnerable communities of this area at the moment? 2. If none of them are related to CC, please identify the main climate hazards of this area. How important are these compared to other challenges? 3. Do you think the adaptation projects implemented have met beneficiaries' priority needs for adapting to their vulnerabilities? How could the projects be improved? 4. In your opinion, in what way could the programmes for CC adaptation be best aligned with the overall priorities for development support of this area? 5. Do you think the funds are fairly distributed among the vulnerable areas? Which districts/ divisions/ areas are receiving the highest amount of funds? What is the reason behind that? 6. Do you think communities' opinions are being considered while selecting climate related projects? If yes, how? Do you think people's participation brings better results? 7. Do you think people have any influence in selecting or implementing projects in this area? Do you think this is also the case for adaptation projects? 8. Do you think the vulnerable communities of this area have sufficient knowledge about CC/CC impacts/adaptation? If not, is it affecting the adaptation goals of BCCT?

3.5.2 Focus group discussions (FGDs)

FGD is a peer-based discussion format and is a good way to gather people from similar backgrounds or experiences to discuss a specific topic of interest. Being critically effective tools where the opinions of stakeholders are concerned, they allow for an evaluation of issues that can be termed as having high importance to the groups themselves and the study. The FGDs allowed for discussion between various members of the community in categories of fishermen, farmers, day labourers, and women and elderly community members. A homogenous sample was used for each focus group, allocated in categories based on occupation, in order to evaluate the intensity of challenges each livelihood group faces. FGD

can provide detailed insight into local perspectives. Data was collected from three sites in Charfesson municipality. The sites were selected based on the locations where the most BCCT-funded projects (at least 3-4) were implemented and poor, vulnerable communities were located. Groups consisting of members ranging between six (6) and eight (8) from the vulnerable communities of the aforementioned municipalities were chosen. Each selected member was over 18 years of age, with the right of consent for themselves to be involved with the FGD.

The members were selected randomly. For randomization, the local VGD list (Vulnerable Group Development) of beneficiaries was collected from the website. Every ward has this list of poor people who get relief and other assistance from the government on a priority basis during any disaster period. Respondents who participated in the surveys were excluded from the FGDs. The sampling strategy of FGDs was designed to get people in similar livelihood groups in the same area and assess their collective opinion and how they perceive the experiences of others.

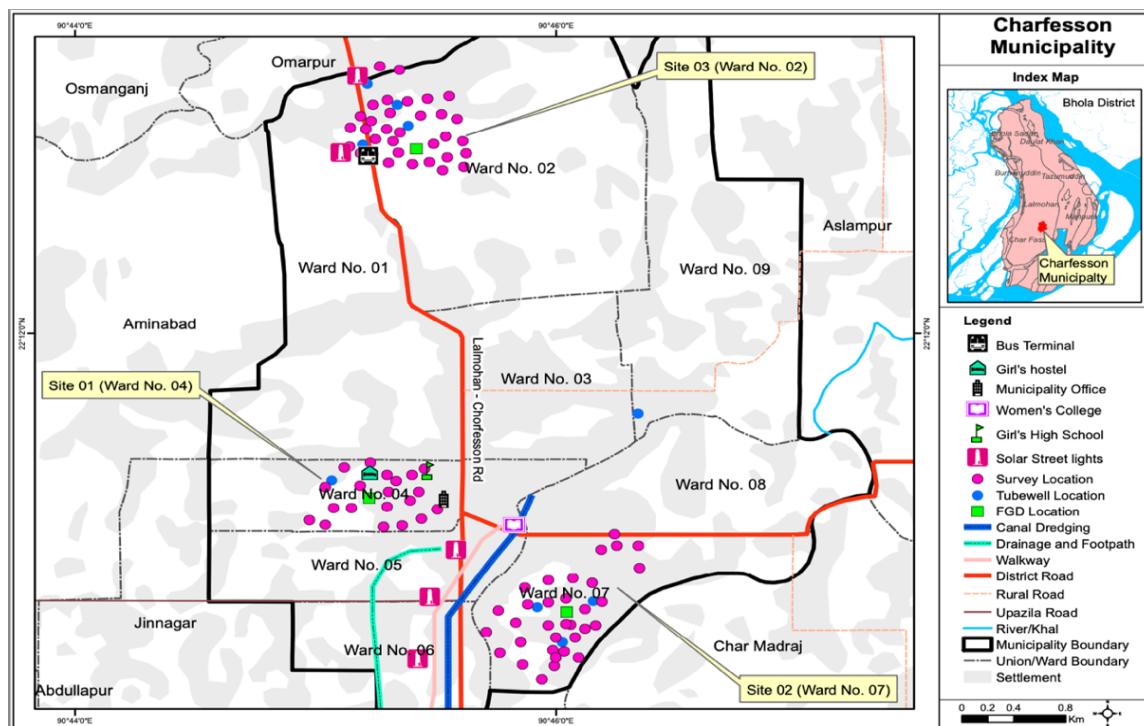


Figure 3-3: Data collection spots - Site 1, Site 2, Site 3 and the projects in Charfesson Municipality (Author illustration)

A total of 12 FGDs with vulnerable communities were conducted in the Charfesson Municipality. These were held in the ward centres, which offered the most practical communication site and convenience for the participants. The discussion lasted for 40-60 minutes, with members prompted to discuss their experiences of climate risks, present adaptive strategies, adaptation needs and the impacts of BCCT-funded adaptation activities. They also discussed any precautions that should have been taken by the coastal municipalities of Bangladesh to safeguard against cyclones, sea-level rise, and other significant climate change impacts.

Discussions regarding the political economy and the allocation and limitations of BCCT funds were also included. Various strategies and action plans were touched upon; however, it should be noted that the individuals were not professionals who did not have much exposure or access to statistics of damage, the causes of it and allocations of funds. Therefore, this aspect of the discussion was rather limited. The FGDs were homogenous groups i.e., separate FGDs for each professional group, in order to elicit more in-depth information regarding the various risks and experiences that arise from the main types of occupation of people in the area. The main FDG questions are listed in Table 3-4.

Table 3-4: Prominent questions for FGD with different livelihood groups.

Questions	
1	What do you understand by “Climate Change” (CC)? Do you feel that the climate has changed in your area? Why do you feel so? Does your occupation/ profession/ livelihood depend on climate? If yes, how?
2	According to you, what are the main aspects of CC variability, climate disaster/ extremes that affect your livelihood most? Please rank those according to the impact they have on you.
3	What are the major CC related hazards that happened in your area during the past 20 years? What are the losses/damages you faced due to these disasters/hazards? For which losses/ damages do you struggle the most and feel the need for assistance to cope? (Capital, equipment, food, shelter, water, sanitation, health, communication or other?)

4	How do you/your community adapt to these without support? What are the barriers you face to adopt these adaptation measures?
5	Do you think the BCCT funded adaptation activities are benefiting the poor and most vulnerable groups? If yes, how are these benefiting (in improving agricultural productivity and food security; protecting water, sanitation, and health; promoting livelihood; disaster preparedness; protecting the rural infrastructures and communications etc.)?
6	Do the adaptation measures assert sustained and long-term impacts on lives and livelihoods of the people? If not, why (bad planning, poor governance, not targeting the poor and most vulnerable groups)?
7	What are your suggestions to improve the appropriateness, effectiveness, and efficacy of adaptation measures by the government; by NGOs and others?
8	Were you/any of your community members involved in any stage of local adaptation activities (Planning, Implementation, Monitoring, and Evaluation)?

3.5.3 Surveys

Surveys were conducted with vulnerable communities in the Charfesson municipality of the Bhola District. The purpose of the survey was to compare and validate the FGD insights. It also opens an opportunity to minimise the gaps in information gathered through FGDs. The surveys asked questions regarding each individual's views about climatic change and its impacts on them and how the government is helping to improve their lives. Other questions were asked regarding the BCCT-funded projects and how much they individually estimate it has improved the lives of beneficiaries. Out of one hundred respondents, equal divisions were made between coastal fishermen (n=25), day labourers (n=25), conventional farmers (n=25) and randomly selected elderly and women community members (n=25). Later on, the number reduced to 95 as five of them decided not to participate. The aim was to capture the perspectives of the three main livelihood types and the two most vulnerable groups of people in Charfesson Municipality.

The survey respondents were selected randomly from the local ward-wise VGD list. A proper guide regarding the survey was prepared with guidelines about what can and cannot be

asked. The research assistants were trained by the lead researcher by providing explanations of each question and the need to obtain responses fully understood by the respondents. The data was recorded on paper and via electronic means using mobile devices. The collected data was then pooled and sorted into different themes.

3.6 Secondary data collection

In order to meet the required objectives, both primary and secondary documents were perused in order to extract data. The annual BCCT reports were helpful in obtaining exact figures of funding. They were then converted from BDT to USD. Other BCCTF project reports were also assessed. Data lacking in reliability (e.g., after cross-referencing and checking) during the research process was discarded. Survey statistics and Raw data were obtained from the BBS (Bangladesh Bureau of Statistics) regarding disaster and climatic change aspects of Bangladesh. Analysis of these data helps to triangulate the primary data obtained from the fieldwork.

Qualitative data, which included the relevant policies and laws enacted regarding climatic change in Bangladesh, was also analysed and used in the research. It included the following: Bangladesh Climate Strategy and Action Plan 2009, Bangladesh Climate Change Trust Act 2010, and Financial Guidelines 2012 alongside various miscellaneous project proposals, monitoring reports and government circulars. The BCCT website holds several documents regarding their acts and policies that anyone can access. By using multiple sources of information and triangulation, this research is able to achieve confidence in its insights.

3.6 Strategies regarding data analysis

The main analysis technique used for the qualitative data was thematic analysis to establish recurring themes within the data and categorise them accordingly. All audiotapes were organised in a file and numbered and then transcribed verbatim at the first step. Thematic analysis was done using N-Vivo software to analyse data collected through the FGDs, whereas the same method was followed but manually for KII data. The results of the quantitative data were analysed and presented in a visual format including tables, graphs, diagrams, and charts.

Comparisons of earlier years and recent years were conducted in order to provide an understanding of the trend in fund allocation.

This research used thematic analysis to establish connections across the pieces of information obtained from the related organisation and field, making full use of the advantage of qualitative methods in the social sciences (Bryman and Burgess, 1994, 2002; Denzin, 1994; Jensen, 1991; Marshall and Rossman, 1999; Morse, 1994).

While it is difficult to isolate the specific conceptual foundations of thematic analysis, the guiding principles are found in many other techniques, including grounded theory, frameworks, and others (Braun and Clarke, 2012). Thematic analysis has been the most common analysis form within qualitative research. It emphasises analysing, identifying, and interpreting meaningful patterns within qualitative data. Thematic analysis has been used to enable methodical systemization of textual data that facilitated the disclosure of information at each step in an iterative process of defining and refining themes (Corbin and Strauss, 1990; Glaser and Strauss, 1967; Bryman and Burgess, 1994; Creswell and Creswell, 2017; Denzin and Lincoln, 1998; Feldman, 1995; Miles and Huberman, 1994; Silverman, 1993, 2019; Ritchie and Spencer, 2002).

According to Clarke et al. (2015), breaking down the statistical data and categorising them into small parts allows the researcher to determine and assess the links that arise between them. Comprehension of these links allows one to establish bases and associate the data with the initial hypothesis, thus being able to reach an informed conclusion. Because of the nature of this data and its variability over time, thematic analysis was the most effective strategy to reveal the themes underlying the data (Clarke et al., 2015). The three stages of qualitative data analysis, namely coding, interpreting and presenting were allowed for the identification of unreliable data that were discarded.

Thematic networks also aim to understand an issue or how a topic is significant in terms of being an idea, without necessarily trying to reconcile conflicting definitions of it. It aims to address the themes that are in the text at various levels, trying to facilitate the structuring

and depiction of themes. Thematic networks also aim to conduct the extraction of lowest-order premises, containing categories of basic themes that may be grouped together in order to make a gist or summary of more abstract principles. In this respect, there could be another cluster of data aiming to look at superordinate themes that capture the principal ideas of research. All this information can then be illustrated by a network diagram.

A coding framework was devised that helped to dissect the text into text segments by categorising and assigning each type of comment, information and remarks obtained from the respondents. This coding helped to organise the type of statements they were making, and which cluster best described its category.

The next step was to identify the themes of the statements from coded text segments and refine the themes into coherent narratives. As such, the thematic networks were constructed, and the themes were arranged into organisational structures to illustrate the statements in step one to be categorised. These were done by carefully reading the text segments within the context of the codes under which they had been classified and abstracted from the full text (Vaismoradi, 2016). This was a helpful tool to allow reframing the text and looking at the identification of underlying patterns and related structures that follow within each theme.

Repetitive statements were carefully separated and the tone with which they were said was also noted. The patterns were then interpreted to bring together the deductions of the statement classifications and how they are linked to one another. These deductions were based on the relevant theory with which the research had been outlined (Chapters 1 and 2) in order to classify the significant themes, concepts, and patterns. The code also had descriptions as to what it meant along with the reference of the individual who stated those remarks within the codebook. For instance, 'information asymmetry' was a key area of observation for the research, along with the misuse of authority/power, lack of relevant knowledge, and fund shortages. Hence, while coding for related remarks, the statements were also categorised according to how many people talked about the influence of power and politics on climate fund distribution. Other codes included bureaucratic loopholes, vendor selection, preference for infrastructural projects, corruption etc. (see Figure 6-1).

3.7 Ethical issues

There were several ethical issues that arose due to this study related to utilising multiple research methods, each of which had its own ethical considerations. The participants of each section of data collection, semi-structured interviews, FGDs and KIIs were explained in detail about the purpose of the study and the methods being used to ensure anonymity. These participants were also informed that they have the liberty to stop the interview at any time they want. Further consent (both verbal and written) was taken from them regarding the recording of the interviews following LSE ethics protocol.

In regard to the KIIs, participants were informed how they were selected and the professional background search that had been undertaken to verify their key positions of authority. All the interviews were conducted at the convenience of the participants and the interviewees. The research assistants were also trained to uphold ethical values during the research. For primary data, participants were provided consent forms that held all the details of the research so they could consent or withdraw with a full understanding of the purpose and methods of the research. The forms were used to gain the approval of the participants for their involvement following the LSE ethics protocol. Furthermore, their responses and activities during the undertaken were kept strictly confidential to uphold their privacy. Also, the participants were assured that their names will remain anonymous, and they could refuse to answer any questions if they felt uncomfortable. In some cases, questions were rephrased for them to understand the question better for better output.

3.8 Study limitations

There were some operational limitations to gaining access to government data and information related to the research, with some reluctance and non-cooperation by the governmental officials in revealing the project data. The problems pertaining to the translation and conceptualization of local terms and statistics are challenging, and documents written in native Bengali language were translated through authorised and certified translators.

The researcher's positionality as a government professional was also an issue to address; being a Deputy Secretary to the Government of Bangladesh, the researcher had to disclose the designation, but participants were assured that the study was purely for PhD and the researcher was not on professional duty. Therefore, all the participants were allowed to express their opinions without being biased or influenced. Also, in the research design and analysis, the researcher's experience and professional aims were set aside to approach the work as neutral as possible.

There is also a question regarding problems relating to sexism. Gender bias may cause male respondents to feel shy and unable to disclose correct information to a female researcher. Conversely, female respondents may find it much easier to divulge information. Hence, there is a need to understand the traditions and local cultures and languages that would allow one to overcome gender or other sources of bias. The researcher's ethical values, along with self-alertness and consideration to accommodate these concerns, helped to overcome personal biases (Hollway and Jefferson, 2000).

Minor problems pertain to the data analysis factors, where there may be an over-assessment of recent climate conditions, which might disrupt findings. There are times when local people may overweight recent climate events (e.g., availability or recency bias) and make incorrect deductions about rates of change and trends (Chandler and Scott, 2011). A concrete example can be of recent drought or high temperature, and so the researcher was conscious of this problem and included further clarifying questions to triangulate findings.

There are language barriers observed during the course of this study; the local residents of Bhola and other districts speak the traditional dialect of the region, which can be difficult to understand and don't make sense at times. Being a government officer, I served in the Barisal division for almost four years. However, to ensure that no information gets missed out due to misinterpretation of the local dialect, it was required to select research assistants who were students from local universities, fluent in the local dialect. Another limitation was the temperature. Due to the intense heat, the activities to be undertaken were severely hampered and delayed because the team was not accustomed to the local climate conditions.

There were several tropical monsoon storms during the fieldwork, which slowed progress. The remoteness of the field area had low cellular and internet services available, making it difficult to establish long-term communication and overseas video calling with supervisors.

Chapter 4: Challenges and politics of climate fund allocation under BCCT

4.1 Introduction

This chapter analyses in detail the funding allocation process of the Bangladesh Climate Change Trust (BCCT) with consideration of challenges before and during the allocation process. In discussing the allocation and distribution of national resources, channels through which these disbursements occur are critical to be assessed. Each funding process varies depending on the political regime and mandate of a particular Trust, and hence it is imperative that the aims and objectives of funding bodies are considered in the analysis. Quantitative data collated from the BCCT and other government sources and results from the interviews with Key Informants (KIs) are used: top-level and mid-level officials from the BCCT, members of the Trustee Board and technical committee, Mayors, Upazila Chairman, Executive Engineers of implementing agencies (e.g., LGIs), NGO personnel and former BCCT officials are used to understand the allocation process. Emerging themes between the interviews are discussed and linked to the quantitative data.

The chapter takes a critical look at the funding profile of the local climate funds of Bangladesh implemented through the BCCT since its formation in 2009. By analysing various aspects of how these funds are distributed, along with which regions and ministries are getting specific proportions of the funds, insights can be gained about the overall challenges and efficiency of the fund allocation. Challenges include bureaucratic challenges and loopholes which hinder the effectiveness of fund allocation and distribution. Furthermore, funding allocation is examined with respect to vulnerability assessment considering the extent to which politics plays a role in the distribution of climate finance. Finally, the chapter reviews the suggestions which can help overcome the key challenges.

4.2 Funding process: From establishment to receiving funds and to disbursement

The BCCTF was the first national climate fund established by the Least Developed Countries (LDCs) and has been considered an example for other nations to institutionalise national climate finance (Das, 2017). The BCCT funds projects and programmes from the state budget, which are envisioned to help communities become resilient to and recover from climate change (Khan et al., 2012). The fund has been in operation in Bangladesh since 2010 and since then is managed by the Bangladesh Climate Change Trust (BCCT) and the government. BCCT has been funded BDT 2,900cr (roughly 300 million USD) in the first nine years, 2010-2016 (BCCT, 2019).

This section examines the funding allocation process under BCCT with remarks from two high-level officials (KI 7 and KI 9) who had been involved with the establishment of the fund since its inception. BCCT was established when coastal areas were struck by two major cyclones, “Aila” and “SIDR”, in 2006 and 2007, respectively. In Bangladesh, debate, policy, and academic-level research argued that the most vulnerable countries were entitled to compensation from international climate funds (Hedger, 2011). Given this, Bangladesh was likely to receive multi-billion climate funds (Smith et al., 2011). However, there were technical and institutional issues about how these funds would be mobilised, managed, and distributed. For example, questions about which entity would be responsible for the management of these large sums of money- multilateral organisations like the World Bank, regional organisations like the Asian Development Bank (ADB) or just bilateral agreements between countries. The Government of Bangladesh (GoB) decided to constitute a fund to draw the world’s attention to how Bangladesh was mobilising its own domestic resources and how it was necessary for the international community to come up with funding compensation. Therefore, domestic fund mobilisation through BCCT was to be Bangladesh’s own commitment to the fight against climate change and its impacts (KII 7 and KII 9, experts and former top-level BCCT officials).

Figure 4-1 shows the amount of funds received from the GOB and allocated through the BCCT since its inception in 2009. Within this period of nine years, it distributed a total amount of US\$300 million out of US\$320 million received from the GOB. The highest amount distributed

was in 2011-12, with the lowest amount in 2016-17. The yearly disbursement has varied substantially depending on the number of projects implemented each year. The number of projects shows a general increase up to 2015-16, with a sudden fall in 2016-17 and a slight recovery in 2017-18. Funds received have fallen significantly over the period. Analysis shows gaps between the amounts of funds provided by the government to BCCT and the total amount of funds distributed by BCCT. Early after its inception, despite the government providing US\$83 million for the first three years, the distribution of funds was almost 50% lower than the amount received. This happened even though section 10(b) of the BCCT Act 2010 states that 66% of the total money and the money accrued as interest on the remaining 34% deposited in the bank should be allotted to projects green-lighted for implementation by the Trust. The same pattern is observed in the following years, with large gaps between the received amount and the distributed amount.

Table 4-1: Fund Allocation, Regime, and BCCT (Source Author Illustration)

Regimes	FY	Amount of Funds BCCT Received (in USD million)	Total no of Projects	Sum of Total Projects	Total Allocation from BCCT (in USD million)
1 st Regime	2009-10	70	32	218	34.3
	2010-11	70	24		31.1
	2011-12	70	37		48.1
	2012-13	40	49		45.0
	2013-14	20	76		40.2
2 nd Regime	2014-15	20	87	293	38.5
	2015-16	10	103		28.5
	2016-17	10	44		12.6
	2017-18	10	59		18.5
	TOTAL	320	511		296.6

However, from 2013 to 2018, the government funding was significantly reduced, and the funds distributed by BCCT exceeded the funds provided. The number of projects increased, as by that time, more institutions like Local Government Institutes (LGIs) were aware of the Trust Fund and hence designed more relevant projects. The highest number of projects (103) were allocated by the Trust in 2015-16, followed by 87 projects in the previous fiscal year. Data shows that BCCT utilised its accrued funds to maintain a steady flow of fund distribution after the government started to cut their funding.

It is worth noting that the government's contribution to BCCT did not match with the increase in national income or GDP, as Bangladesh witnessed continuous growth in GDP of around 6.5 per cent over the period of 2009-2018.

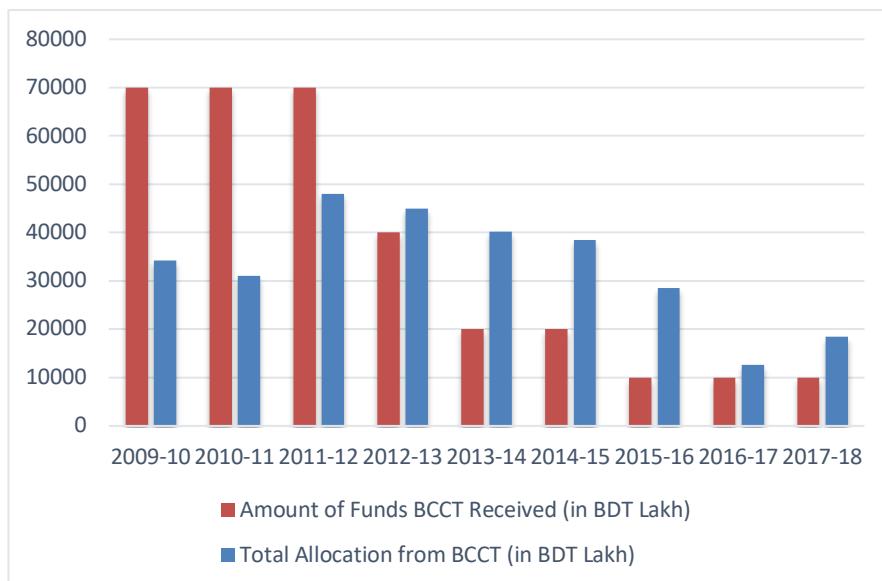


Figure 4-1: Amount of funds received and allocated through BCCT (in million USD)

(Source: Author illustration, supported by BCCT, 2019)

4.2.1 Politics of fund distribution – Geographic, thematic and sector-wise allocations

The money from the BCCT was channelled to various geographical zones of Bangladesh in an uneven manner (Figure 4-2). A division-wise allocation of funds portrays that Barisal and Chittagong divisions received the most, US\$77 million, and US\$65 million, respectively, out of a total US\$278 million (excluding funds allocated to multiple divisions), followed by Dhaka taking US\$48.6 million. Barisal received 26% of the total fund amount, Chittagong 21%, and Dhaka 14%, together receiving over half the total allocated funds.

It should be noted that Bangladesh has 8 divisions (Chittagong, Dhaka, Khulna, Rajshahi, Rangpur, Barisal, Mymensingh, and Sylhet, in descending order of area); where Chittagong, Khulna and Barisal are coastal. The KIs and the fund's finances show that there is a scarcity of resources compared to the huge demand. The overall BCCT funds (US\$300 million) are so small, relative to overall government disbursements and the potential needs of vulnerable areas and people, that systematic selections based on prioritisation may be impractical and

unrealistic. The Trustee Board has to reject many projects due to a shortage of funds, even though those would be very effective for enhancing resilience. The following statement from KI 9, a former BCCT official shows that there is too little money to be selective of initiatives: *“We allocate two pence where a pound is needed. There is no point in such a pick-and-choose. If we had more funds, we could select precisely. We have such an insufficient allocation from the government that we have no choice other than to eliminate many projects”* (KII 9, a former top-level BCCT official, currently working in a non-government fund implementing agency, PKSF).

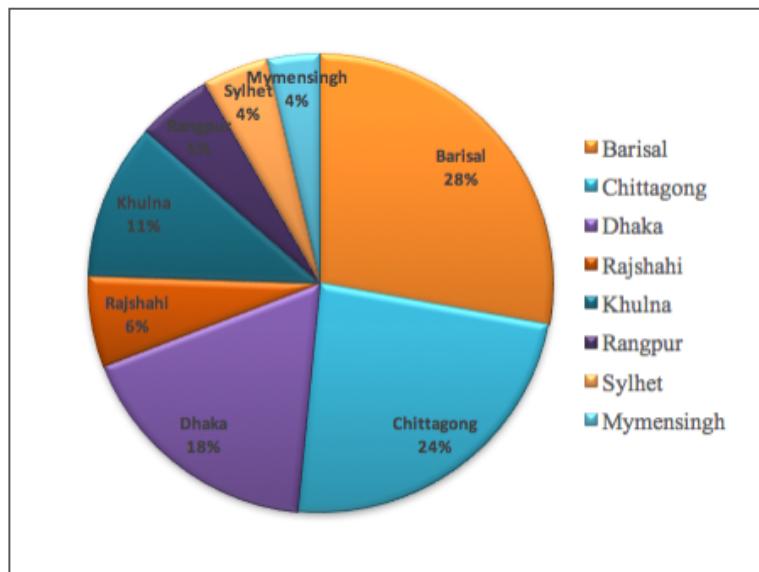


Figure 4-2: Allocation of BCCT funds by division (FY 2009-18)

(*not included projects and funds allocated to multiple divisions). (Data source: BCCT, 2019)

This scarcity of funds is made worse by issues with allocation - the absence of a systematic and objective allocation process. To KI 6, compared to the losses suffered by people affected by disasters, there is so little availability of funds that any kind of allocation with the available funds would not seem fair and just. *“It is like putting a band-aid on a bullet wound; this is the best that can be done in the current situation”*. KI 6, the participant recalled, *“There is a proverb in our language that if your entire body is in pain, you cannot apply ointment selectively. When the whole body is at risk, one cannot say that one’s eyes are more important than one’s legs. This is a relative issue. This invokes our strategy like lobbying; Bangladesh is not a lobbying-free country. If an MP wants a project in his constituency, no one can say that it is unnecessary. One may state that instead of this islet, the project would be better suited*

for another, but one can never say this particular islet is not important” (KII 6, a former top-level BCCT official).

The allocation suggests that there are pressure and political influence exerted by politicians in regard to the distribution of funds and project development. More often than not, funds go to the districts where the powerful Trustee Board members are from. As mentioned, Barisal and Chittagong divisions are among those that received the highest funds, and the research undertaken suggests that during the FY 2009-2014, a comparatively higher amount of funds went to Chittagong district of Chittagong division. Similarly, during FY 2014-2018, higher amounts of funds went to Pirojpur and Bhola districts of Barisal division.

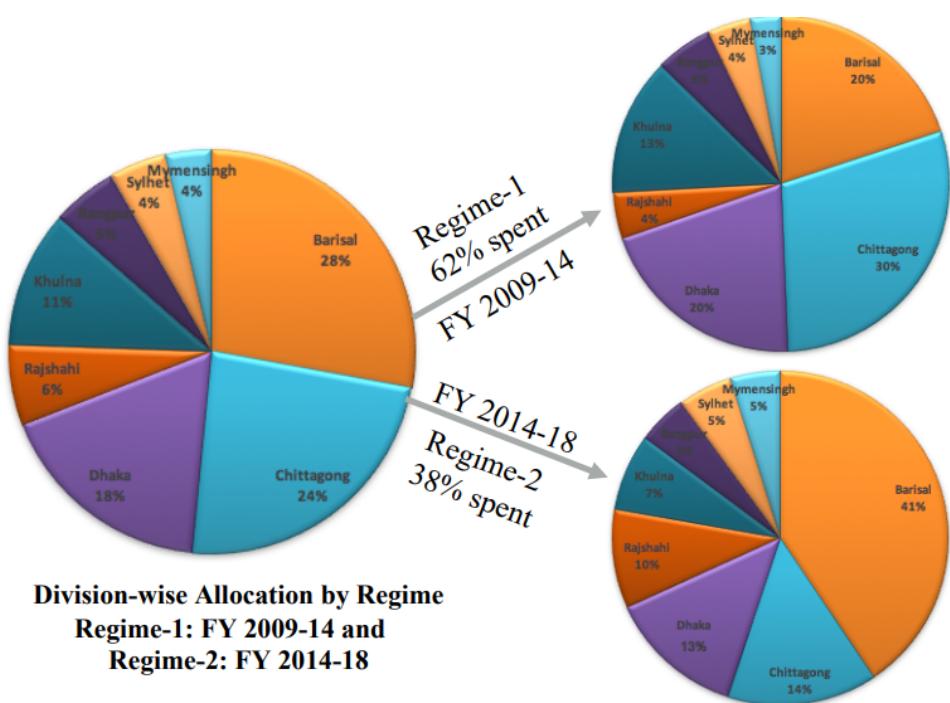


Figure 4-3: Division-wise allocation of BCCT funds during two periods

(Defined by a change in the political leadership in the highest-level decision-making body)

(Data source: BCCT, 2019)

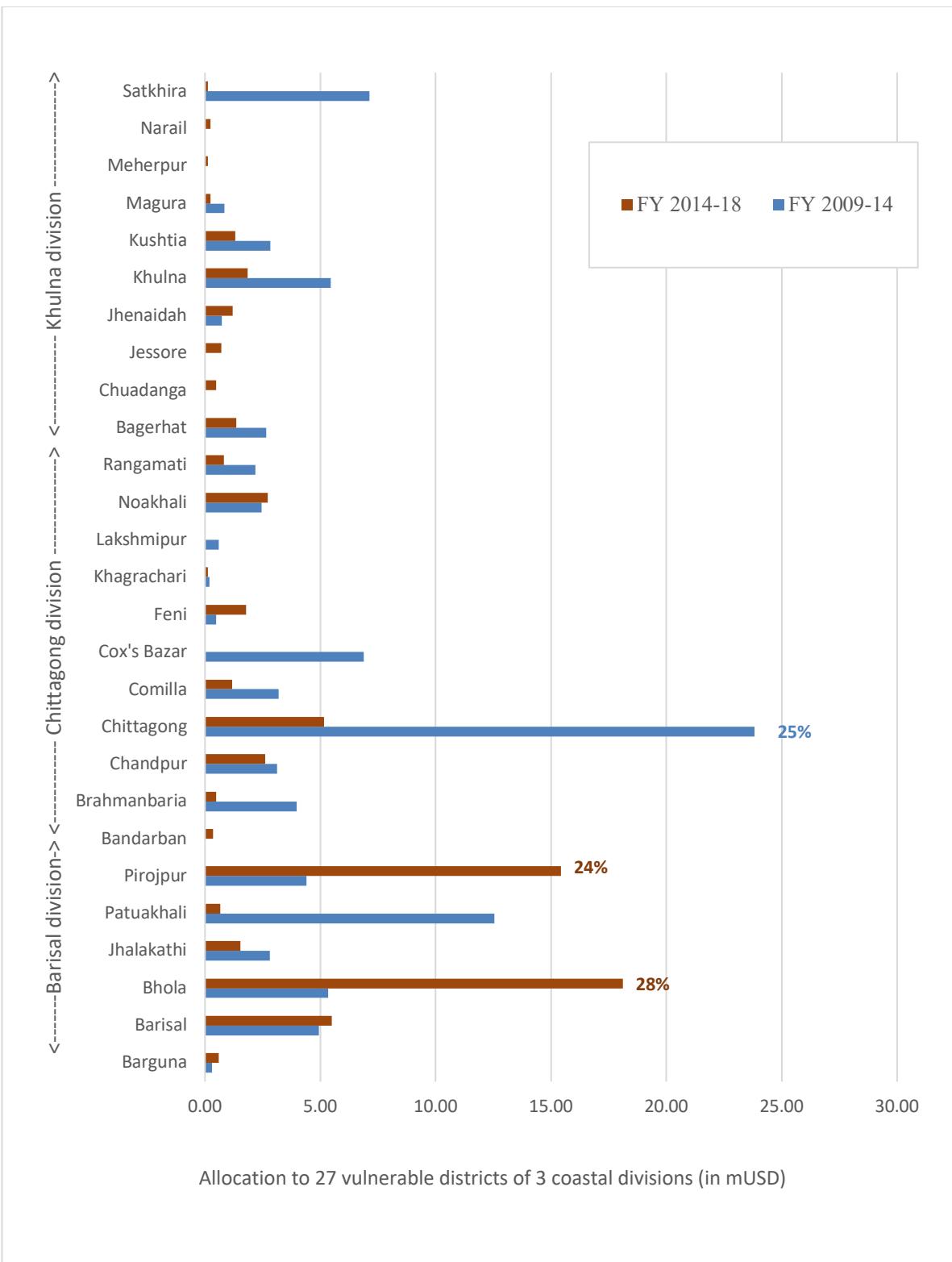


Figure 4-4: Allocation of BCCT funds among coastal divisions during two periods (Defined by a change in the political leadership in the highest-level decision-making body).

(Data source: BCCT, 2019)

Despite the need for BCCTF projects in other equivalent or even more vulnerable areas, the funds were concentrated in specific divisions. Analysis of the yearly distribution of BCCT funds to different areas/regions of the country reveals a distinct difference in fund distribution pattern during 2009-14 and 2014-18 as the Trustee Board was led by different political leaders. Figure 4-4 shows a spike in funds to Chittagong between 2009-2014 and to Pirojpur and Bhola districts between 2014 and 2018. There remains a shadow relationship: during 2009-2014, the BCCT was led by the Minister, who was from Chittagong, whereas during 2014-2018, by ministers of Pirojpur and Bhola.

This claim is further corroborated by the KIs and documentary evidence that people who are in the apex position in the decision-making process have close associations with some districts. When the minister and deputy minister were from Barisal, it received the maximum number of projects. *“The general accusation is that funds go to the constituency of the concerned minister; as an example, Chittagong being the constituency of Minister Mr. ****, received the highest funding. Statistically, when the ministers were from Barisal, it got the maximum number of projects. But if the vulnerability were considered, more funds should be allocated to Khulna and Satkhira. Biasness is clearly noticeable here. Other powerful ministers also requested funds and got allocations”* (KII 6 with a high-level official of BCCT). *“The reason why some areas are getting more funds is that the decision-makers belong to those constituencies. This reason works as importantly as vulnerability. It is expected that decision-makers will prioritise their own areas”* (KII 2, a top-level official of BCCT).

But if a basic measure of vulnerability were considered, such as issues with salinity or cyclone experience, then equivalent funds should be allocated, for example, to Patuakhali, Satkhira or more vulnerable spots in Bhola. Other ministers also requested funds, and allocations went to the towns they belonged to. Moreover, according to the perspectives of several KIs, it can be inferred that the reason why some areas are getting more funds is that the decision-makers belong to those constituencies.

On the other hand, the need for increased funding in the Barisal and Chittagong areas was supported through some of the statements collected during the interviews- owing to the

geographical setting of the district. According to KI 4, “*Barisal is one of the most vulnerable areas in Bangladesh. It is situated in the south which is a coastal area, has many rivers, and river erosion is very common. Salinity is also becoming an issue there. So, this is recognised by allocation of funds*” (KII 4, a mid-level Project Monitoring Officer of BCCT).

4.2.2 Politics of fund allocation by thematic areas

If we look at BCCT allocations to the six themes mentioned in the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) during FY 2009-16 as seen in Figure 4-5, Theme-3 “Infrastructure” out of six themes received the highest number of projects (196). This is substantially more than any other theme, well above Theme-1 “Food security, social protection and health” which received 140 projects (Yasmin, 2018). Analysis of the allocation pattern of approved projects as per BCCSAP themes reveals that the infrastructure sector accounts for 69% of total allocation which is the highest among the allocations for other sectors (MoF, 2019). Also, BCCT receives fewer project proposals addressing other themes.

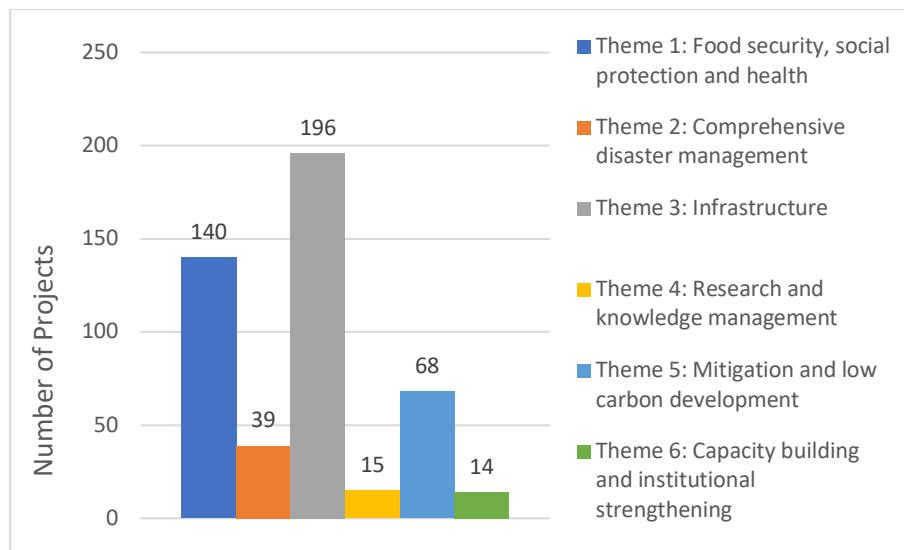


Figure 4-5: Allocation of BCCT projects by thematic areas during FY 2009-16. (Author illustration, Data source: BCCT, 2019)

One of the reasons for the focus on infrastructure to build roads and health centres at the expense of other thematic areas is because these projects have a direct impact on the day-to-day lives of local people. Bangladesh has a high demand for infrastructure projects all over the country that can mitigate climate change impacts. Because of sea-level rise, floods and

frequent tropical cyclones, there is demand for investment in major infrastructure like coastline or flood defences, buildings, roads, etc. (Hallegatte, 2009) - it is therefore difficult to decouple infrastructure from adaptation. It must be clarified that the coastal areas are sandy low-lying areas, the roads easily eroded due to rain, and this creates a continuous demand for repair and reconstruction. According to one KI, the demand for infrastructure is always high in Bangladesh as, at root level, there is demand for general development which traditionally means infrastructural development, and to address this, more allocation goes to the infrastructure sector. Moreover, this kind of development is visible to stakeholders. They mentioned: *"Everybody in Bangladesh, especially the rural poor, wants a school built in their own area, a college raised in their own vicinity, a road to be constructed in their own locality"* (KII 1, a top-level official of BCCT). KI 1 felt that this was why thematic areas in which people can see the physical existence of projects, are given preference during the distribution of funds.

Thematic areas other than infrastructure, do not receive sufficient proposals (Paul et al., 2020). According to a key informant who was in charge of Barisal division, *"BCCT does not prepare the project proposals. They come through the administrative ministry. The majority of the proposals submitted to them revolve around infrastructure-related thematic areas"* (KII 4, a mid-level official of BCCT). According to KI 4, BCCT does not receive project proposals proportionately across the six thematic areas mentioned in BCCSAP. They do fund some research, health, and agriculture-related projects, but comparatively very few. The majority of the projects are from Local Government Division (LGD) or the Ministry of Water Resources, but not from other ministries. KI 11 opined that projects are taken on a merit basis and not based on which thematic area they fall under (KII 11, an expert member of BCCT technical committee). KI 3 argued that this preferential treatment of the thematic areas is mostly because of top-level decisions by Trustee Board members (KII 3, a high official of BCCT).

The line between development projects and climate change adaptation projects is blurred, and because of this, there are many projects that overlap and which are then passed off as climate change-related projects. However, given the infrastructural inadequacy in the most disaster-prone regions, the availability of appropriate infrastructure is perhaps a prerequisite

for helping the vulnerable community. A KI defends infrastructural development from a practical disaster management point of view. They claim that if the road network is not available, it becomes almost impossible to reach vulnerable people in times of need (KII 5, an official from BCCT). However, from the KIs, the funding of urban climate change-related projects was justified which explains the incorporation of thematic area three into mainstream projects in the urban area. According to KI 2, due to increasing levels of urbanisation by 2040-2050, more than half of the world's population will be living in urban areas. Urban climate change has become an important issue and as a result, the largest portion of the fund has been allocated in this sector (KII 2, a top-level official from BCCT).

Given that projects are supposed to be taken in on a merit basis, if the infrastructure theme is receiving more funds, then it should be because the projects are better prepared and presented than projects from other themes. This suggests that the bias for infrastructure-related projects could originate from the local level and is not a distributional consequence of the fund disbursement management. It can be argued that infrastructural works, particularly roads and drainage construction, require low-skill jobs, use local people and materials, and are easy to pass the approval. Furthermore, KI 11 adds that any form of quota system or system of proportionately distributing funds to all thematic areas will result in projects being approved which aren't of high enough quality (KII 11, an expert member of BCCT technical committee). According to KI 11, the exact thematic area is not emphasised in approval processes: *"There is no quota system for the thematic areas. A quota system will make the system biased, as we see that there are no projects from a single thematic area, we have to inform the representative in order to give them a push"*. According to KI 17, *"The majority of the people including the local level councillors understand development as only roads and culverts, infrastructure, etc."* (KII 17, mayor of an adjacent municipality). A lack of awareness about the difference between climate change adaptation and development among the general population, as well as the public representatives, is quite common in Bangladesh, and this may result in the preference for infrastructure-related projects. Since many parts of Bangladesh lack reasonable levels of infrastructure, development for many may well comprise tangible, visible and solid infrastructure development.

4.2.3 Politics of ministry-wise allocation

The BCCT funds are operated by the Ministry of Environment, Forest and Climate Change (MoEFCC). During the inception of the BCCT, there was contestation regarding which ministry was going to control it. Before the creation of the fund, climate change impacts and disasters were dealt with by the Ministry of Disaster Management and Relief (MoDMR), as Bangladesh has a comprehensive disaster management system and plan right down to the local government level.

BCCT funds were allocated to ministries, and they have served as channels to meet climate demands. Figure 4-6 shows that in the nine years since BCCT had been operative, the highest amount of funds was allocated to the Ministry of Water Resources (MoWR) - US\$135.5 million, 39% of the total funding amount. This is followed closely by the Ministry of Local Government, Rural Development and Cooperatives (MoLGRDC) receiving US\$110 million, approximately 31% of the funds. Hence, 70% of the funds are shared by these two ministries, and the rest is shared by another 14 ministries, with the least amount going towards the Ministry of Public Administration, a mere 0.1% of the entire amount. The highest number of projects were administered by MoWR and MoLGRDC, which share a total of 390 projects. The rest of the projects were divided among the remaining 14 relevant ministries.

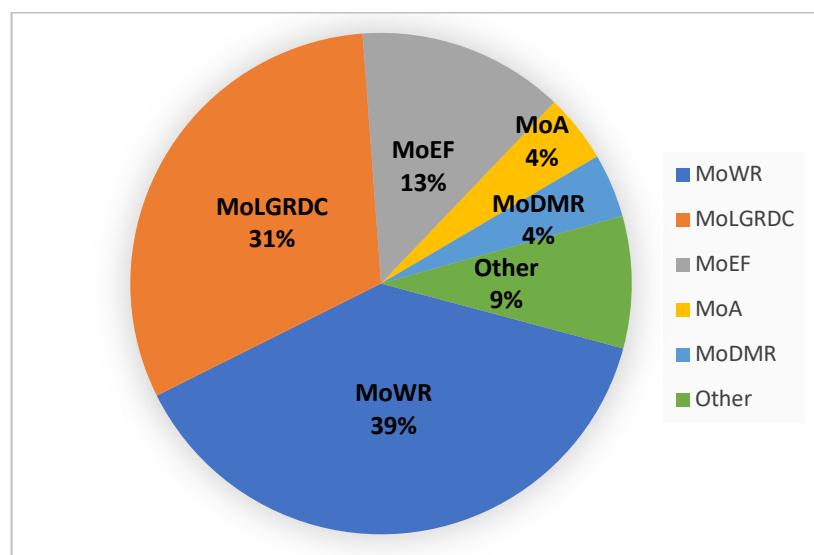


Figure 4-6: Allocation of BCCT funds by ministry (FY 2009-18). (Data source: BCCT, 2019)

Figures 4-7a and 4-7b (below) show how projects and funding awarded to different ministries change with changes of the Head (and their allies) of the Trustee Board, who was one of the ministers of the ruling government. The MoWR received most funds during the leadership tenure lasting from 2009-2014 and saw a substantial decrease with a change in leadership from 2014-18 (almost a 90% decrease in the new regime).

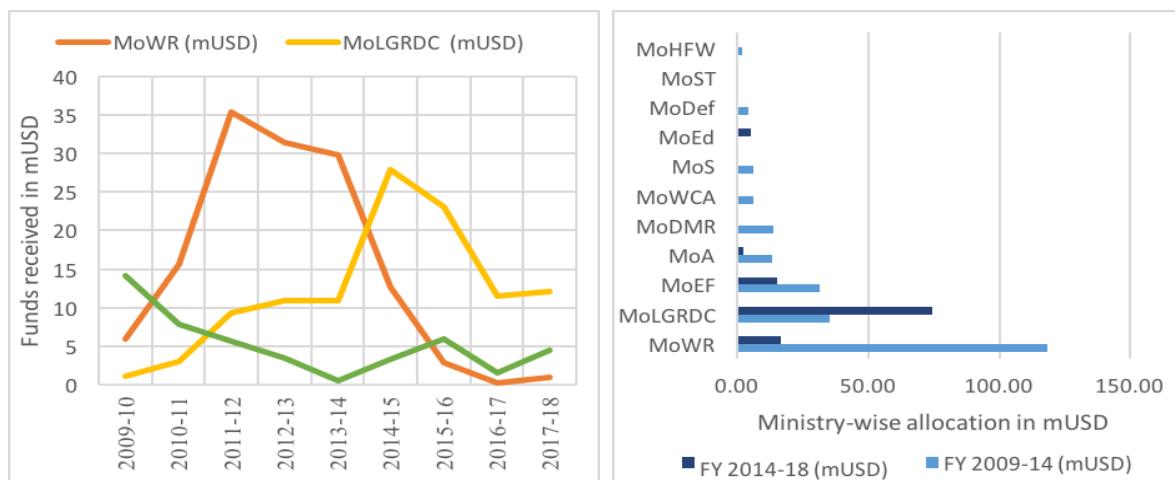


Figure 4-7a: Impact of leadership on allocation decision and 4-7b. Allocation of funds according to the various ministries

Furthermore, another substantial change (increase) was seen in the Ministry of Local Government and Rural Development and Cooperatives (MoLGRDC) as the funds show a remarkable increase from around US\$10m to almost US\$28m, though the number did decrease later on (probably associated with the overall decline in funding). From the discussion above, it is evident that with the change of leadership, the priorities change, and so do the allocation decisions.

4.3 Institutional challenges in terms of fund delivery

The issue of lobbying also emerged through the conversations because it is much easier to gain access to climate funds projects. Some politicians and influential people, even if they are not a member of the Trustee Board, influence the allocation of funds to some extent: *“The high-level politicians exert a force on board meetings and interfere with the distribution of funds. By taking a portion of the funds to their own areas, they are able to kick-start regular*

developmental projects in order to keep their supporters and voters satisfied” (KII 4, a mid-level officer of BCCT and in-charge of Barisal division). Political influence may also occur at the technical committee level. ‘The more the merrier’- this is what the politicians believe in without considering appropriate allocation for better use of funds. According to KI 7 with experts: “*When one politician manages five projects for his constituency whereas another manages three, this difference instigates power struggle among the politicians. It appears as if the one who can secure more funds are the winners of the battle, this is another indicator to prove their political power”* (KII 7, Former top level BCCT Official).

Whereas, according to another KI, it has been problematic for them to access the climate fund since they could not lobby for it in previous years, and the scenario is the same for this year even after applying to the ministry (KII 12, Mayor of another municipality of nearby area). In some cases, it needs a high-level connection to secure the fund. In Bhola, they have got many prominent national leaders who are very influential, they added. According to KI 18, a high-level government official of the local government division lobbied for some funds for them when they were in the Climate Trust, to act against the river erosion problem in the municipality (KII 18, Mayor of another municipality under Barisal division).

The existence of irregularities in the fund distribution process was noted in questions about transparency in the whole system. KI 4, with a BCCT official, mentioned that in some cases, there are political influences (KII 4, a mid-level official in BCCT). KI 15 added: “*It’s not possible to say everything aloud. The minister and member of parliament is handling all these matters. The upazila is capable of drawing up a formidable proposal for the climate fund, but ultimately, due to political interference it will not receive funds”* (KII 15, an LGI head and Chairman of the nearest upazila). When asked about the fairness of distribution of funds from the BCCT, he agreed that political influence does affect the amount of funds that become available. For this reason, despite being more vulnerable his constituency is getting very less funds from the Trust. If they could get access to the Trust Fund, they could have taken steps to help the people who are the actual victims due to climate change. He explained a situation: for example, from the Trust Fund, financial help could have been extended to those farmers whose crops have been destroyed by salinity intrusion. Farmers in the area usually do not

have their own land, they rent other's land for cultivation, and their capital is usually borrowed from different sources such as fertiliser or other shops, and even they loan out their labour. After harvesting their crops, they repay due loans. So, if their crops are destroyed even once they become destitute, sometimes they also have to work as manual labourers to repay their loans (KII 15, an LGI head and Chairman of Charfesson upazila). Ideally, such situations of extreme poverty with clear climate impacts should receive BCCT funds.

According to KI 19, political influence may affect the distribution of projects; places which have more influential politicians usually get more funds allotted (KII 19, Executive Engineer in Charfesson). It has also been evident from the interviews that local engineers of LGIs cannot overpower the mayors/MP/ministers. Hence, they have to follow the instructions of the mayors and implement projects according to their direction. However, the leaders and politically influential people implement more conventional development projects without properly realising the adaptation needs of the vulnerable communities (Pervin, 2013). This may be due to these political leaders' personal gain or knowledge gap.

Many differences between adaptation needs and BCCT funded initiatives in the Char Kukri-Mukri Union were highlighted. While the local climate vulnerability relates mainly to salinity and cyclone occurrence, the vulnerable communities expect sluice gates, tubewells and institutional support from the local government. Since they are poor communities, they also need easier and more accessible pathways to loans with no or very limited interest rates. This would help them invest and later pay back from their services attained (Paul, 2020). There has been building rest houses and eco-parks in the area and an earthen dam. However, a remark was made by KI 4, who pointed out that: "*Eco-Park was not needed in this locality. While this makes a percentage of the people satisfied with greater recreational purposes, the community genuinely needed more helpful establishments like school cum cyclone shelter. They would need a place to seek support and shelter while cyclones hit, while they would also need capital and training for alternative livelihood purposes. Also, a lighthouse would help these people from greater hazards. Instead, there have been other developmental initiatives that do not necessarily meet the needs of the poor and vulnerable*" (KII 4 with a mid-level official of BCCT).

Findings also indicate BCCTF as an easy funding opportunity for low revenue earning agencies like LGIs, especially the rural based local government units such as union council or 'C' graded municipalities which generally lack resources (Malalgoda, Amaratunga and Haigh, 2016). They do not have substantial funds other than conventional top-down allocation from the government to implement projects that they are responsible for. KI 6 talked about their poor revenue collection from different sources which makes these institutions unable to support the necessary projects for social and economic development (KII 6, a top level BCCT official). Moreover, the government has increased the salary of public employees. Mayors of 305 municipalities are also struggling to pay salaries for their employees (KII 18, a Mayor of a municipality under Barisal division). As a result, there is huge competition among the LGIs for funds. In Bangladesh, the LGI heads (public representatives) may feel that they will get some political advantage later if they can manage to provide services and so they are always hunting for other funding opportunities. BCCT was an easier and better opportunity for them to access funds in their areas despite those not necessarily being related to climate change. Such funds may be used to implement projects in their own interests (KII 7, an expert and former top-level BCCT official). The former Secretary of BCCT mentioned in KI 6 that the total fund the LGI receives from the ministry {local government ministry} is insufficient. He added: "*They assume that it is easier to get finance from climate change funds. If you lobby your MP, political leader, or Secretary of the Ministry, you could easily get the funds. This concept that has been built up is not good*" (KII 6, a top level BCCT official).

Some of the statements collected from the interviews show how gender considerations are not a part of the mainstream discussion, but it was acknowledged that some steps are taken to increase inclusivity. Basic solutions such as cyclone shelters seldom have gender and elderly considerations built into their design, although KI 2 states that there are several projects considering the vulnerability of children and women during disasters. For example, when tubewells are being built, they should be built on gender-friendly platforms so that they can ascend and descend easily. Access to elderly people is also considered (KII 2, a top-level official of BCCT). On the other hand, in KI 3, the BCCT officer stated that gender issues are addressed but only to some extent (KII 3, a top-level official of BCCT). For example, progress has been made in terms of raising awareness and identifying few of the common gender and elderly issues in project design. The findings are to be incorporated into the existing

framework to ensure that future projects take these concerns into account. KI 5 mentioned that BCCT has conducted workshops on how to address gender and elderly issues in project planning. Also, they are updating their climate change format to better incorporate these issues (KII 5, a mid-level Officer of BCCT). While gender issues are not in mainstream discussion yet, they are gaining attention.

4.4 Bureaucratic Challenges and Loopholes

Pre-existing institutional challenges are inherent to new climate finance processes in Bangladesh. The evidence collected from the key informants suggest that there is a lack of systematic attempts to analyse the statistics of past and future climate change impacts in different areas or for groups of people. Such information could provide practical and consistent evidence to identify people or places which are most susceptible to harm and identify actions to reduce their vulnerabilities (Mcleod et al., 2015). As no such comprehensive vulnerability assessment was available for the BCCT, interviewees mentioned that decisions have usually been made by considering the detail of projects mentioned in the project proposal that claim to have assessed vulnerability by local-level institutions. The methodology for selecting projects used by the technical committee to date has been to compare whether the proposed project falls under any of BCCSAP's six thematic areas. However, it could be the case that these projects are not a priority for the poorest and/or most affected population in these particular areas.

It appears that decisions may be based on assumptions instead of accurate and objective assessment of information, as one key informant noted: *"There is no scientific way of vulnerability assessment by them (BCCT). The technical committee considers the project proposals depending on the statement of fact or expert opinion narrated in those. Had there been a scientific vulnerability assessment, the technical committee would be able to judge the suitability of a particular project for a certain area. Actually, BCCSAP is a guiding principle for taking initiatives against climate change. Not necessarily it's a tool from the ground (local level)"* (KII 7, an expert and former top-level BCCT official). Sometimes, this lack of a systematic vulnerability assessment allows the scrutinising committee to have flexibility and potentiality to introduce bias in the funding decision. In their point of view, BCCT should

provide funds for projects formulated based on local vulnerability (KII 7, an expert and former top-level BCCT official). The party in power will generally try to achieve some political gain which may be counter to the fund's aims and procedures. The government officers and the experts need to be aware of this and should try to maintain a balance.

In the project proposals, the description or assessment of the vulnerability of climate change-affected areas is, in most cases, subjective and based on a qualitative narrative. Thus, information asymmetry exists for the allocating bodies in the form of a lack of systematic indicators of vulnerable areas and communities, preventing the direct alignment with fund objectives, potentially resulting in sub-optimal allocation of funds. The areas that do receive funds cannot necessarily be guaranteed to be the most vulnerable area, and the asymmetry also leaves room for corruption and inefficiencies. According to a mid-level official, *"We have a lot of needs, but we are not receiving adequate funding. The funding we receive goes to vulnerable areas. However, it cannot be said that where the funds went to, was the most vulnerable area out of them all. In some cases, we cannot identify the most vulnerable areas because of lack of information or because of the absence of knowledge of the administrative ministry"* (KII 4 with the Project Monitoring Officer of BCCT). In essence, since most areas in Bangladesh are facing some form of vulnerability, it can be reasonably assumed that the funds are going to vulnerable areas.

However, an opposing opinion was held that argued against the need for a standardised checklist or tool, as KI 6: *"There are set criteria included in the project application form which determine the vulnerability of a particular place. The gender issue has also been included there. So, it can be considered as ideal. The people who were involved with the preparation of this form and action plan are renowned experts in this field. They formatted this project proposal form in such a way that the vulnerabilities would surely be exposed"* (KII 6 with high-level official of BCCT). In their opinion, if the selection/technical committee scrutinises it properly and neutrally, there shouldn't be any gap. So, from this perspective, there is no problem with the current process of vulnerability assessment. KI 6 regards the current practices as sufficient, stating that the experts at LGIs are able to assess the vulnerability of the area. However, the assessment relies on the neutral viewpoint of the technical committee

during the scrutiny, which may not always be guaranteed.

The concerned ministries/authorities, who are responsible to scrutinise the projects' initial effectiveness and later inspection, may be seen as inefficient if they do not endorse strong projects to the Trust. According to KI 7, "*BCCT has had to discourage the authority ministries from recommending project proposals that have nothing to do with climate change*" (KII 7, an expert and former top-level BCCT official). In a majority of cases, the local agencies are responsible for selecting and implementing climate-related projects. According to the BCCT Act, local agencies approaching BCCT must send their project proposals through their regulatory/ authority ministries, for example, municipalities through Local Government Division, Water Development Board through MoWR, etc. When proposals are received, the authority ministries are responsible for the initial scrutiny of project proposals and endorse that the work is required to address climate change as it affects the local community. They can rescind projects in cases that are not relevant to climate change. But at times, due to political influence, they forward projects that have little or no direct relevance to climate change. For example, unrelated projects like eco-parks, bus terminals, teachers' training college, which are not directly related to the priority needs of the local population, have been endorsed: "*Sometimes, many projects which do not deserve funding but get funds. For instance, 'X' Police Station Eco Park ('X' is a subdistrict under Pirojpur district), we have allotted funds there. There are much more vulnerable areas/needs there, but due to political influence, we had to allot funds*" (KII 4, a mid-level official in BCCT). KI 7 mentioned that there is no point in funding such projects through climate funds. "*Ideally, to support such a project, the authority ministry should consider if the municipality is in the coastal area, what is the condition of salinity of the area, and whether increase in salinity is affecting the livelihood of the people in this area, etc.*" (KII 7, Former top-level BCCT Official).

Furthermore, an outright refusal of a project due to its lack of relevance is sometimes not possible for the committee members responsible for scrutinising the proposals. They are obliged to tag a green signal on the projects to the Board of Trustees for fund approval because of political pressure. and some are frustrated by the process. But as KI 6 responded: "*Due to the large number of poor climate victims and huge areas exposed to vulnerability,*

adaptation needs remain everywhere. So, the fund, given to any project or to any area, ultimately benefits the poor, which is the ultimate goal of the fund” (KII 6, former top-level official of BCCT). In some cases, the Board members try to support their responsibility by supervising or monitoring the process of implementation strictly to ensure proper utilisation of funds.

According to the discussions with project officials, the project approval process requires ministerial and bureaucratic approval. To go through the process, projects need to go through a long chain of approvals before receiving funds. This requires a lot of time. Projects proposed by local government departments need to go through administrative procedures to reach the minister’s table, and after passing, the projects come back through the same route. To get the fund from MoEFCC the process is a bit harder. Project files have to travel through the system twice.

From a common understanding of the KIs, it can be inferred that public representatives tend to ignore where public funds originate or their formal aims. They are more interested in securing funds for their own political interest, and they often seek and pursue funds to solve the problems of local people in their districts. For example, *“Public representatives think about the development needs of their own constituencies. They do not consider much whether the fund is from BCCT or disaster management or relief fund or Ministry of Fisheries, or people’s subsidy. They only count the number of projects allocated to their areas. This mental set-up is not good, and that should be changed, especially for the special programs like climate change”* (KII 7, Former top-level BCCT Official). From the KIs, it was understood that political leaders who are partially or fully involved at either local or higher levels regarding BCCT projects often have little knowledge or training on climate change and adaptation to climate change. However, this is not always the case. The current practice of allowing MPs or mayors (or other influential political leaders of specific areas) to influence the process of vulnerability assessment limits the independence of the projects.

The influence sought sometimes brings positive outcomes. Different ministries pass files to BCCT that require urgent approval, but due to bureaucratic process, it gets delayed or

rejected. In this situation, political influence and lobbying expedite the process and files get approved much faster than expected which is appreciated by those that benefit. The allocation process is complicated and regulated, but there is a widespread perception of people about corruption in public office, such that dishonesty and inefficiency can possibly occur at all project stages. KI 4 claimed that there is no direct corruption in BCCT in terms of monetary issues (KII 4, a mid-level Project Monitoring Officer of BCCT). Political commitments play an important role to ensure corruption is removed and that funds are well-spent with full accountability. When there are publicised and open political commitments from party leaders, addressing mismanagement and corruption is not difficult. This is reflected in the KIs and one of them who praised the Prime Minister for her helpful and proactive directives against corruption with climate funds and awareness on climate change issues (KII 12, Mayor of a nearby municipality). This is why less corruption was found in climate projects.

Mismanagement at grassroot level was highlighted by KIs, with examples of local influential political parties modifying projects to suit their own needs. Through one of the interviews with a former BCCT official, it was evident that some corruption had been identified in the past: *“There was an intense high-profile lobbying for a project under the Water Development Board of ‘x’ (a sub-district), ‘X’ (a district). They thought they would be able to spend the money conventionally. However, four/five people lost their jobs due to strong monitoring of the project. It was not highlighted in the media as the jobs being government jobs”* (KII 6, former top-level official of BCCT). *“That project was later cancelled”* (KII 4, a mid-level official of BCCT). A project implementing official in an LGI in Charfesson also complained that they faced some bureaucratic problems when claiming the funds from BCCT: *“The Chairmen and high officials get honorarium and become millionaires by doing irregularities. They don’t have time to think about the general public”* (FGD 13 with local officers of Charfesson).

There is a three-stage monitoring system of BCCT projects after fund allocation. There is also annual monitoring from the administrative ministry. District and sub-district administrations also monitor the works locally, and project evaluation is performed by a third party (Bangladesh Institute of Development Studies (BIDS) currently performs the project evaluation). There are also occasional visits from the Comptroller and Auditor General’s office

to ensure accountability of the funds. So, various groups are actively involved in monitoring surveillance; however, given the KI perspectives on mismanagement and inefficiency, there are clearly deficiencies in the monitoring processes.

Efficiency issues also arise from the fact that personnel are not trained at all or need further training. This sentiment has been echoed by multiple KIs, all of whom have commented that further training on climate change understanding is required. In addition, more staff time is needed as it seems that the number of personnel available for project design and implementation is low in number. According to KI 11, the technical limitations in other development projects also apply to these projects (KII 11, an academic and expert member of the technical committee). This weakness is inherently present in the system and was also acknowledged through the discussion with other key informants. KI 6 mentioned that *“Our greatest weakness is that we are weak in the documentation. For example, the World Bank wanted to deal with BCCRF (Bangladesh Climate Change Resilience Fund) as they thought they could better implement the funds than the Bangladesh government. But they could not choose more than five or six projects, and no one raised any questions. But BCCT has managed to implement numerous projects with small funding and, interestingly, most of the projects are still there and you can see them”* (KII 6, a former top-level BCCT official).

The lack of trained experts and staff, as discussed, results in poor documentation of the Trust’s activities (project’s progression and outcomes). Also, the Trust had very little success in spreading the positive stories to international arenas. For example, through the interviews, some successful structural projects were noted: *“Rubber dams have been built in Rangunia and Nalitabari to address the adverse effect of climate change. This has produced very good results, especially an increase in fish production. Due to sluice gates in Thakurgaon, there is an increase in agricultural production in several thousand hectares of land. On the other hand, Dam construction caused desalination in Cox’s Bazar as saltwater is no longer flowing into those areas. This has decreased prawn production but has increased paddy cultivation”* (KII 2 with a top-level official from BCCT). Without quality reporting, it remains a challenge to account to stakeholders for the quality of work and the utilisation of funds. Again, from the KIs and their overall opinions about the climate interventions, it was understood that the

Trustee Board were more likely to approve projects that remain physically visible for many years to avoid future accusations of mismanagement. With some exceptions, e.g., a project to remove polythene from Buriganga river (on the outskirts of the capital city, Dhaka).

According to KI 4, project pre-assessment is not done properly at the beginning of the fund approval process, although there is a committee to do pre-work measurement in papers (KII 4, a mid-level of BCCT). In current practice, proposals are looked at and checked if they meet the vulnerability component of BCCT's guidelines. However, this does leave room for ambiguity which will, in turn, affect efficiency. As a result, currently, if the project is approved, then progress is measured through colour photographs and videos of the work. However, without a proper project pre-assessment, the claims of the local mayor cannot be verified, and the current verification method of photographs and videos is not a reliable instrument to monitor progress.

There remain some dilemmas and challenges regarding the vulnerability assessments for some contextual reasons. The projects can be considered either as an emergency or on a pre-planned basis. In emergency cases, information is gathered informally, assessments are not done properly, but papers are included into the project proposal. However, the scenario is the same for the pre-planned ones, assessment is not done efficiently. The main logic behind this is that the Board cannot wait for the vulnerability assessment (even though it is important). Here, it has been highlighted that conducting a vulnerability assessment is time consuming and might not be applicable for time sensitive situations (KII 9, an expert in PKSF and Former BCCT Official). From their perspective, as it is currently done based on the field demand, it is limited by the ability of those who are preparing the checklist each time, and as noted earlier, there is a lack of expertise to do this effectively.

Through multiple sources of evidence, it has been determined that the BCCTF does not possess a systematic checklist or mechanism for vulnerability assessment. Assessment is not yet done in a coordinated manner. It is noted by KI 6 that a comprehensive vulnerability assessment needs to be done across the country (KII 6, a former top-level BCCT official). This lack, together with a number of other procedural issues in the allocation design and

implementation of BCCT projects, highlights serious issues with targeting and outcomes of the BCCT portfolio.

The importance of good governance and monitoring of the distribution of funds was widely noted. Politicians mention that many issues could have been handled in a better way so that there could be a more robust governance system. According to KI 7, BCCT should have a fairer allocation system in the six thematic areas. He stated that there should be less funds for mitigation, as the government encourages this using help from foreign countries. KI 7 suggested a completely independent monitoring system for climate funds that should be accomplished through an outside department. Interestingly, the government felt the need to ensure a ‘Chinese Wall’ between BCCT and an independent monitoring committee to establish Funds’ transparency and accountability. This implementation was necessary so that the BCCT officials could get accurate information. *“They (Trustee Board) would then be informed if funding for the dam is actually being spent on building dams and if they are being built properly”* (KII 7, an expert and former top-level BCCT official). And the community must be involved during the selection process of projects. It was not possible to propose projects to address the needs without involving the community. If BCCT can ensure the above-mentioned issues, there shouldn’t be any problems. The BCCT official’s arguments seem sensible.

Moreover, most of the time, there are very few follow-up studies to ensure that the project beneficiaries had their fundamental needs met. In KI 8, it came out that projects deal with numbers, not people specifically. The projects have an internal rate of return to measure progress. *“Once the rate of return is fulfilled, the project is considered complete. At that point, no one cares what happens to the people”* (KII 8, an expert and head of a non-government fund implementing agency, PKSF). What can be seen is that once the project ends, what happens to the people is not really monitored.

Statements from former BCCT officials demonstrate that there is a rising importance of recognizing the difference between climate-related issues and development issues. Arguably, the locality where the projects are implemented shows a wide variety of development

initiatives, which are implemented with climate funds. It is particularly true in the case of Charfesson. According to KI 7, they should make the public representatives understand the difference between climate-related problems and development-related problems (KII 7, an expert and former top-level BCCT official). However, it was also evident through the interviews that there remains a difference in the mindset among the stakeholders of BCCT, particularly between the political leaders and government officials, and therefore the institutional culture needs a paradigm shift in order to bring about a change in this situation.

Additionally, KI 9 mentioned that *"If Bangladesh's culture doesn't have efficiency, monitoring and accountability, then BCCT doesn't have them too, that's all. It is not very wise to think that these should be only improved at BCCT. If our total culture is improved, then so will BCCT. Specifically, training the officers and providing subject matter specialists will provide some results. Transparency is more of a jargon. It is more of a culture"* (KII 9, an expert in PKSF and Former BCCT Official). Websites can play a huge role, however, if they hold relevant information. It is to be noted that according to the overall perspective of the KIs, some level of corruption and malpractice exist at all points in the project process (although to highly varying degrees). Therefore, there should be structural changes that ensure compliance and accountability. One way of doing so would be to make documentation public and open to public scrutiny. Highlighting malpractice as it comes along could pave the way to a better work culture.

The evidence suggests that an unbiased selection of projects, based on proper identification of vulnerability, could be possible if LGIs are well-resourced, politically empowered, and able to execute the work independently. It is evident that LGIs are too often obstructed by influential people (ministers, MPs or mayors) who directly interfere in the policy and bureaucratic process, ignoring the real challenges on the ground. Thus, making the executing team or leader's job too difficult to perform. The following quote also reinforces the necessity of local empowerment viz-a-viz the BCCT: *"How strong or empowered the local government is, how capable the people involved (in project planning) are, how much they are being influenced by the politics - these all determine if the project has been proposed properly. The*

people involved at the local level are supposed to have significant power” (KII 2, a top-level official from BCCT).

4.6 Discussion

The BCCT, established by the Government of Bangladesh, served as a pioneering national climate fund among the Least Developed Countries (LDCs) and became a model for other nations aiming to establish their own mechanisms for national climate finance (Rahman et al., 2016). Its primary focus is to finance projects and programs from the state budget that aim to enhance the resilience and recovery of communities affected by climate change. Bangladesh was anticipated to receive substantial climate funds in the billions (Smith et al., 2011). However, there were technical and institutional concerns regarding the mobilisation, management, and distribution of these funds (World Bank, 2016). The challenges identified include bureaucratic obstacles and loopholes that hinder the effectiveness of fund distribution (Saeed et al., 2023).

This chapter examines the analysis of funds received from the Government of Bangladesh (GoB) and allocated through the BCCT since its inception in 2009. Over the course of nine years, the BCCT distributed a total of \$300 million out of the \$320 million received from the GOB. The highest distribution occurred in 2011-12, while the lowest was in 2016-17. The annual disbursement varied significantly depending on the number of implemented projects each year. However, between 2013 and 2018, government funding experienced a substantial reduction, resulting in BCCT distributing more funds than it received. During this period, the number of projects increased as more institutions, such as Local Government Institutes (LGIs), became aware of the Trust Fund and developed relevant projects. The Trust allocated the highest number of projects (103) in 2015-16, followed by 87 projects in the previous fiscal year. The data indicates that BCCT utilised its accumulated funds to maintain a consistent flow of fund distribution after the government began reducing its funding. It is important to note that the government's contribution to BCCTF did not correspond to the growth in national income or GDP, as Bangladesh experienced continuous GDP growth of approximately 6.5% from 2009 to 2018. There is an extent of politics in fund distribution in terms of geographic, thematic, and sector-wise allocations.

The distribution of funds across different divisions demonstrates that Barisal and Chittagong divisions received the highest amounts, with \$77 million and \$65 million, respectively, out of a total of \$278 million (excluding funds allocated to multiple divisions). Dhaka followed closely with \$48.6 million. Barisal accounted for 26% of the total funds, Chittagong 21%, and Dhaka 14%, collectively receiving over half of the allocated funds. This allocation pattern suggests that there are political pressure and influence exerted by politicians regarding fund distribution and project development (Kabir et al., 2021). Frequently, funds tend to be directed towards districts represented by influential members of the Trustee Board (Rahman et al., 2020). The findings indicate that if vulnerability factors such as salinity or previous experiences with cyclones were taken into account, then equivalent funds should be allocated to places like Patuakhali, Satkhira, or other highly vulnerable areas in Bhola. It can also be inferred that certain regions receive more funds because decision-makers originate from those constituencies (Hutchcroft, 2014; Hossain and Rahman, 2017). Kabir et al. (2021) hinted that several misallocations were brought to light in the newspaper and other media. Barrett's article further substantiates that sometimes disproportionately less fundings arrive in the areas of highest need (Barrett, 2014).

The findings indicate a higher prevalence of infrastructure projects among implemented initiatives. One of the reasons for this emphasis on infrastructure, such as road and footpath construction, at the expense of other thematic areas, is the direct impact these projects have on the daily lives of local communities. Bangladesh has a significant demand for infrastructure projects across the country to address the impacts of climate change, including sea-level rise, floods, and frequent tropical cyclones. This demand calls for investments in critical infrastructure such as coastline or flood defences, buildings, and roads. However, thematic areas other than infrastructure do not receive an adequate number of proposals. Considering that projects are expected to be selected based on merit, if infrastructure-related projects receive more funding, it could be because they are better prepared and presented compared to projects from other themes. This suggests that the bias towards infrastructure projects may originate at the local level and is not a consequence of the distribution of funds by the management. It can be argued that infrastructure works, especially road and drainage construction, require low-skilled jobs, utilise local labour and materials, and are relatively

easier to obtain approval for. Kabir et al. (2021) revealed that the majority of the funding go to the infrastructure sector as this is the most corrupt sector in the country.

The issue of lobbying has emerged during discussions as it is relatively easier for individuals to gain access to Trust Fund projects. Certain politicians and influential figures, even if they are not members of the Trustee Board, have some influence over the allocation of funds. The study's results indicate that informants have encountered difficulties in accessing the climate fund as they were unable to engage in lobbying in previous years. This situation persists in the current year, even after applying to the ministry. Additionally, the findings suggest that the BCCTF presents a convenient funding opportunity for low-revenue agencies such as LGIs (Local Government Institutes), particularly rural-based local government units, which typically lack resources. Interviews have revealed that gender considerations are not extensively discussed, but there are acknowledgements of some steps being taken to enhance inclusivity.

The findings indicate that the BCCT has not been utilising an effective vulnerability assessment tool. It is evident that there are no standardised tools or checklists available for conducting vulnerability assessments. Instead, more site-specific tools are being used (Yasmin, 2018). The lack of proper vulnerability checklists is recognized and acknowledged as a significant drawback. Due to the absence of these tools, the most vulnerable communities are not properly identified, leading to inefficient allocation of funds. Consequently, the areas that require adaptation measures the most may not receive the necessary financial support, impacting overall effectiveness. Moreover, the availability of such tools reduces the likelihood of corruption, as it would be more transparent which areas are in dire need of adaptation efforts. However, a major information asymmetry exists due to ignorance towards highly vulnerable areas and communities, further exacerbating the challenges in allocating funds effectively.

The implementation of new climate finance processes in Bangladesh faces inherent challenges within existing institutions. Several studies have identified Bangladesh as a successful case concerning the mainstreaming of climate change issues into national development planning (Saito, 2013; Ayers et al., 2014 and Fatemi et al., 2020). Evidence

gathered from key informants indicates a lack of systematic efforts to analyse past and future climate change impacts in different areas or among specific groups of people. Such analysis could provide practical and consistent evidence to identify the most vulnerable individuals or regions and devise actions to reduce their vulnerabilities. However, it remains a big question whether vulnerability is the main determinant of resource allocation (Paavola and Adger, 2006). The findings reveal that the political party in power often pursues political gains that may conflict with the aims and procedures of the climate fund. Government officials and experts need to be cognizant of this and strive to maintain a balance. In project proposals, the assessment or description of vulnerability in climate-affected areas is frequently subjective and relies on qualitative narratives. Consequently, there is an information asymmetry for the entities responsible for allocating funds, as they lack systematic indicators of vulnerable areas and communities. This lack of information hampers the direct alignment of fund allocation with the objectives, potentially resulting in sub-optimal distribution of funds. Moreover, the committee members responsible for scrutinising proposals sometimes face constraints in outright rejecting projects that lack relevance. They are compelled to provide a green signal for fund approval to the Board of Trustees due to political pressure, leading to frustration among some members with the process.

Based on discussions with project officials, it has been observed that the project approval process involves obtaining approvals from both ministerial and bureaucratic channels. Projects need to navigate a lengthy chain of approvals before they can access funds, resulting in significant time requirements. Projects originating from local government departments must undergo administrative procedures to reach the minister's desk, and once approved, they follow the same route back. Acquiring funds from the Ministry of Environment, Forests, and Climate Change (MoEFCC) presents additional challenges. Project files have to go through the system twice, as different ministries pass them to the BCCT for urgent approval. However, due to bureaucratic processes, delays or rejections may occur. In such situations, political influence and lobbying can expedite the approval process, leading to faster-than-expected file approvals, which is appreciated by those who benefit from it. Although the allocation process is complex and regulated, there is a widespread perception among the public regarding corruption in public offices, which raises concerns about potential dishonesty and inefficiency at all stages of project implementation. Peters (2010) argues that while

implementing a development program (e.g., climate change), bureaucracies tend to maximize their interests (i.e., formal and informal) based on their preferences, abilities, and power capabilities. Furthermore, issues related to efficiency arise from the lack of adequate training or the need for further training among personnel involved in the process.

Sometimes promising proposals are abandoned simply because they fail to adhere to the vulnerability criteria. Moreover, for a project to be truly effective and yield results, it must address vulnerability and have the objective of alleviating poverty by meeting basic needs and empowering individuals to earn more while minimising the risk of loss (Stock et al., 2021). The significance of good governance and effective monitoring in the distribution of funds was widely acknowledged (Berrang-Ford et al., 2014). Politicians mentioned that many issues could have been handled better and emphasised the need for a stronger governance system. The evidence suggests that the impartial selection of projects, based on the accurate identification of vulnerability, could be achievable if Local Government Institutes (LGIs) are well-equipped and politically empowered to independently carry out the work. To ensure effective project implementation, it is crucial to secure additional funds and decentralise climate funds. Encouraging greater participation of staff in knowledge platforms is necessary to obtain a broader understanding of project contexts. Biesbroek (2014) also found lack of knowledge and skills in public officials as barriers for climate change adaptation. Considering third-party monitoring can be beneficial for overseeing activities in areas where internal staff encounter access limitations. This approach will enhance accountability and transparency at all levels, also supported by Pervin et al. (2019). One of the primary challenges in the dynamics of climate change adaptation projects in the context of Bangladesh, from the BCCTF's perspective, is the unclear distinction between development projects and climate change adaptation projects. This lack of clarity leads to numerous projects overlapping and being presented as climate change-related initiatives. Rahman et al. (2016) identified that knowledge needs to be improved through proper training so that decision-makers are able to differentiate between the development projects and climate change related projects. An improved allocation system should prioritise proposals that align more closely with the BCCTF's overall objectives and specifically target the needs of the most vulnerable communities. Therefore, the scrutiny process must carefully assess whether these proposals

effectively address climate change and vulnerability concerns within the affected communities.

4.5 Conclusion

Profiling the emergence of political influence in allocating climate funds in the case of a vulnerable setting in Charfesson, Bhola, the chapter has explored a wide range of issues. It is clear from the evidence that the objectives of BCCT with regard to fund allocation are only partly met due to the lack of effective targeting, assessment and allocation measures taken by the Trust. It is also evident from the above discussion that powerful trustees make decisions pushing the allocations to their own areas of influence. All they want are BCCTF projects be implemented in their locality and their followers or relatives be enlisted as beneficiaries.

To wrap up the chapter, some suggestions, which came as remarks from the key informants, indicate that a more comprehensive lens must be applied to analyse the situation. More funds are essential for effective project execution along with decentralisation of the climate funds. Additionally, to make the BCCTF more effective or result-oriented, projects should be designed parallel to the fundamental needs of the target groups to achieve comprehensive and target-oriented outcomes. Furthermore, to improve the efficiency of BCCTF, the capacity building of the staff is necessary, as well as technical know-how to improve their ability to perform in a complex environment and ensure proper implementation and organisational sustainability. Therefore, the scrutiny system has to identify if the project proposals fit with the climate change and vulnerability issues of the affected community.

The political dimension of the results of Chapter 4 will be further discussed in Chapter 7.

Chapter 5: Local people perspectives on vulnerability and adaptation

5.1 Introduction

The chapter aims to understand the perceptions of vulnerable communities about their climatic and non-climatic challenges in order to determine whether climate funds are directed to these challenges. It examines information that has been collected through a number of Key Informant Interviews (KII) and Focus Group Discussions (FGDs) to gather comprehensive data. A total of 75 local people as well as targeted beneficiaries of climate adaptation projects of the Bangladesh Government, with different socio-economic backgrounds, have been invited to 12 FGDs. Later, to gather additional data and crosscheck the FGDs data for validation, another independent survey (outside FG participants) has been conducted among 4 targeted groups, each consists of 20 participants (a total 100 out of which 5 absentees) in the Charfesson area. The details of the study area of which has been outlined in the methodology section. The following section includes a summary of the main climatic and non-climatic problems experienced by the sample in the study area.

Further to the methodology chapter, where the sampling strategy and main characteristics of the FGD and survey have been explained, this chapter includes careful discussions and results of the FGDs and survey analysis in three selected sites: namely Site 1, which is mainly Ward no. 4, Site 2, which is Ward no. 7 and Site 3 which is Ward no. 2 of Charfesson municipality. Although it was done with a rigorous review of selecting the poor beneficiaries, the process includes some strengths and weaknesses. Strengths of the selection and process include the fact that random selection was used trying to reduce any bias and that the data collected from the FGDs was triangulated with survey answers. The data was also cross-checked with community-based organisations. However, some weaknesses, *inter alia*, include the fact that it took some time to build the confidence among the respondents and be able to get the correct information. Had there been more time, the data could have been more sequenced. Also, the data only covers information of some selected sites which obviously does not give the picture of the entire locality.

The community represents the area where this study has taken place with the people who are at risk of climate change. On the other hand, the vulnerable population defines the poor people of the categories of farmers, fishermen etc. who have a minimal salary per annum and have been and are climate affected people who are at a constant risk of climate change. Hence, the study defines the poor people as the condition that these people are engaged in occupations like farming or fishing, but their income is only so much to have a bare minimum standard of living.

The chapter summarises from the FGDs the life situations, aspects of the local area and their common remarks about their overall livelihood status. Each of the sections characterises various types of results collected from the FGDs and the KIIs; for instance, Section 5.4 includes findings on the knowledge of climate change adaptation and what they understand by the term 'climate change' as they perceive it. Section 5.5 discusses their views on climate change vulnerability along with their respective adaptive strategies in section 5.6. Section 5.6 also discusses the perceived barriers to adaptation in the local community and their needs to cope with these adverse situations.

5.1.1 Statistics of the respondents surveyed

Of the total 95 survey respondents, 78% respondents were male, and 17% were female. As the survey was conducted using a random sampling method and tended to select interviewees from households based on that method, it's certainly a significant finding that women are less exposed to out of the home (Appendix 2: Graph 5-1). On the other hand, Graph 5-2 shows that out of the total respondents, 81% of them were found to have primary-level education. Out of 16 female respondents, there were 13 who have primary education and out of 79 male respondents 64 have that primary education. 1 woman and 4 men were found to have no education at all (Appendix 2: Graph 5-2). In addition, a total of (n) 80 respondents were found to have occupation in the study location (Appendix 2: Graph 5-3). Distribution of the respondents based on their occupation was analysed for this study; almost 40% were farmers of whom only 1 was female. Almost 20% are fishermen and day labourers, 5 women were found to be housewives. About their income status, Graph 5-4 shows that 44% respondents have income between 5 to 10 thousand and 36% respondents have income

between BDT 10 to 20 thousand (\$100-200). Besides, only 10% of respondents have income less than BDT 5 thousand (\$50) (Appendix 2: Graph 5-4).

It was also observed that the majority of the households who were included in the study had 4 to 6 membered families (Appendix 2: Graph 5-5). As the graph shows, 24% households have 4 members, 31% and 17% households have 5 and 6 members in the family respectively. It was also found that 7% of the household have 3 members while others have 1 member only in the family. Around 87% of the respondents have been found to have their own house, in which they are living (Appendix 2: Graph 5-6). Only 13% of them have been living in rented houses or in the houses they do not own legally. The respondents were also asked about the kind of materials their houses were made up of. Around 80% of the respondents were found to have houses made of mud which is locally called kacha-house (Appendix 2: Graph 5-7). Only 16% and 5% respondents have semi-Pacca (Made with brick and other materials) and Pacca (made by bricks) respectively.

Respondents were also asked whether they have their own land. 76% of the total respondents were seen to have more or less land that they own (Appendix 2: Graph 5-8). Most importantly, 24% of the study people did not own any land, making them landless people. The average land size of those who have land is about 61 acres, on average, which was found from the survey analyses. For making their lives more comfortable and convenient, a significant number of respondents have basic utilities (Appendix 2: Graph 5-9). As the study found that, 85% of the respondents were found to have television and 80% respondents were found to own mobile phones. However, 89% of the people mentioned that they did not have or own a refrigerator since they cannot afford to pay comparatively huge money for the refrigerator.

5.2 Livelihood descriptions for the FGs

Majority of the people in the study area are farmers. Second majority of people includes fishermen who catch fish in sea or rivers. Rest are day labourers, rickshaw-pullers, small businessmen, students, and service holders. In this region, the percentage of job holders seems to be quite high, as it is at the municipality level. There are some masons and teachers as well. Most of the women in the study area are housewives. Also, some people were seen

to do business in the market. The farmers are usually involved with agricultural activities and growing various types of crops. Some of the farmers mentioned that they use their available time to work as fishermen too (FGD 1 with farmers, site 1). The day labourers also work as painters, carpenters, and rickshaw-pullers and hence they do not have one defined occupation because their priority is to earn money in any means possible. The farmers often switch to fishing activities when there is an off-season to work. The fishermen also work in the fields for agricultural tasks and also work as labourers (FGD 1 with the farmers, site 1). This is because they need alternative sources of income. The daily labourers also switch roles and complete other tasks as necessary.

Some fishermen are involved in small scale fish farming while the other goes out to the open sea for large scale fishing. The small-scale fish farmers look after their own fishing zones where the young fish are reared to maturity under a controlled environment, monitored by the fish farmers themselves. Some fishermen have their own people as well to help them look after the fishes. On the other hand, fishermen who go out in the open sea have special equipment, like nets and other gear to catch the fish. The fishermen in FGD 6, mentioned that they usually catch the fish seasonally. If there is bad weather, they look after the market and engage in selling the fish (FGD 6 with fishermen, site 2).

Day labourers in FGD 7 stated that there are a number of ways that they earn and the per-day income ranges from 300 to 500 Taka (USD 3-5). Masons can earn more than any other occupation but in-season. *“Our incomes vary from day to day. Sometimes we earn BDT 500 (\$5) while sometimes BDT 200 (\$2) depending on the type of work and availability.”* (FGD 7 with day labourers, site 3). Carpenters usually have higher income but sometimes they have whole loads of work while at times they are sitting idle. On the other hand, the old men do not engage in physical labour, but they look after the cattle in their homes while their sons are usually engaged in bread earning activities. However, the most common occupation according to the farmers in site 2 includes people working in the agriculture and fisheries sector (FGD 5 with farmers, site 2).

Most of the women have to cook, raise children, do household chores, fetch water, and do other household activities. Sometimes, they also go for small scale poultry farming, dairy or livestock farming or homestead vegetable gardening while they also have to help their husbands harvest crops. The elderly women usually remain in the homes and are dependent on their sons and daughters, looking after the grandchildren while the women look after their household chores. Also, there are cases where children do not take responsibility for their parents. They had to live on their own.

According to the FGDs with the vulnerable community, the main problem about their livelihood is related to poverty. The day labour in ward 4 of the Charfesson Municipality mentioned that they face economic problems the most (FGD 3 with day labourers, site 1). Highly dependent on their daily income, they had to go without meals if they couldn't earn for any single day. Luckily, they didn't face any real hardship in the case of education for their children as well as proper treatments. But they lacked the opportunity to lead a stable life in their impending future.

5.3 Study area diagnosis

This section elaborates on the climatic and non-climatic aspects of the study area to understand the environmental and socio-economic conditions of the community. The community people mentioned that their agriculture production is quite good (FGD 3 with day labourers, site 1). The farmers grow various types of crops in varying seasons of the year. Mostly they produce paddy along with some seasonal vegetables like potato. *Dhulat* crops are the kind of seasonal crops that are usually grown by farmers. By definition, peanuts, chilli, potato, lentils, etc. are known as *Dhulat* crops. Most of the farmers stated that they are content with their present livelihood practice and agricultural production, although they face loss and damage due to climatic hazards. They first preserve harvested crops for their food to consume over the year and then sell the rest of crops and earn enough to maintain their household expenses, however, most of them cannot make savings. Some participants made a profit from selling certain crops, but others did not, mentioning that they stored their crops for their own use. According to the FG in Charfesson coastal municipality, the farmers mentioned that the production of vegetables has been fluctuating depending on weather

conditions. During excess rainfall, there is a waterlogging problem which in turn causes problems to crop, particularly common during the monsoon season.

The infrastructure in the area is quite good. The community has a school and college which is not too far away. The Fishermen in Charfesson municipality mentioned that the education system is quite good in their locality (FGD 6 with fishermen, site 2). Along with academic institutes, there are a number of mosques in the area and institutes for teaching religious books and lessons which are typically known as "Madrasa". There are also colleges and technical institutes for teaching youths' various educational schemes. Drainage system in Charfesson is poor and is deteriorating day by day. Although the road communication is well developed, waterlogging in the rainy season makes the situation worse, requiring rapid repair frequently. Water cannot drain away properly due to narrowness and filthy surface of the drains. Also, the inter-district road communication is not well developed. Population and their demand for housing are increasing gradually and thus further impacting the drainage system. Moreover, disposal volume is comparatively large. Drains are connected to some canals and rivers which are situated outside of the city. Drains are facilitated with sluice gates to protect and control outer water from accessing the city during floods.

Their whole region has electricity, but they seem to suffer from frequent outages. In FGD 4, it was found that those who have electricity are not properly connected with electric lines. Electric pillars are rarely installed, and bamboo is being used instead of concrete electric pillars, causing frequent interruption and a risk of accidents. Moreover, electric lines are not distributed to all households and are not available all the time with unpredictable interruptions. Electricity is supplied directly from the district level. Thus, it has to pass through a long route (approximately 100 km). As this area is hit by storms frequently and severely, damage occurs. Sometimes, the city remains disconnected from the transmission grid for 3 to 7 days. Children face problems while studying at night, people cannot run fans and other electric home appliances like refrigerator, televisions during summer. There is no easy alternative to this electricity although some people use solar electricity. Respondents have met their local political leaders and electricity office several times to mitigate this situation, but nothing has changed (FGD 5 with farmers, site 2). The unreliability is highly disruptive and

during disaster time, some of the respondents mentioned that they don't get news from television and have to wait for disaster announcements in their community through microphones and flags. Sometimes, warnings do not reach them in time, and they become victims of disasters like cyclones and tornadoes. At times like these, their whole region has electric facilities but due to continuous flooding for two days they seemed to suffer from frequent blackouts. Hence, there are major electricity problems in some of the areas because there is no single line which ensures constant supply of electricity. This is also because many of the areas do not have electricity and therefore, some of the signals do not reach them. They were expecting development from the government in this area to improve their standard of living. However, a good side was that nobody was in a very bad situation too because of their economic condition.

Although the people are content with the hospital which is present in Charfesson, they mentioned that it would have been better if there were some community clinics within their reach. The closest clinic is 3 km away. The elderly women in site 1 of the Charfesson area mentioned that there are hospitals in that area from where they get their treatment (FGD 4 with women and elderly at site 1). However, many times they do not have the money to purchase medicines. Hence even though there are hospitals or facilities as such, they do not have enough money to avail these services to a full extent. Some of the respondents in FGD 2 have affirmed to have roads which are usable for communication purposes. They mentioned that there has been major development in the road conditions which can be coined as improvement (FGD 2 with fishermen, site 1). However, there are still some roads in the locality which are inundated when the monsoon season arrives. Rainwater makes the roads muddy and unusable.

The respondents from the same FGD also referred to some aspects in the area, which could have substantial improvement. The water supply system is mainly groundwater, accessed by deep tubewells. Most of the people are using deep tubewells (about 950 feet or 290 metres). It is also very difficult for the women to manage the water as supply is very unfavourable for collection. There are water-taps which are situated after 4-5 houses, and it is hard to bring the water because it is heavy and there is seldom anyone to help the women fetch the water.

The fishermen in the municipality mentioned that many of them suffered from water-borne diseases, as many times, saline water comes out of the wells and contaminates the clean water. To overcome the situation, women have to bear the largest brunt and they have to bring water from other places which are quite distant. Although the community affirmed to have sanitary latrines in their area and that they have made their own ring slabs, they still complained about their maintenance. During waterlogging, water overflows and contaminates drinking water. People use cylinder gas for their household cooking although some households use hay, cow dung and wood for cooking purposes in mud stoves.

Survey respondents were also asked if their road network, drainage facility and water supply were adequate and serving the purpose (Appendix 2: Graph 5-10). 62% of the respondents for this study acknowledged that their road network is adequate, while 74% mentioned that their water supply is adequate. Almost 60% of the respondents mentioned that their sanitation facilities were adequate. However, 81% of them mentioned that their drainage facility is inadequate. Whereas data shows that 63% of the respondents have access to electricity and only 24% have access to gas supply at home (see Appendix 2: Graph 5-11). Almost half (44%) of the respondents cultivate paddy as the main crop, while 23% cultivate lentils at their farms (Appendix 2: Graph 5-12). A few of the respondents were seen to have cultivated vegetables, cucumber, potato, and pulse. The land area devoted to each crop showed differentiated responses (Appendix 2: Graph 5-13). Around 10% of the respondents devote their land area of 0 to 10, 50 to 60, 70 to 80 acres, while 16% of the respondents devoted 31 to 40 acres of land for each crop. Other ranges are negligible to mention as scored below 10%.

5.4 Perspectives on climate change and adaptation

The FG participants were first explained what are the changes that follow when climate change occurs, and it was explained in the simplest terms using local examples, in local language and area-specific context. After a narration and explanation, discussion was pointed to them about what they perceived climate change as. They were then asked what difficulties they feel resulted from the changing climate upon their life and livelihoods. It was thus discovered that people have an inherent knowledge about climate change based on their own

perception and observation. Though the FG participants had little knowledge regarding the scientific background and terms of climate change, they could only describe the tangible effects felt by them due to the phenomenon (KII 9, an expert in PKSF and Former BCCTF Official).

According to the FGD 1, it appears that there are variations in weather conditions recently and the community people understand the change. Changes include increased rainfall throughout the year and less wind (FGD 1 with farmers, site 1). Some communities seem to have little knowledge about this and most of them do not have proper formal understanding about the term 'climate change'. For instance, when an elderly woman was asked about climate change, she regarded this as a type of wind which destroys everything that comes in its way and causes severe destruction to human lives and their living spaces.

Climate change has consequential direct and indirect impacts on different sectors like agriculture, fisheries, livestock as well as on their business. There is a significant level of loss and damage in ecology and environment, lives, and livelihood as well as socio-cultural loss that have been caused due to this change in climate. Another participant of FGD 7 mentioned that during night-time the temperature plummets while during daytime the heat soars, which was not the case previously (FGD 7 with day labourers, site 2). The FG participants also observe seasonal changes in the weather which they associate with their observation in the past years. The FG participants in FGD 1 have mentioned that when a cyclone hits, water pressure becomes higher, flows over the embankment and floods inland. FG 1 participants noted there is extreme heat during daytime in summer; and extreme cold at night in winter season (FGD 1 with farmers, site 1).

These changes were noted in relation to the last 20 years. From people's observation, the traditional six seasons in Bangladesh (see also Alamgir et al., 2015) have turned into mostly three seasons - summer, winter and rainy. The community people in FGD 1 made a lot of observed inferences based on the rainfall pattern in the area. Although these people do not know why the volume and frequency of rainfall is increasing as well as remaining for prolonged periods, they associate this with their local understanding. Sometimes, rain comes

and goes and is observed as more erratic rainfall. However, the participants agreed that cyclones and heavy rainfall have increased a lot compared to their childhood. People in FGD 9 also commented on the timing of the rainfall: *“Last year rainfall began before April but this year it hasn’t started yet. Last year, our crops were ruined due to heavy rainfall but this year the canals do not have enough water for agriculture purposes.”* (FGD 9 with farmers, site 3).

FGD 3 respondents mentioned that monsoon patterns have changed too. Because of the early monsoon, farmers had less time for agriculture and this year they could not prepare themselves for planting. Due to severe windy conditions and continuous rainfall, it is highly disadvantageous for the crops and the farmers. The community people mentioned that cyclones and natural disasters have changed their patterns over the years. The frequency of cyclones has increased compared to the past years (FGD 9 with farmers, site 3). It can be understood from the discussions that salinity has increased in the area. However, river erosion is not seen as a critical situation in the area.

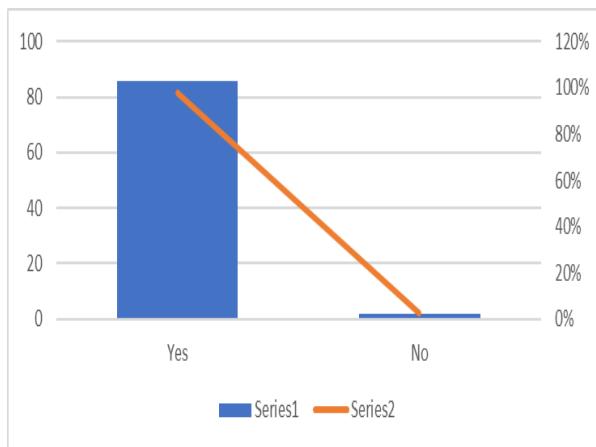
FGD 7 participants stated that they have a great deal of faith in religion. Some believe whatever happens in terms of climate change is God’s doing and the Government and other bodies have very little to do with it. Most people believe in fate for their rewards and their struggles (FGD 7 with day labourers, site 2). The farmers in FGD 1 mentioned that Allah takes, and Allah also gives (FGD 1 with farmers, site 1). Hence, it is not in the hands of humans to curtail and stop the impacts of climate change. The farmers in FGD 7 mentioned that their crops cannot be harvested because the rain has damaged them. They have never experienced rainfall at this time of the year in their entire lifetime (FGD 7 with day labourers, site 2). The community people believe that whether the rainfall is low or high is a condition for God to decide and society has no control over it.

Survey questions were asked to respondents to understand their overall understanding. Regarding the awareness and knowledge about climate change, respondents were asked if they had ever heard the term ‘climate change’, 64% of the respondents mentioned that they have not heard anything about climate change (Appendix 2: Graph 5-14). Although the majority of the respondents have not heard of climate change, they may feel that climate is

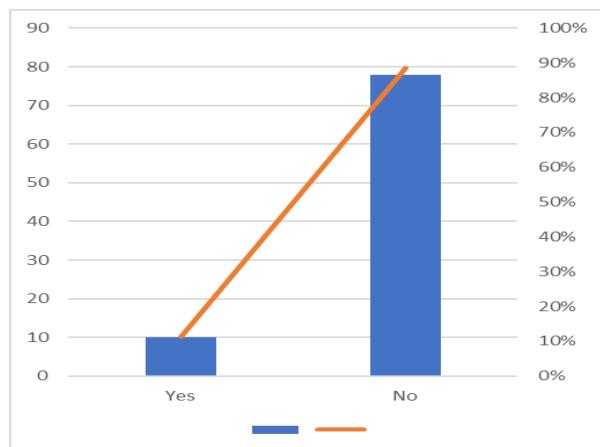
changing (Appendix 2: Graph 5-15). 98% of the respondents mentioned that climate has changed over the years. Only 2% stated that they could encounter that the climate is not changing. As most of the respondents acknowledged that they feel the climate has changed and is still changing. More than 60% opined that temperature has increased, 46% and 51% of respondents opined that cyclones are occurring more frequently than before and seasonal patterns have been irregular, respectively. 31% opined that rainfall has increased, but only 3% have observed that flood has increased, while only 8% opined salinity has increased than before (Appendix 2: Graph 5-16).

The respondents were explained through the surveys of the number of climatic events which are taking place in recent times and how they are unprecedented (Appendix 2: Graph 5-17). Most of the respondents took up this explanation and mentioned that almost all the climatic events have increased although a few of the respondents stated that there is relatively no change. More than 80% respondents mentioned that cyclonic events have increased while 14% stated otherwise. However, 5% of the respondents mentioned that there is no change regarding cyclonic events. On the other hand, 90% respondents mentioned that the rain has increased while 89% mentioned that temperature has increased significantly. However, the most important finding is that 52% of the respondents mentioned that sea level rise has not changed during the last 20 years. On the other hand, 23% of the respondents have mentioned that flood and salinity have decreased.

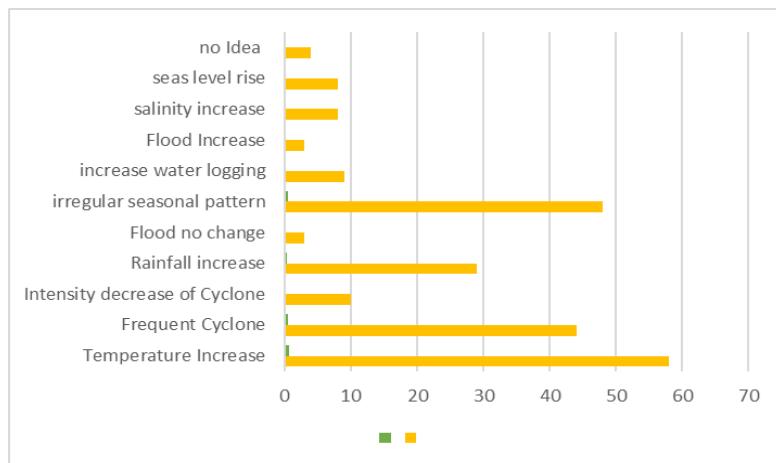
The respondents were asked if they had heard of the term 'adaptation' which was explained to them in local language first. Majority of the study respondents did not hear about the term 'adaptation' to climate change (Appendix 2: Graph 5-18). Only 11% of the respondents said that they have heard the term adaptation, 89% did not hear. However, when narrating what initiatives are usually taken when people 'adapt' to changing climate, the respondents could relate to them, proving they may not have heard of the term, but they have been engaged with natural adaptation activities for a long time.



Graph 5-15: Whether the respondents feel that Climate has changed or not



Graph 5-18: Whether the respondents heard of the term 'adaptation'



Graph 5-16: Respondent's view on main aspects of change in climate

Figure 5-1: Few graphs (Graphs 5-15, 5-16 and 5-18) showing communities' knowledge on climate change (Source: survey data, for rest of the graphs see Appendix 2)

5.5 Climate change variability or disasters that affect livelihoods

The people living in coastal areas of Bangladesh are highly vulnerable and prone to the effects of climate change. From the field visit, it was observed that people feel the intensity of natural disaster is ascending, whereas the opportunity of livelihood, food insecurity and risks of people's lives are descending. Community people have no formal knowledge on climate change, but as they live under the challenging circumstances, they have inherent knowledge and experience on climate change, disasters, and their impacts on their lives. Though they have very little effective training and awareness regarding disaster preparedness, almost 50%

of the participants of group discussion have heard about climate change and are aware of the impacts on their lives and livelihood. As the dwellers of the municipality area, people have easy access to television and other sources of information from where they get to know about climate change and its gradual consequences. As most of the respondents are victims of climate change, they have been observing the changes life-long. Regarding climate status compared to that in the previous 20/25 years, they observed that climate has changed significantly over time and is still changing. These changes are causing consequential direct and indirect impacts on different sectors like agriculture, fisheries, livestock, labouring as well as on their business. There is a significant level of loss and damage in ecology and environment, costing lives and livelihood as well as socio-cultural loss that have been caused due to this change in climate. The following section will elaborate on the impacts of climate change on livelihoods:

The FGs highlighted climate events that include season change patterns, storms, cyclones, and tidal surge incidents in the area, along with excessive rainfall and floods which impacts on the lives and livelihoods of all the FGs. Through FGD 1, farmers from site 1 area expressed that the main problem in the area is excessive and untimely rainfall which is why the farmers get affected the most as a mass amount of crops get damaged. Although water is vital for cultivation, heavy rainfall and excessive waterlogging can inundate the farmland causing the paddy to slowly decompose and is rendered unsuitable for consumption. Several drains are lying in farmland that helps dispose of logged water. However, now, those landowners are closing the drains to enlarge their farming areas to cultivate (Chanza and Mafongoya, 2017). Thus, it is also contributing to causing waterlogging in the farm. Rivers also frequently overflow and flood adjacent farmlands. Last year “Dhulat” crops were not produced due to untimely rain where the crops got soaked and destroyed. There were marks on the crops (locally termed ‘chita’) too and they got destroyed. This event caused great distress among the farmers and even led to death of some of the farmers because the loss was too much to endure.

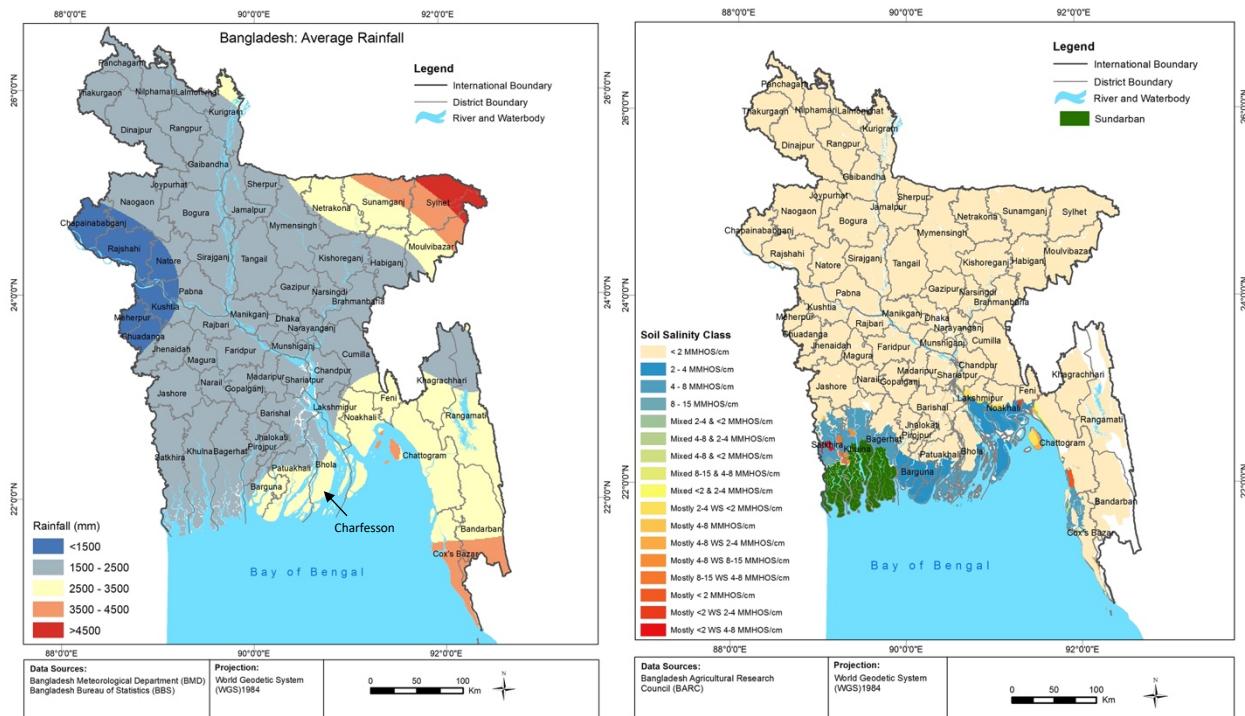


Figure 5-2 a: Average rainfall and 5-2 b: Salinity of Bangladesh

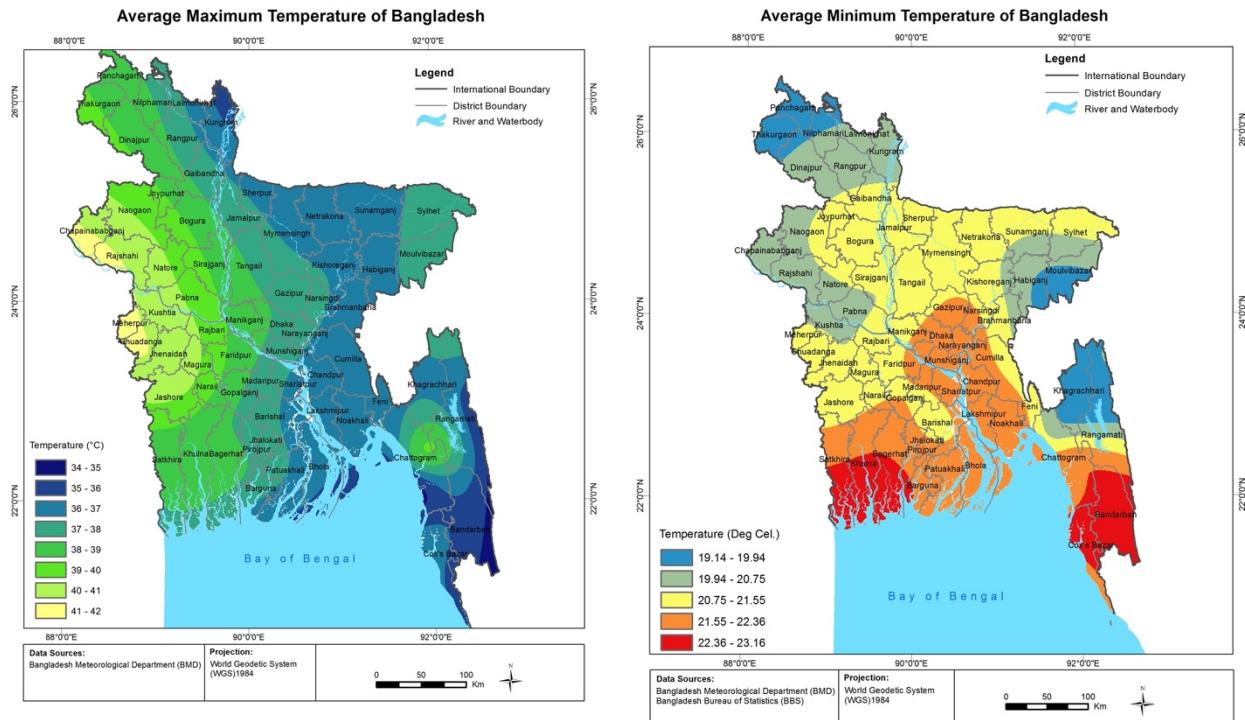


Figure 5-2 c: Average maximum temperature and 5-2 d: Average minimum temperature of Bangladesh (Source: CEGIS)

Some farmers have predicted that the upcoming seasons will have reduced output of crops. Although they use pesticides and fertilisers for crop management, it is difficult for them to maintain the costs. The main problem, therefore, is because of the excessive rainfall during monsoon season. In one of the FGDs, a farmer mentioned that 15-16 years ago, canals were deeper, and the waterlogging problem was not so severe. Even 80 maund (a Bangladeshi unit to measure weight, 1 maund = 37.32 kgs) crops could have been saved due to greater extraction of water from rainfall but now it is no longer the case. "*I had a loss of BDT 1500 (\$15) this winter due to less quantity output of the crops*" (FGD 1 with farmers, site 1). Another participant echoed that unexpected rainfall causes the most damage. Just when the crops were going to yield, rain damaged the crops, and all the potatoes became rotten; not a single potato could be salvaged. So, the respondents referred to occasions when their fellow villagers had died of shock in the field. Later, in the marketplace two people also died- such situations are common in the area, as previously accounted through the study findings. Death cases like this are not due to any health implications but because the poor people could not take the shock of so much financial losses.

In recent years, extreme cold weather has been observed. During winter, weather gets extremely cold and hampers plants growing. Saplings cannot grow enough. Rice production has become less. People mentioned that rice production went down by almost half. "*Earlier there were six seasons in Bangladesh but now it has come down to two seasons. Earlier Poush-Magh (Bangla months, which are Winter) had winter and it was normal to have fog but yesterday (Boishakh, a Bangla month which is Summer) I could not see anything because of the fog condition*" (FGD 1 with farmers, site 1). Although the Upazilla livestock department distributed poultry among the poor people, but due to cold weather 80% of them died.

The community in Site 1 mentioned that cyclone and salinity intrusion have not been a major problem in their area. Salinity problems are less because they have barriers in the area, which does not allow the saline water to get intruded in the freshwater. However, the people have complained of untimely fog in the area. The number of insects also increases due to the seasonal problem and its untimeliness. Farmers mentioned that rice production goes down almost half (FGD 1 with farmers). The following is elaboration of the scenario: a few years

ago, farmers could grow 6 maund per Bigha (1 maund = 37.32 kgs), but now they can hardly produce 3 maund per bigha. They also mentioned that they could produce 5 maund rice in 150 decimals of land. Whereas 15-20 years ago, they could produce 60/70 maunds of rice in just 33 decimals of land. Due to the demand-supply effect, though they get a bit higher price to sell rice but the total amount of money by selling the rice is less compared to the past 5 years. Moreover, the price of agricultural inputs is getting higher year by year and production cost is becoming higher, but production of crops is not increasing significantly, rather decreasing. Pesticides, fertilisers, and seed are costing high and community people are arguing with the government to take steps. In some years, they have to count losses against production cost.

Farmers from Site 2 through FGD 5 have complained to have fewer amounts of crops in contrast to previous year due to irregularity of weather. Rainwater causes more harm than saline water because salinity is also not a major concern in the area, but excessive rainwater inundates the area and causes problems in crop management and yield. In site 2, there wasn't any sluice before but now they do have it which is why salinity intrusion is not one of the major issues here anymore. The rainwater is the more crucial problem at present, but the farmers mentioned that had there been a way for the excess water to get drained, much of the loss could have been lessened. The farmers have had a loss of about BDT 50,000 (\$500) too at times (FGD 5 with farmers, site 2). Though cyclone is still not one of the major concerns in the area, but when it occurs, houses get destroyed, the roof of the houses get carried away by the wind and severe damages take place to the cattle and livestock. Different cyclones like Aila, SIDR, and Tsunami left serious impacts on the areas they affected. Cyclones create an extra pressure in different aspects of the environment, e.g., water. Moreover, nights are extremely cold whereas daytime is hot and humid. Due to cyclone and flood, crops in agriculture field are destroyed, different types of infrastructure like roads, houses, school building, bridge, and culvert are also destroyed. Some of the farmers mentioned that they use their free and available times to interchange their work as fishermen. They also work as day labourers and rickshaw-pullers and hence they do not have one defined occupation because their priority is to earn money in any which way possible.

Participants of FGD 9 also labelled excessive rainfall and its untimeliness as a major concern for their area as well. Earlier the rainfall appeared before Boishakh (Bengali month, which is Summer), and it was helpful for the farmers because of drought conditions. However, now Boishakh has already started but no rain has been seen yet. This is why they have to draw in water from external sources which are difficult situations. This means too little water is a problem while too much water too is a problem. *"Last year, crops were destroyed due to excess rainfall but this year, there was no rainfall which also caused crops to get damaged"* (FGD 9 with farmers, site 3). In addition to this, the farmers at site 3 also pointed out the effects of cyclone and hailstorm: *"The frequency of cyclones has increased compared to the past years. During cyclones our homes and crops are destroyed. But the most devastating aspect in this case is the hailstorm. Hailstorms cause the main damage to the crops"* (FGD 9 with farmers, site 3). The increase in frequency and intensity of hailstorm has been noted to be of concern. The presence of solid blocks of ice within precipitation damages young crops and causes growth retardation as well as general loss in productivity from agricultural crops. The loss in crop yield from hailstorm requires farmers to pursue alternative forms of income. Moreover, salinity intrusion makes up for a big vulnerability factor in the area of site 3. According to the community people, saline water intrudes into farmland and hampers crop production. Some people have reported the presence of salinity in their tubewell water and in agricultural land. The community people mentioned that due to the breakage of the embankment 3 years ago, saline water entered into the land of a study respondent. The saline water dried up the crops, and crop productivity went down.

There are two types of fishermen in the study area- ones who go out in the open river and do fishing, and the other are the ones who have their own fish hatcheries in close periphery of their homes. The fishermen, however, are not much affected by waterlogging situations. For the fishermen, it takes a big investment before going out to the open river for catching fishes because renting the boat is expensive, they also need to carry the ice, so fishes are kept well preserved and that the nets are also very heavy and expensive. The key problem in the locality while catching fish is the unpredictability of the weather conditions. In such situations, preparedness is simply not enough. Sometimes, the boats turn over due to the heavy rain and unrest of the river, causing fishing to be disrupted. The nets get destroyed and relatives die and never return at many times on such occasions. While explaining his experience a

fisherman said: "*During the storms we have to give up our nets and other equipment in order to save our own lives. Sometimes we incur losses of up to BDT 1 million (USD 10k)*" (FGD 10 with the fishermen, site 3).

Since the fishermen are poor, they take loans from the banks for the losses. However, when these uncalled natural disasters suddenly hit them causing a mass amount of loss in money, the fishermen are left with nothing but a big loan to pay off. This even causes loss of life for the trauma that these poor people have to go through. Cyclones impact the fishermen communities too. Frequent cyclones and changes in wind patterns that occur in sea force fishermen to face life threatening situations and often in attempts to save their own lives they have to leave their fishing equipment and rented boats behind. Strong wind current also results in productivity loss. Thus, the changing climate poses a negative impact on the primary income source, which affects their overall livelihood. The fishermen in the FGD reported that they do not receive the reparation provided by the Government.

Similarly, those who farm fish in household ponds also face economic losses due to heavy rainfall and subsequent flooding. According to a respondent, a fisherman in the locality had taken a loan of BDT 2 lakhs (USD 2k) from the Government and made his small-scale fish farm which was about 4-5 miles from there. Due to excess rainfall, the ponds became inundated, and all the fish escaped from the ponds, resulting in large economic losses. Sometimes it is also seen that people die from cardiac failure from not being able to take shocks (FGD 2 with fishermen, site 1). On the other hand, due to the large-scale loss that climate change brings to the locality, many fishermen have mentioned that they or their contemporaries have migrated to other cities. The fishermen from FGD 6 mentioned that many have migrated to Chittagong and Dhaka over the last 5 to 7 years in the purpose of looking for a better job or livelihood option (FGD 6 with fishermen, site 2).

FGD 6 stated that climate change is a causal factor for a number of challenges but there are also non-climatic factors that add to their misery, which include the invasion of pirates during fishing, which results in economic and moral losses (FGD 6 with fishermen, site 2). Again, the Government of Bangladesh has an embargo program that the eggs of Hilsa fishes cannot be

caught before a certain age and maturity of the eggs. While this causes temporary obstacles for the fishermen to go fishing, in the long run, it is quite beneficial because it allows the eggs to mature and turn into big fishes which can then be sold with higher profit margin. During that period, the government provides 10 kilograms of rice per household which is insufficient for their family.

According to the FGD with day labourers, it has been observed that day labourers and their option to work is dependent on the availability of work at that certain period of time. During the discussion in site 1, one of the day labourers mentioned that some of them had to sit idle for 5-6 months since it was monsoon, and they did not have the options to work. It is stated by a participant of FGD 3 that “*We work in the fields, do agriculture, dig soil, do various manual works. Today there is rain, so today we didn't get any work*” (FGD 3 with the day labourers, site 1). Sometimes, natural disasters also impede their work options and sometimes can cause fatal accidents which become a limitation for their future work capabilities for the rest of their lives. One of the respondents made an account of a day labourer who fell victim to a cyclonic storm. During one of the storms, the man climbed up to the top of the house for shelter while a sharp object hit his eyes and damaged it. The local doctor recommended him to go to Barisal (the nearest city with better medical facilities) estimating a cost of BDT 1,500 (\$15) would be needed to go through the recovery. He went to Barisal enduring a lot of struggles to find out that the whole recovery for his eyes would need BDT 15,000 (\$150) which was impossible for him to bear. Fortunately, he had some contacts in the area who helped him obtain medical facilities, but his eye problem was not fully treated. He then returned home but the misery of this incident had not left him (FGD 3 with day labourers, site 1).

Heavy rainfall reduces the working hours of the day labourers like agriculture labourers, mason, rickshaw-pullers etc. As a result of the loss of earning opportunity, they face difficulty purchasing food from the market. The day labourers in site 2 mentioned that when there is a storm, they cannot do many of their labour activities. However, from the months of Chaitra to Ashwin (Bangla months), there are no such problems. “*Today there is a storm so it means I will not be able to drive my 3-wheeler tomorrow. This is because it is run by charging the battery and there will not be any electricity today*” (FGD 7 with day labourers, site 2). The day

labourers in Site 3 mentioned that they are frightened of institutes like BRAC, who give them loans. *“I have taken a loan of 1.5 lakhs (USD 1.5k) from BRAC and every time I see them my heart skips a beat. They had earlier come to our house to raid and taken away even our basic utensils, because we could not pay back the money”* (FGD 11 with day labourers, site 3).

Women and elderly members of the family are mostly dependent on their earning members of the family, mostly their husbands or sons. So, they get affected when their income gets affected due to climatic reasons. Also, due to cyclones or other disasters their homes and crops are destroyed and severe casualties including deaths occur (FGD 4 with women and elderly people, site 1). Most women are in a very stressful situation. In terms of having loans, managing their households, water and children, women are solely responsible for addressing the majority of the climate problems (see also Tanjeela, 2023). One of the elderly women mentioned that union-level areas are more vulnerable. They also complained of water management, cold weather being an impediment to keeping livestock well managed etc. During a waterlogging situation, water overflows and therefore contaminates drinking water. It is very difficult for the women to manage the water. The water supply is also very unfavourable for collection. There are taps which are situated after 4-5 houses and it is hard to bring the water because it's heavy and there is seldom any person to help the women fetch the water. Some women also complained that they had failed to repay loans. On the other hand, according to FGD 12 in Site 3, elderly women stated that salinity intrusion is the major problem in their region. Apart from that, the participants are both the victims of sea level rise and excessive rainfall. Because of water logging conditions, the crop productivity is heavily hampered (FGD 12 with women and elderly people, site 3).

Riverbank erosion is also a major problem in Charfesson Upazila (subdistrict), not within the municipality area. The authority cannot take on-spot initiatives where bank erosion is occurring. The Water Development Board usually comes to visit the spot and report it to departmental higher authority. Then, the technical team comes to visit the spot and then prepare documents for the Planning Commission to take initiatives. However, this process requires a long time to take initiatives; meanwhile a lot of people lose their houses as the land submerges into the womb of the river. After losing their houses, people become displaced.

Those who have land elsewhere, they might go and rebuild their houses, but those who have no land, have no place to migrate. However, it has direct and indirect impacts as displaced people try to get their shelter, food, job in municipality areas affecting others and themselves specially with basic hygiene causing various contagious diseases. It is assumed that embankments could protect land from erosion, but experts in group discussion (FGD 13 with local officers) claimed that there is no direct relation between riverbank erosion and embankment in terms of protection. But embankments can protect inlands from inundation during tidal surges and rising sea levels.

Climate change seriously impacts people through numerous climatic and weather events. Survey results show that climate change-induced hazards and disasters mostly impact the community people at a moderate level, as Graph 5-19 (Appendix 2) shows, but some are impacting at an extremely high level. Riverbank erosion seriously impacts livelihood, infrastructure, and physical assets. 41% of the respondents concluded that they are being impacted by riverbank erosion at a very low level. The rest of the 19% respondents deduced that this has a moderate impact on their lives and livelihoods.

Level Climate Change Impact										
Disasters/hazards	Very low		Low		Moderate		High		Extremely high	
	0%		0%	18	19%	58	61%	18	19%	
Cyclone		0%		18	19%	58	61%	18	19%	
River bank erosion	39	41%	8	8%	1	1%	0	0%	0	0%
Flood	2	2%	22	23%	29	31%	17	18%	10	11%
Salinity	15	16%	21	22%	25	26%	7	7%	14	15%
Storm surge	17	18%	26	27%	6	6%	0	0%	0	0%
Change in rain pattern	12	13%	41	43%	29	31%	5	5%	2	2%
Change in temperature	10	11%	31	33%	29	31%	5	5%	0	0%
sea level rise	29	31%	17	18%	1	1%	0	0%	0	0%
change in seasonality	17	18%	30	32%	23	24%	7	7%	7	7%
drought	38	40%	9	9%	0	0%	1	1%	1	1%
others	0	0%	0	0%	2	2%	22	23%	6	6%

Figure 5-3: Survey respondents' evaluating the level of impacts by climate change for various types of hazards (shown in Appendix 2: Graph 5-19)

The massive damage to lives and livelihoods, including physical infrastructure, is caused by the cyclones in this location, which 61% of the respondents mentioned have moderate impacts. However, the other 19% of respondents claimed that cyclones have extremely high

impacts. The respondents mentioned a moderate level of impacts of 31% for floods, rain patterns, and temperature changes. On the other hand, the extremely high impact of climate change has been inferred by 11% for floods, 19% for cyclones and 15% for salinity in ground and surface water.

On the other hand, during the survey site of this study, people have been found to be facing numerous problems in their lives. It was found that 60% of the respondents face poverty to which climate change has been the main determiner (Appendix 2: Graph 5-20). Besides poverty, 46% of the respondents have problems with water for drinking and sanitation. Poverty and scarcity of drinking water are leading them into trouble with health that almost 40% of the people acknowledged. 37% of the respondents are challenged with climatic disaster in the study areas. Besides these challenges, there are numerous responses against the challenges they face, such as 32% for lack of land, 25% for lack of access to electricity and 19% for lack of proper transportation.

5.6 Findings on the various aspects of vulnerability in terms of adaptive strategies, barriers and the adaptation needs

The field visit findings showed that communities in Charfesson have basic adaptation needs to address their vulnerabilities. The sections below demonstrate the adaptive strategies, barriers and needs based on the findings elaborated so far.

5.6.1 Coping strategies and adaptation initiatives of respondents

In relation to the previous section, which outlined the impacts of climate variability and hazards, the community people have been taking measures and strategies to overcome difficulties. Though, they are not well aware of adaptation terminology but have inherent capabilities to cope with the disasters and its impacts (KII 9, an expert in PKSF and Former BCCTF Official). This section includes the situation of the vulnerable people adapting to various climatic challenges, which are linked to food security, water security, financial management and overall survival in the face of climate change.

When asked about which condition affects them the most, all the participants unanimously agreed that heavy rainfall brings the most loss to them, even more than flood. From the responses of the participants of the discussion, it can be seen that there exists no effective adaptation strategy which would help them to cope up with this climatic phenomenon. Due to narrow canals and filth of it, water cannot go out resulting in waterlogging. As, during the last 15 years, rivers and canals are not excavated, some farmers dig small drains to remove water in order to avoid and overcome waterlogged conditions. Although expensive, some farmers remove the excess water using pumps, to save their crops from damage. There is an initiative to change the agricultural practices too in order to change the kind of crops that are not tolerant to climate impacts.

Some FG respondents use up their savings in extreme money situations to meet their basic demands. They also take loans from different NGOs, banks and local moneylenders on interest basis and pay back through different monthly and weekly schemes. The other form of loan includes borrowing money from neighbours or well-off relatives who extend help and support to poorer relatives in times of need. They purchase cattle to rear, food to overcome the scarcity, sometimes spend on repairing housing infrastructure with the borrowed money. Sometimes, they take a second loan from a different NGO to pay the first loan. One farmer pointed out that in the last season a storm made a tree fall on the roof of his house. This damaged the roof, and to repair the shed he had to take a loan from an NGO, which he is still repaying. Another participant informed that he bought a vehicle using loaned money. Furthermore, farmers in this area have to keep their land as collateral to get loans, and when their crops get damaged due to unexpected climatic phenomenon, they have to borrow money from other institutions to keep their land from getting repossessed, thus sinking themselves deeper into the debt cycle. Though most of the respondents said they could pay back the money in time without facing difficulties or having money shortages.

Some community members sell their household assets although some rely and depend on the government or NGO assistance. After being affected in agriculture production, numerous people have to sell their cattle to make up for the financial crisis (FGD 5 with farmers, site 2). Also, they have reinvested the money in agriculture again hoping for better crops. Usually, 6

maund (per 160 decimal) was supposed to be produced, but due to disaster impacts as storm, flood and insects attack, waterlogging and water scarcity in agricultural fields, production was reduced up to half. Moreover, production cost has increased but selling price of the crops has not increased rationally. Another community member mentioned that last year he grew 'Dhulat' crops using loans. But due to too much rainwater, the crops got destroyed. But he had to still pay back for the loans which is why they sold the cows and paid a loan. A farmer from FGD 9 mentioned that he had to sell all the chicken from his small chicken farm which was destroyed by cyclones (FGD 9 with farmers, site 3).

From the FGDs it was identified that these people do receive help during these crisis moments. But in order to economise their needs, they reduce the frequency and quality of meals which was expressed by some of the community members in the study locality. They also search for "wild foods" from the forests instead of having normal market purchases. In the last cases, some also have to resort to begging to meet the adaptive needs to combat and tackle climate change conditions. It was also found that the people try to help each other in the community in times of distress. The ones who are less affected try to help the more vulnerable people financially and by giving resources and food.

Taking a lease is a common adaptive strategy within the farming community. Some people do not own land, and they take property from other landowners with lease to do their farming. For instance, one of the farmers took someone else's land on lease for one year. He wanted to grow two types of crops to have stability in income. In that season, two crops would be grown, i.e., Amon and IRRI. The farmer planned to pay off for the lease using the revenue earned from the Amon crop while they would use the money incurred from IRRI crop production for their family maintenance. However, in one of the past seasons, Amon crop was washed off due to excess water so they could not pay off the lease money. The landowners remained unforgiving to them and gave away the land to some other farmer for the next season (FGD 1 with farmers, site 1). These problems cause a huge amount of stress to the farmers who cannot pay off loans in the right time due to climatic problems.

However, from all the discussions, it was found that the majority of the respondents in the area were in debt. Fishermen also need to take loans as a coping strategy, to recover the loss they face due to climatic calamities. When uncalled natural disasters like cyclones and storms suddenly hit them, they are forced to return. Sometimes the boats sink and cause a huge loss for them. This leaves the families in sheer despair. The fishermen face large-scale financial losses since they cannot catch enough fish to recoup the operational expenses and make a profit. In case their lives are saved, they are left with nothing but a big loan to pay off. This even causes loss of life for the trauma that these poor people have to go through.

It was found from the discussions with fish farmers that all the participants were in debt. They took loans from various organisations as well as from family members and neighbours. *“Last year my farm got washed away, fish worth around 4-5 lakhs (USD 4-5k) taka also washed away. Previously also many fishes escaped. I have tried to make it up by taking a loan of 1 lakh taka from the Krishi Bank by keeping the ownership documents of my house as collateral. However, I couldn’t repay the debt since last year my farm got washed away again, and so I’ve lost the ownership of the house. Then I took a loan of BDT 1.5 lakhs (USD 1.5k) from an NGO and started over, my guarantor for the loan was Nazrul (a relative). So, this way I started over my business.”* (FGD 2 with fishermen, site 1).

In most of the cases, bank loans are rather hard to get because of their requirements for a chain of documents. Hence, the poor people take help from relatives and other people in the locality which is much easier to obtain. But in order to pay one loan they take another loan and this way they keep on moving round in the vicious cycle of paying off debt which eventually never gets paid unless they have a substantial income.

One of the day labourers informed that during the flood they just sit around without any work. They do not receive any support such as government relief or aid. Many of them had to take loans to make ends meet during this time. During one of the cyclones, a respondent mentioned to have been struggling for repayment of the loans due to lack of work opportunities - as evidenced through the following statement: *“During Mohasen we had to sit idle for many days. We faced tremendous losses; people had no work for many days. Work*

stopped for nearly one and a half months. We had to take loans to buy food for survival" (FGD 3 with day labourers, site 1).

It was also found that the people try to help each other in the community in times of distress. The ones who are less affected try to help the more vulnerable people financially and by giving resources and food. When asked, it was found that each and every participant of the discussion was in debt. During off-seasons such as the rainy season when availability of manual work is scarce, they need to borrow money from loan sharks at high interest rates to meet basic needs for survival like food. *"Some people have loans, some people don't. Those of us present here all have loans. If we loan BDT 20 thousand (\$200), then we have to pay BDT 550 (\$5.5) per week. BDT 50 (\$0.5) is taken as interest and BDT 500 (\$5) is deducted from the loan principal" (FGD 3 with day labourers, site 1).*

As an adaptive initiative to face the food scarcity during off-agriculture-season, people go to the sea for fishing. But due to extreme cold water, they can hardly go fishing, and the robbery inside the forest frightens them. To tackle the financial crisis they face during disasters and after disaster shocks, they often take loans from different sources on an interest basis. They are forced to spend the savings and earnings which could otherwise be used as seed money preserved for small businesses or reinvested on their farm. Thus, they have to cope with this problem, and later they hunt for alternative occupations.

FGD participants acknowledged that the Red Cross is quite active in providing early warning signals on disasters like cyclone and tidal surge through loudspeakers on the shoreline. If fishermen who are at sea cannot get these warnings, their relatives, whoever get the warning, communicate with the fishing boat and warn about the upcoming disasters. This is how they can come back on time (FGD 2 with fishermen, site 1) as well as take the necessary preparation for themselves.

When fish farmers were asked about the strategy they take to prevent fish from escaping when the ponds are inundated, one participant responded that they elevate the borders of the ponds using mud, however, the water level may rise beyond that, so sometimes it is not

very effective. Sometimes, when the fishing activities are not happening, people opt for other forms of activities to earn money, especially during off-season or after enduring loss. One respondent informed that he has purchased a vehicle which he drives as a source of alternate income.

In many cases, the people also have to change their professions and move to a new place as migrants as an adaptive strategy (see also Nishat et al., 2013; Rigaud et al., 2018). Due to the climatic hardship and lack of opportunities, many people within the locality have mentioned displacement. In FGD 6 with fishermen, it was found that in the last 5-6 years many fishermen have abandoned their things in Chittagong and fled to Dhaka for migration. Poor and extremely poor people have less opportunity to earn. On the other hand, due to disaster loss, their expenses are becoming higher than ever before.

The community people have a great deal of faith in religion. They believe whatever happens in terms of climate change is God's doing and the Government and other bodies have very little to do with it. One of the day labourers mentioned: "*Change (climate) cannot be stopped; it is from Allah. How can the Government stop it?*" (FGD 7 with day labourers, site 2). Hence, from the study, it can be noticed that most people believe in fate for their rewards and their struggles: "*Allah takes, but Allah also gives*" (FGD 1 with farmers, site 1).

A number of government initiatives (not BCCT funded) are in place which are helping the community to get some protection from extreme. For instance, there has been a construction of a barrier which prevents excess stormwater from flowing into their locality. The people have also mentioned that the Government does provide seeds and fertilisers for them to grow crops. The regularity and quantity of these services may not be sufficient, but the community people are quite content with the Ministers because of the activities and initiatives that have been taken in the area.

5.6.2 Barriers to adaptation

With regard to the above section, this section elaborates the barriers to adaptation that the vulnerable communities face in their respective area. According to the respondents, they lack the capacity to purchase agricultural inputs, and borrowing formal or informal funds is difficult since these people are already indebted. They do not own land and have no available jobs in their communities all the time. Community people also lack the expertise for doing other jobs. This makes them inclined towards doing just one job. The vulnerable communities do not also participate in local development projects all the time. All these add up to becoming barriers to their natural strategies for adaptation.

The cost of damages incurred by the farmers makes them suffer for the same year and it carries on for the following year. One of the farmers commented: *"Had the crop not been destroyed, I could have used the seed for next year. However, for this purpose, I had to buy new seeds this year with a price that rose from BDT 49 to BDT 100 (\$0.5-1)"* (FGD 1 with the farmers, site 1). Sometimes, the local strategies to save fresh water fail like the community people make a surrounding across their pond so that the water inside the pond remains less contaminated and fresh water can still be used during floods. But sometimes the roads get inundated and the pond water overflows, which is why the water in the pond can no longer be used. This encompasses the barrier of limited capacity of the people to tackle the challenges.

The community members face difficulties to receive loans from financial institutions. As mentioned in one of the FGDs, in order to take a loan of BDT 20,000/- (\$200) an amount of 10% is deducted and the rest is given as loans. The poor people need to submit a copy of their photograph along with the National Identity (NID) cards. Not all the poor people have these documents. Hence, sometimes they have to rely on relatives or friends to give them money. Moreover, to take loans, a legal document of owning a land is required without which the banks are not keen on providing loans to poor farmers. People who do not own land and take property from other landowners to do farming do not get the loan. Had they been given enough loans with easy conditions, these farmers could have started their own businesses. It is a problem claimed by the people that only the rich people who own the land eventually

end up getting the loans, which does not serve the real purpose (FGD 11 with day labourers, site 3). In the survey, some questions were asked to the respondents in relation to the financial arrangements of the poor people. Out of the total survey respondents, 95% mentioned that they do not get any financial help from any family members within Bangladesh (Appendix 2: Graph 5-21), while 71% mentioned that they have taken loans from microcredit programs for their financial purpose (Appendix 2: Graph 5-22).

Sometimes the people are taking informal loans, but they pay it back through the 'Dadon' system. For instance, if someone is taking loans for fishing, the fisherman ought to give a significant chunk of fish back to the person who had given them the loan. This is the 'Dadon' system with which the fishermen take loans. The government also gives less support for starting up a new business. Hence, the community members are left with very little options.

Adaptation would have been easier had there been more conducive support from the Government. According to the community members, relief from the government is not enough compared to the needs of the people. Through the FGDs, it was found that having political connections is quite important to be a direct beneficiary of different government assistance. The public leaders (councillors of the municipality) of the area usually select beneficiaries for any relief or support program. The community people mentioned that the ones who are politically connected end up enjoying most of the benefits: "*Those who are involved in politics are the ones who are eventually becoming rich*" (FGD 1 with the farmers, site 1).

The Government of Bangladesh has assigned a rule to the fishermen that the eggs of the fishes need to be mature enough before they can be caught with the nets. While this has been a productive and fruitful rule passed by the Government, there have been moments when the fishermen have been completely unemployed. However, they did mention that in the long run it is a very sustainable policy.

The respondents expressed their difficulties to secure their entitlements for government relief. To be able to receive relief, the vulnerable communities would need to get registered.

According to the vulnerable communities, one would need to pay BDT 300 (\$3), but despite paying this amount, sometimes their names might not be registered, and eventually, they would miss out from the relief. On the other hand, a number of relief distributors unethically keep back the relief to themselves. The poor people mention that it appears as if the relief providers are 'poor', whereas the poor are considered 'rich' since they remained deprived of the relief.

Too often the community people experience a number of social insecurities. Sometimes, there are incidents like murder and other forms of criminal activities which the community people cannot comprehend why happened. The community people also worry about getting their daughters married because it is an expensive process. In one of the discussions, a family member was attacked and fell victim to a criminal offence in the area. Hence, it caused a major problem in the family since the daughter of the family could not get married due to loans, which was ought to be paid by the victim. Lack of money brought depression and poverty in the house, causing problems overall (FGD 11 with day labourers, site 3).

Some of the people believe that situations like excess rainfall, untimely rain or hailstorms are a doing of the God. The following statements from the FGDs express people's reliance on religion and how they attribute climate change to that: "*Due to weather conditions, we have had major loss in our selling. This is not due to weather change. It is the wish of God*" (FGD 8 with women and elderly, site 2). They see this as an act of God and all calamities are interpreted as a curse towards them. "Whether the rainfall is little, or more is a condition for Allah to decide and we have no control over it. We cannot stop the rain" (FGD 9 with the farmers, site 3).

Many of the FGD participants argued that they did not receive any training on disaster preparedness. They demanded real-time disaster warnings, updates, and to-do suggestions. To be more adaptive and well-prepared for the disasters, they demand for different training programmes on awareness and preparedness. If they could get those training, they could be more aware and prepared about disasters. And thus, they would be more capable to fight the impact of disasters, and loss of lives and assets would be reduced. They could manage assets,

preserve dried food, and take disabled household members to shelter. Men and physically capable people could help women, pregnant women, children, and aged people take shelter.

FGD participants also acknowledged that sometimes fishermen who are staying in deep sea fall victim of sudden disasters as mobile phone networks are not available and they cannot get early warning signals on up-coming disasters.

The vulnerable communities adapt to various climate change problems to overcome their respective barriers to adaptation- the foremost of which is poverty. In Charfesson, the community is exposed to a wide variety of risks. In waterlogging conditions, hiring pumps is expensive and the communities do not necessarily have the money to buy expensive pumps. This is one of the biggest impediments to addressing the adaptation needs of the communities- people can identify the problem but they do not necessarily have the money to meet their needs. Poverty has a compounded impact on the life and livelihoods of the people. The community members in Charfesson have an innate difficulty to explore new jobs and work areas which is why they continue doing their existing task. This is because of the lack of skills and expertise they possess. On top of that there is insufficient relief or assistance. When disasters hit the area, the community people, and their capacity worsens and that they need external assistance to recover their loss. In such cases, the Government's role is crucial and how much assistance it can provide for the poor to go for recovery and rehabilitation. However, there is not enough relief or assistance received by the Charfesson community people.

Although migration is becoming a common way to avoid living in a climate prone area (Rigaud et al., 2018) that is not always the most convenient adaptive strategy. Due to the climatic hardship and lack of opportunities, within the locality many people have mentioned displacement. Poor and extremely poor people have less opportunity to earn. On the other hand, due to disasters, their expenses are becoming higher than ever before. In this area, working poor people generally work in agriculture and shrimp farms. But recently, shrimp farms have been severely affected by virus attacks. The Loss of working opportunities is causing the migration trend to go up among the people. Due to displacement or migration as

a result of climatic disasters, the number of single/nuclear/broken families are increasing day after day. These families are more vulnerable to disaster effects than ones of a combined family.

Public involvement is a major issue during project selection for any projects in Bangladesh, regardless of them being development or adaptation projects. Decision-making is usually restricted to influential politicians, and high officials and, as reflected in one of the quotes above, public consultation is generally limited to only pen and paper (Islam, Wahab and Benson, 2022). As a result, the implemented projects generally tend to cater only to certain groups of people in good terms with the decision makers rather than the actual vulnerable communities. *“We are not consulted before the implementation of any projects. They only consult us when they run into problems or in the face of protests”* (KII 13 with a Chairman of an adjacent upazila). Another participant mentioned: *“Our involvement in project selection is generally very limited. The local MPs and influential people take the decision”* (FGD 13 with local government officers). Another participant mentioned: *“The truth is that our role is limited to just implementing the designs and decisions taken by Chairmen and higher officials. We do not have any say in the decision-making process”* (FGD 13 with local government officers). The Top-Down approach is strongly reflected in the quotes above. The field level and subordinate officials usually have no say over the projects undertaken in their area, even though it is very important to take their opinion into account since they possess deep understanding and knowledge of the socio-cultural and environmental dynamics of the area by virtue of being a local. Decisions and designs are imposed on them with impunity from the top and in most cases the responsibility of the local level officials is restricted to only execution of the orders passed down without proper consultation of them or the affected communities.

Supply of the Climate Funds is very inadequate in Bangladesh, and it has actually decreased since the establishment of the trust fund. On top of the small amount of funds received, much of it is lost in the system due to various irregularities, institutional inefficiency, corruption, and other system loss (see also Masum and Khan, 2020; Rahman et al., 2016). This means that an even smaller amount actually reaches the vulnerable communities. This can be explained

by the following two statements: *“I think those who are poor, who are living on marginal government land by building makeshift straw structures, could be helped if a housing system could be developed for them, because they do not even have safe shelter. We cannot plan on implementing this because it requires a huge amount of money, and it is unlikely that the government will grant such money for this purpose”* (FGD 13 with local government officers). On the other hand, *“We heard that in the last fiscal year around BDT 100 crore (USD 10 million) was granted. This amount for the whole of Bangladesh is nothing, even 10 years ago they granted more than BDT 700 crores (USD 70 million) but now it has decreased instead of increasing”* (FGD 13 with officers of local implementing agencies). *“We cannot yet afford to start a program to rehabilitate the poorest people”*, they added.

Project approval process requires ministerial and bureaucratic approval. To go through the process, projects are tapped in different tables to get BCCT or ministerial funds. It requires a lot of time. Projects proposed from the local government department need to go through administrative procedure to reach the minister table and after passing, the projects come back through the same route. To get the fund from the environment ministry, the process is a bit harder. Each time the project files have to travel through the top to bottom route twice. Also, projects must meet the deadline of June of every year before the budget is prepared and adjusted. As the project approval process takes such a long time, the implementation phase is left with a shorter time than required. Thus, the overall projects have to be completed within a shorter period. If the projects are not completed in due time, implementation time needs to be extended.

5.6.3 Adaptation needs of the Charfesson community

Based on the above Sections which elaborated the study area and vulnerabilities, the field visit findings showed that communities in Charfesson have basic adaptation needs to address their vulnerabilities. These vulnerable communities need subsidies in agricultural inputs because they are poor farmers and require constant assistance. People also require easy access to loans which should also be of nominal or least interest. Additionally, the communities require a drainage system that is not convoluted and that they need facilities for canal excavation, sluice gate, culvert and tubewells for fresh water. However, the people

need immediate and detailed training and initial capital for investment livelihood. They also demand transparency in government relief or assistance for the common good of all.

For the last 15 years, canals have not been cleared, and they are almost filled with siltation. If canals were accommodative, they could carry a huge volume of water to dispose of. While discussing the adaptation needs, one of the FG participants from site 1 commented: "*Earlier the canal excavation was done to a deeper depth and that would drain the majority of the water. I am talking about 15-20 years ago when the crops were of good amount. 60-70 maund of crops were harvested at that time, sometimes it went up to 80 maund. But now that is not the case anymore*" (FGD 1 with farmers, site 1). They recommended that immediate steps should be taken for the expansion of saltwater intrusion canals and the repair of the damaged sluice gate because during excess rainfall the canal will be able to contain the excess water and on the contrary during drought, the canal will serve as an active source of freshwater for irrigation purposes.

Most of the time, the government projects are not formulated according to the needs of the low-income people. Even though this may temporarily improve the quality of life and socio-economic aspects of all the residents of the area, it is not sustainable and the vulnerability from climate change still remains a threat which has the potential to negate any benefits gained by the development projects in vulnerable areas. "*No, our schemes and works undertaken here benefit the rich and poor equally. There's not much special benefit for the poor. Like, the poor would be especially benefited if we could build a cyclone shelter in the Char areas or build a housing system for them, but we have not done anything like that. We've made roads and infrastructure, drainage systems, bus terminals, etc. which help the rich and poor equally or in some cases may even benefit the rich more*" (FGD 13 with LGI officers).

The community people expressed similar concerns about having culverts, which also facilitate water passage and that serves as a good option for facilitating crop management. They also mentioned the need for tubewells, water sources to get fresh water for daily livelihood purposes. According to the vulnerable communities, the Government has not been taking enough actions for canal excavation. Had it been done; the water could have been used for

various purposes because the fresh water could have been stored in the canals. In one of the field visits people mentioned about one source of safe water for 20 families in the locality. They mention that had there been a tap here to give them fresh water, the families could have a safe and accessible water source for daily services. The same people also mentioned that if the Government gave them a proper facility to promote and have fish farming, then it would have been very beneficial to them, and they could have a greater number of fishes produced (FGD 1 with the fishermen, site 1).

Opinions regarding the development and adaptation projects were obtained by the KII 22 respondent who was a Councillor of Charfesson Municipality. As per the respondent, it was understood that the vulnerable communities do not participate in local development or adaptation projects all the time: *"We understand that there are barriers to adaptation. However, the capacity barrier of the people is also pertinent. You see, development is also important for adaptation. For instance, if there is a pond in the middle of a community, everyone would want that pond to be clean. This is so that the water of the pond remains less contaminated, and for that, we also practise environmental awareness - we try to teach the children to keep the pond clean so that fresh water can still be used for various purposes. However, during flooding or excessive rainfall, the situation changes, and it is no longer in our hands; due to the rain, sometimes the roads get inundated, and the pond water overflows. You may have heard from our community people that in these situations, the water - which we helped to preserve with so much effort in the pond - can no longer be used. I believe if we have an enclosure surrounding the pond, the water can still be used for various purposes"* (KII 22 with a Councillor of Charfesson Municipality).

The following statement shows that the government interventions would be more effective in such cases and examples with the co-benefit of developmental activities for the longer sustainability of the interventions. As per the KII 21, it was understood that the vulnerable communities adapt to various climate change problems to overcome their respective barriers to adaptation. In Charfesson, the community people, particularly the farmers, experience repeated hurdles due to waterlogging conditions. He elaborated, *"You may have already heard from our farmers that hiring pumps is expensive and the communities do not necessarily*

have the money to buy expensive pumps. I echo with the farmers that this is related to one of the biggest challenges to address the adaptation needs of the communities here" (KII 21 with a local Agriculture Officer).

Opinions regarding social welfare in line with poverty reduction were obtained by a respondent who is working in the social welfare department in Charfesson. He opined: "*The problem is people can identify the problem, but they do not necessarily have the solution ready to meet their needs. The solution needs money. We, as representatives from the government's Social Welfare Department, want to support the poor people. Welfare is one of the main ways to contribute to poverty reduction. However, climate change has a compounded impact on the life and livelihoods of the people" (KII 25 with local Social Welfare Officer, Charfesson).* The Agriculture Officer stated that the community members in Charfesson have an innate difficulty finding an alternative livelihood, which is why they continue doing their existing tasks. "*Farmers continue to do agriculture because they have been doing this since their past generations. Their fathers did it, and so did their grandfathers. But now, due to climate change, if you propose to them to do a new task, it would naturally be very difficult for them to do. This is because the lack of skills and expertise they possess is simply not in line with what is required to take up a new task*". He added: "*On top of it, there is insufficient relief or assistance. When disasters hit the area, the community people and their capacity worsen and that they need external assistance to recover their loss. In such cases, our role as the Government is crucial" (KII 21 with a local Agriculture Officer).*

As per a journalist, the area of Charfesson has been experiencing heavy and unexpected rainfall that affects the people seriously. "*The canals have become clogged, and water drainage does not happen properly, and this leads to waterlogging. I have reported on how it impacts on the farmers, the fishermen, and others who need to spend money and resources to go out buy and conduct maintenance for livelihood*". He also added, "*It is very difficult to see the large financial losses of the people and particularly how the operational expenses keep increasing particularly after a disaster" (KII 20 with a local journalist).*

One of the respondents, who leads a local NGO in Charfesson which is called COAST Trust, discussed the challenges of the people and how the organisation has been lending support to make their communities resilient: *“Our people in Charfesson have basic adaptation needs to address their vulnerabilities. They need subsidies in agricultural inputs as our farmers are in need of resources- the poor farmers require constant assistance. Our people, particularly those who are constantly affected by climatic change and natural disasters, require easy access to loans which should also be of nominal or least interest. My organisation, COAST Trust has lent support to many such poor farmers. We have contributed to adaptive livelihood opportunities for the poor people so that they are able to bounce back when disasters hit”*. She added, *“The vulnerable communities and people need immediate and detailed training with regards to the livelihood opportunities. They also need an initial capital for investment livelihood. The government is trying its best, but they are in need of active support which is persistent”* (KII 26 with a local NGO).

The information collected from the FGD was also complemented with the survey findings. 81% of the respondents mentioned that their drainage facility is inadequate (see Appendix 2: Graph 5-11). More than 80% of survey respondents have never received any training on adaptation to climate change. Most importantly, almost 80% of the respondents showed interest in training on adaptation and climate change. Respondents were surveyed as to why training in climate change is needed (Appendix 2: Graph 5-23). Almost 40% to 45% of the respondents mentioned that they need training because of knowledge enhancement, cyclone preparedness, flood preparedness and post-disaster preparedness. 62% of the respondents feel that they can have an enhanced knowledge level if they get training on adaptation and climate change.

Table 5-1: Summary of findings from FGDs and interviews

Vulnerability	Adaptive strategies	Barriers to adaptation	Adaptation needs
1. Water-logging due to heavy and untimely rain/tidal surges	<ul style="list-style-type: none"> - Dig small drains/ use pump to remove water - Change agriculture practices - Borrow funds - Use savings to meet basic needs - Sell/ lease assets - Rely on govt/ NGO assistance 	<ul style="list-style-type: none"> - Poverty - Lack capacity to purchase agricultural inputs - Borrowing funds is difficult for already indebted poor people - Do not own land - Lack expertise for doing other jobs - Job unavailability - Insufficient relief/ assistance - Lack of transparency in relief/ assistance distribution - No participation in local development/ adaptation projects 	<ul style="list-style-type: none"> - Subsidy in agricultural inputs - Easy access to loan - Loan with no/ nominal interest - Drainage, culvert - Canal excavation - Sluice gate/ control over sluice gates - Safe water (tubewell) - Training and initial capital for alternative livelihood - Transparency in govt relief/ assistance distribution
2. Cyclone			
3. Salinity	<ul style="list-style-type: none"> - Occupation migration - Migration - Reduce the frequency and quality of meals - Repair or rebuild house - Modification in housing design 		

5.7 Summary and discussion

Bangladesh remains highly vulnerable to climate change with climatic hazards such as cyclones, storm surges, sea level rise, tidal floods, riverbank erosion (Uddin et al., 2019). According to the surveys and FGDs it can be inferred that in Charfesson, the main vulnerability comes from waterlogging due to heavy and untimely rainfall, tidal surges, and frequent cyclones. This island district of Bhola has a long history of cyclones and extreme weather events (Akter et al., 2017). Although the country experiences only 1 per cent of all cyclones, it accounts for almost half of the total deaths from cyclones worldwide (Khan et al., 2011). The temperature has been rising, six seasons turning into only three - winter which is getting cooler, and the rest of the year is getting warmer and wetter (Chowdhury et al., 2022b). Farmers this year were unable to prepare for planting because of the early monsoon, which left them with less time for agriculture. The crisis is visible even for drinking water, particularly in the Southwestern part of Bangladesh (Abedin et al., 2019).

These extreme weather events damage roads affecting the communication system. Unemployment rates were on the rise in part due to an increased number of disasters, destroying crops, fisheries and agricultural fields reducing productivity. Findings of the study show that there is a general need to improve the living conditions of the poor in the study locations. This is coupled by the need to address climate change impacts alongside addressing all kinds of existing problems that prevail in the study location.

The environmental and socioeconomic characteristics of the community were explored through the field visits. The chapter elaborated on the livelihood of the respondents. Farmers make up the majority of the population in the study area (about 60%, Rahman et al. 2009). Fishermen make up the second livelihood and the remainder work as day labourers, rickshaw drivers, small entrepreneurs, students, and other employees. As it is at the municipality level, the percentage of people who hold jobs appears to be relatively high in this area. While some fishermen engage in small-scale fish farming, others engage in large-scale open-water fishing. Day labourers have a number of ways that they earn and the per-day income ranges from 300 to 500 Taka (USD 2.5 to USD 5).

The study found that those sampled who have electricity are poorly connected with electric lines. Although the residents of Charfesson are happy with the hospital, they felt it would have been preferable if there were more neighbourhood clinics nearby. Deep tubewells are mostly used to access groundwater in the water supply system. Additionally, the women sampled find it quite challenging to manage the water because the supply is so unfavourable for gathering. The findings show how much knowledge the respondents had about climate change and what they perceived climate change is. Another study found that the majority of the farmers in the study area (88%) perceived changes in climatic conditions (Uddin et al., 2019).

Islam et al. (2014) pointed out that in developing countries, rural people living in coastal zones depend on climate-sensitive occupations such as fishing, agriculture, and forestry (Islam et al., 2014). The effects of climate change on multiple sectors, including agriculture, fisheries, and livestock, as well as on their businesses, are both direct and indirect.

Most of the respondents never heard of 'adaptation' to climate change. It seems that the terminology is still unclear to them (see also Beck et al., 2014). Respondents perceived natural disasters' intensity to be increasing, while opportunities for employment, food insecurity, and personal safety concerns were decreasing. The residents of the community are clearly already familiar with disasters, climate change, and how these events affect their daily lives.

Due to climate extremes and change, there has been a great amount of loss and damage to the ecology and environment, costing lives and way of life as well as socio-cultural loss (Hossain and Majumder, 2018). Water is necessary for farming, but strong rains and excessive waterlogging can flood farms, causing the paddy to slowly rot and become unfit for food. As Timsina (2010) pointed out, waterlogging can also result in spurring root degeneration and disease. While farmland has a number of drains that help remove backed-up water some landowners are sealing the drains to expand their cultivable land. Again, the yield of crops is decreasing due to salinity intrusion, which affects crop outputs by 15.6%, also supported by Dasgupta et al. (2018). Some farmers projected that agricultural production would decline in the future growing seasons. Although they employ pesticides and fertilisers to manage their crops, they struggle to keep up with the prices. Due to the reduction of productivity and increased production cost, food safety remains a huge risk for them (Akter et al., 2017). Dasgupta et al. (2015) predicted that without new coping strategies, there will be significant decline of income from rice production in many areas, including a 10.5% loss in Barisal region and a 7.5% loss in Chittagong region.

Before heading out into the open river or sea to collect fish, fishermen must make a significant financial commitment since renting a boat, taking ice to preserve fish, and the nets are expensive. Due to their poverty, some fishermen borrow money from banks and informal credit channels like '*Mahajan*' to cover their losses. Cyclones and floods also damage boats, nets, fishing gear, and fish landing centres, as well as housing, and other community infrastructure (Jallow et al., 1999; Adger et al., 2005; Westlund et al., 2007). Cyclones may also increase the cost of accessing fish catch (Badjeck et al., 2010). Islam et al. (2014) also found that fish processing becomes difficult as fish drying is sensitive to variations in

temperature and rainfall. Impacts on catch and processing will ultimately influence employment and income. When these unexpected natural calamities strike and cause a significant financial loss, the fishermen may be left with nothing but a loan to repay ('Dadon' system). A study undertaken by Barua reveals that over the last ten years, 20% of the household heads have changed their fishing profession (Barua et al., 2020). Similar to this, persons who raise fish in private ponds experience financial losses as a result of excessive rain and subsequent flooding. A significant amount of money was lost because all the fish in the ponds escaped due to the excessive rain, also supported by Shameem et al. (2015).

The working hours of day labourers, including rickshaw pullers, masons, and agricultural labourers, are reduced by heavy rain. Due to the lack of the possibility to generate money, people have trouble getting food from the market. They struggle to get any jobs for days during cyclones or floods in the area. As vulnerability is inversely proportional to income; with the decrease of income, livelihood vulnerability increases by reducing both coping and adaptive capacity (Islam et al., 2014). Income diversity is quite common in the vulnerable communities which can be an effective way to cope with the adverse impacts of climate disasters (see also Jalal et al., 2021; Roy and Basu, 2020).

Generally, women are responsible for household matters in a family. During extreme conditions, the supply of food and drinking water is limited, creating extra pressure among the females in the community (Tanjeela and Rutherford, 2018; Alston and Akhter, 2016). Most women and elderly family members depend on the family's breadwinners, typically their husbands or sons. Therefore, individuals are impacted when climatic factors have an impact on their revenue.

Indigenous knowledge is being utilised by the vulnerable people to address the impacts of climate change (Chowdhury et al., 2022a). Some FG respondents spend their savings to cover their fundamental needs while they are in dire financial straits. Additionally, they borrow money at interest from various banks, NGOs, and local moneylenders and repay it through weekly and monthly payment plans. Money is also borrowed from neighbours or wealthy relatives who provide assistance and support, to buy food to combat shortages, livestock to

raise, and occasionally to rebuild housing structures. Financial capital alone is not enough to address vulnerability, it requires institutional access to complement each other, which is reinforced by Alam et al. (2016) as the way forward to support and sustain the adaptation process for vulnerable households.

While some community members need and depend on government or NGO aid, others sell their household possessions. In times of disasters there is some assistance. Several of the community members in the research locality had to lower the frequency and quality of meals in order to save money which supports the presence of high food vulnerability in the cyclone and salinity prone areas (e.g., Islam et al., 2022).

Alam et al. (2016) identified 'access to credit' and 'lack of information on appropriate adaptation strategies' as among the important barriers to adaptation. Often, the poor community people have limited access to institutional facilities (both formal and informal) which could play a critical role in sustaining their efforts (Shaw, 2006). Also, there is an acute scarcity of alternative livelihood in the coastal areas, which in turn, diminishes the adaptive capacity of fishers against the adverse impacts of climate change (Barua et al., 2020).

The respondents also expressed their difficulties to secure their entitlements for government relief. Corruption works as one of the main impediments to post-disaster recovery (Mahmud and Prowse, 2012). To be able to receive relief, the vulnerable communities would need to get registered. Some are disappointed as the relief funds are not distributed as they should be due to corruption and favouritism done by the local politicians. Specific mechanisms for gender-inclusive access to relief, combating gender-based violence, ensuring gender-based security in the shelter, and access to information and resources are not addressed (Hasan et al., 2019). Increased access to education can help in building resilience and adaptive capacity in a gender-inclusive manner (Ahmad, 2012). The government and external agencies need to facilitate the existing traditional knowledge and system in order to strengthen adaptive capacity and build resilience (Barua et al., 2020).

Some individuals think that things like excessive rain, untimely rain, or hailstorms are the result of God. Similar findings are explored by Kamal et al. (2018) that resilience also stems from deep religious faith in the Haor inhabitants that supports communities to move on by accepting that most natural calamities, such as flash floods are divine tests.

The priority needs of the community may be overlooked due to lack of in-depth knowledge in delivery systems, which was echoed by Chowdhury (2022a). The field visit results revealed that communities in Charfesson have basic adaptation needs to address their vulnerabilities based on the findings above, which elaborated in the study area and weaknesses. The study demonstrated that the poor respondents need regular institutional support like subsidies for agricultural inputs, easily accessible loans with minimum or no interest etc. Similar worries were expressed regarding canal dredging, sluice gates, drainage, and culverts, which aid in water movement and are a suitable alternative for facilitating crop management, were voiced by the residents of the village. They also emphasised the necessity of tubewells as sources of fresh water for daily use. Natural disasters and the lack of safe water sources often make it necessary for women to walk long distances to collect water for their families (Dankelman, 2008).

Additionally, the results showed that to make the vulnerable communities more resilient, government initiatives must address vulnerability with the active participation of the community to target their stated needs. The government should aim to eradicate poverty through empowering and enabling respondent communities to earn more with minimum risk of loss. Lack of integration of policies and programs have also been identified as challenges to climate change adaptation (see also Chowdhury et al., 2022a). In order to benefit the poor community in the long term, initiatives should create opportunities for alternative sustainable regular incomes for livelihoods.

5.8 Conclusion

Climate change vulnerability is high across the study area, where the needs and the barriers to adaptation were clearly visible among the local communities. The FGs were essential to understand climate change impacts and intervention activities by the government through

various projects and to understand the people's expectations and priorities. The findings of the study were drawn from farmers, fishermen, daily labourers, and the elderly regarding their levels of awareness, contentment, and influence over climate change initiatives in the area. There is clearly a general need to improve living conditions of the poor in the study locations. This is coupled by the need to address stressful situations when climate hazards exacerbate the livelihoods of the poor. However, the next chapter considers if the project developers prioritise the needs of the people according to climatic impacts in the region, in light of their experiences and their expressed priorities.

Chapter 6: Reality of climate adaptation projects

6.1 Background and objectives of the chapter

The aim of this chapter is to explore perspectives of adaptation needs from the vulnerable communities and examine the adaptation activities taken by local agencies to help understand whether the aims and objectives of Bangladesh Climate Change Trust Fund (BCCTF) are being achieved. This section summarises the adaptation initiatives taken by the government and later examines the gaps between the needs and projects funded by BCCTF in the Municipality of Charfesson where large amounts of climate funds have been allocated. The research considers the justification to formulate these projects and how they are implemented. The chapter also includes an analysis of the climate project proposals to understand their rationales and to find whether causal factors of vulnerabilities are identified and addressed in official correspondence, and then the adaptation initiatives that have been taken to address these vulnerabilities.

The main source of secondary data is project proposals collected from the BCCTF. Primary data includes FGDs with vulnerable communities, and the interview findings from the Mayors of Charfesson and other municipalities from Barisal region, Upazila Chairman and Executive Engineers of local government agencies that implemented BCCTF projects, journalist, NGO representatives and some of the supply side actors who are involved in the project implementation.

Section-wise elaboration:

Section 6.2 encapsulates the analysis of the BCCTF interventions, considering the main projects implemented in the Charfesson area. Section 6.3 presents an analysis of the perspectives of vulnerable communities to examine whether they really address climate resilience, given the needs of the sampled vulnerable, marginalised communities. Section 6.4.1 includes the local politics related to project formulation before the project proposals are sent for fund approval. The section includes insights of the process of project selection and internal politics considering formal processes that are followed for selecting projects.

Section 6.4.2 encapsulates the local politics related to project implementation after projects receive the funds. The local level politics are investigated using findings from the field visits - particularly during the project implementation phase, which includes several intricate processes like the selection of the contractors, overseeing how far the project has progressed and what are the challenges in the process. Sections 6.5 and 6.6 contain the discussion and conclusion parts, respectively.

6.2 Analysis of the BCCTF interventions

A number of projects have been implemented in the study area, which has addressed the various thematic areas outlined in the Bangladesh Climate Change Strategy and Action Plan (BCCSAP). The vulnerabilities are analysed as they have been identified by the local agencies and presented below with some details about how vulnerability in the area or the locality is considered within the proposals. To avoid repetition, the analysis of project proposals of similar types are clustered and presented below (full details on proposals are contained in Appendix 4).

Construction of educational infrastructure - schools, colleges and hostels

The major vulnerabilities identified in the project documents, along with an increasing number of disasters every month, were unimproved education facilities, damaged infrastructure, and lack of shelters for use during cyclones. Families who are victims of climate-induced disasters and were not getting exposure to educational facilities were targeted for these projects. Moreover, educational facilities were found not resilient enough to combat climatic events. The projects, '*Construction of climate resilient infrastructure in selected educational institutions around coastal regions project*', and '*Climate resilient building construction and infrastructural development in educational institutions of coastal regions*' were carried out by the Education Engineering Department of Ministry of Education in 2014-15 serve the purpose to address vulnerability by covering a number of themes of the BCCSAP, including infrastructure development, also justify attaining the MDG of increased education in rural areas while ensuring protection to climate-induced disasters. Therefore, the local agencies asked for more resilient infrastructure for educational institutes, which can also be used as shelters during extremes. In addition, to promote education related to

‘climate change and its impacts’ using skilled teachers in educational institutes, a teacher’s training college (TTC) was constructed in that area using the BCCT funds.

Similarly, the project, *‘Construction of climate resilient infrastructure in five selected educational institutions under Bhola District’*, constructed school buildings to serve as cyclone shelters during disasters. In accordance with the vulnerabilities listed in the project profile, this project was also taken to construct boundary walls to limit inflow of floodwater into the school territory and act as windbreak during cyclones and storms. Besides, three academic buildings were constructed to increase the resilience of the community by addressing the vulnerability identified and will work as a shelter zone during climate-induced disasters. Construction of vertical extension of the classroom and ladies’ hostel were also other components of this project for protecting locals during extreme events while ensuring better educational facilities. Similar to other project ideas, this project also tried to address vulnerability by covering a number of themes of the BCCSAP, including infrastructure development, which will be beneficial in the long run. The climatic extremes cause damage to educational institutes by decreasing their capacity to accommodate children. Moreover, the roads which connect climate-vulnerable communities to schools and other educational institutes, are often damaged during disasters, making communication even more difficult, leading to an increasing number of school dropouts. So, local government agencies felt the priority to take on these projects, as stressed in the project proposals.

Installation of water sources and improvement in sanitation services

The project, *‘The safe water supply project in climate change affected Monpura and Charfesson under Bhola district’*, serves the purpose to address vulnerability by covering a number of themes of the BCCSAP including T1: food security, social protection, health, water, and sanitation. The project has been implemented to provide support, align with, and attain the Sustainable Development Goals (SDGs) and meet its targets on SDG 6. In Charfesson, frequent floods and cyclonic events lead to damaging water sources and contamination of water used for domestic purposes.

The project, titled '*Water source installation project to enhance water delivery in the climate affected upazilas- Monpura and Charfesson*', aimed to minimise the vulnerability identified and installed 694 deep tubewells in Charfesson and 279 in Monpura Upazila (subdistrict) under Bhola district to ensure better water and sanitation systems. Correspondingly, this project considered improvements in public health care and ensured better water services to that area. In Charfesson, when extreme events, water and sanitation systems are at risk, thus communities need safe, and enough water supply addressed by installing deep tubewells. The local agency identified safe water sources and the sanitary system being mostly vulnerable to disasters. Sanitation should also be considered under this program as frequent flood events lead to breakage of sanitary systems and contamination of drinking water, which causes spread of waterborne diseases.

Installation of solar streetlights

During disasters, electricity supply is disrupted due to strong winds and heavy precipitation. This in turn leads to difficulties in transportation and communication as road communication gets risky at night. This project, entitled '*Project for installation of environment friendly solar powered streetlights at coastal Charfesson municipality, Bhola*', was developed in line with SDG 13 (low carbon emissions), whereby improvement of communication and transportation should consider the use of renewable energy facilities. In addition, the communities should be aware of eco-friendly solar energy systems, which can be produced and used at a cheaper rate, compared to the traditional mechanism of electricity production. According to the proposal, as most of the targeted community members are living below the poverty line this project also targeted low living standards and helped them to increase their financial and social status by increasing employment opportunities. Additionally, communication and transportation systems can be improved, via better road construction and management of the roads during disasters.

Bus terminal Construction

The roads are inundated due to frequent flooding events; this reduces accessibility to educational and health care centres. Moreover, due to heavy rainfall, roads often inundated the bus terminal which worsened the communication systems and made locals even more

vulnerable to extremes. Thus, this project '*Project for construction of cyclone tolerant bus terminal at coastal Charfesson Municipality, Bholā*' aimed to develop bus terminals, for community members to take shelter during disasters. However, the infrastructure development activities were initiated to ensure cyclone tolerant buildings, and increased employment opportunities for the community people.

Canal dredging and drainage work

BCCT Fund also supported development of a canal dredging, drainage, and streetlights. The roads were damaged by frequent climatic events which challenged the communication systems. Consecutive-flooding events can cause waterlogging and unhealthy living environments in municipalities as heavy rainfall exceeds the capacity of the drains leading to waterlogging and unhygienic living conditions. Through the project '*Canals as well as ponds digging/development for combating waterlogging due to climate change effect and other infrastructure improvement projects*' under Charfesson Municipality', drainage systems were improved by investing in the infrastructure to reduce waterlogging and spread of polluted water during and after disasters. Initiatives were also taken to improve the roads, which are damaged during disasters and better communication was ensured. The aims of the project included development of climate-proofed roads to ensure better connectivity with markets of climate-affected communities. Damaged roads were rehabilitated to improve the communication system. Additionally, socioeconomic activities were considered, and sustainable rural services provided. As the communities need for employment opportunities, this project developed work opportunities to empower the community and strengthen them economically to combat climate-induced disasters and reduce their vulnerability.

Road construction

The south-central part of Bangladesh is highly vulnerable to climate change, as sea level rises, the probability of salinity intrusion increases. Due to increasing salinity in soil and water, agricultural productivity decreases that directly affects the economy of farmers. This is exacerbated by rapid cyclonic events, causing infrastructure loss. The only alternative earning means for the farmers is non-agriculture based. Many farmers migrate in search of employment opportunities and most of them end up in brick kilns and construction sites. The

jobs offered in this sector are often underpaid and workers are forced to live in filthy conditions with limited food offered. Moreover, migrants are often kept out of social services offered by the government such as education and health care services. Lack of proper measures taken for climate-induced disasters are one of the prime reasons behind increasing rural-urban migration.

Embankment building

BCCTF implemented projects such as '*Improvement of climate resilient infrastructure in the coastal region to address climate change impacts*', for building roads which also served as embankments protecting the communities and their resources from tidal surges. It has also been serving as protection of crops lives and property during disasters via structural solutions and river slopes to protect houses of communities. Additionally, these projects also ensured employment opportunities and increased the annual income of locals.

Rest house construction

This project '*Project for construction of cyclone tolerant rest house at coastal Charfesson upazila, Bhola*' aimed to minimise the specified vulnerabilities (climate-induced impacts on livelihoods) by construction of a rest house (Guest house) aiming to initiate employment opportunities in Charfesson area. Further, Boat Stand and retaining wall construction was considered one of the solutions to reduce vulnerability of the locals. During the construction of such infrastructure, workless women were given priority in order to develop employment opportunities for the underprivileged communities.

6.3 Remarks on the BCCTF project interventions from the viewpoint of vulnerable communities

The findings from Chapter 5 show that there is a general need to improve the living conditions of the poor in the study locations. This is coupled with the need to address stressful situations when climate change impacts exacerbate their livelihoods. Hence, there is a need for addressing the structural poverty-related problems that prevail in the study location. However, it is the responsibility of the project developers to prioritise the needs of the people according to the climatic impacts in the region. One of the findings of the Chapter 4 is that

the people who have the responsibility to scrutinise and select the project proposals are exposed to a political lobbying culture. This may divert them from the larger purpose of meeting the needs of the vulnerable communities - they sometimes abandon the proper project selection process and prioritise use of money allocated by monitoring the project implementation. One general finding in this area is that the communities sampled do not adequately understand these climate-related issues. As a result, it is difficult to properly identify what climate-related issues are and how they are distinct from other issues of development. Though a KI has also stressed that "*there is no need to separate climate related issues from other issues for the poor as they need everything*" (KII 9, an expert and former top-level BCCTF official). They also mentioned that "*there lies an overlap between infrastructural development and adaptation- but for the poor, it is all the same*".

6.3.1 Awareness of locals about climate funds allocated to the area.

The local communities were generally unaware of the projects being implemented on climate adaptation in the study location including those of BCCTF. Regarding the BCCTF, the farmers of site 1 (see Chapter 3) responded, "*This is the first time we heard about this fund, and that's from you*" (FGD 1 with farmers, site 1). Similar expression was received from another participant from the fisherman FGD that "*We were not aware of this fund, no one told us either!*" (FGD 2 with fishermen, site 1). Arguments were supported by 85% of the respondents who are not aware of any adaptation projects in their areas (Figure 6-2: Graph 6-1). This is a major share of people who were unaware how climate adaptation projects were taking place whereas 99 percent of the people were unaware of the project itself. Contrarily only 1% of the people i.e., only one participant of FG 7, had heard of the BCCT.

Though most of the participants said that they have never heard about the projects funded by BCCT, when they were made aware about BCCTF projects, they could identify the projects and activities e.g., school buildings and girls' hostel, roads in their municipality, walkways, solar streetlights, and tubewells. FG participants from FGD 1 expressed that they were aware of some projects taken at their community. They maintained that they were never asked to participate and provide decisions about project activity, beneficiaries, and locations where the projects should intervene. Thus, their demands were not reflected through the projects.

6.3.2 Vulnerable communities' need versus adaptation activities taken by BCCTF

An analysis of the project documents allows for a comparison of the need (demand) versus supply gap by identifying what has been carried out through the BCCTF projects and what was identified by the sampled vulnerable communities, as shown in Chapter 5. By comparing their perspectives with the project data allows for a comparison between the need and the supply and is outlined in the following section. This considers the differences in responses posited by the participants- before and after fully grasping the purpose of the BCCTF funds in their localities. The above analyses and findings from the participants demonstrated that varying perspectives came from farmers, fishermen, day labourers and women and elderly participants regarding their levels of satisfaction on the BCCTF interventions that have been done in the Charfesson area.

6.3.2.1 Sampled communities' opinion before knowing the Fund's objectives

After talking to the local public representatives, LGI officials, and several sampled communities during FGDs a good understanding of the local situation was clear. During the field visit in site 1, several development works such as a new school building, women's hostel for college, teachers' training college were evident. New roads and elevated platform tubewells were also found in various locations. In site 2, there was a project related to canal excavation, which helped the communities, either directly or indirectly. Although a beautiful walkway alongside the canal, with solar streetlights and an academic building at the women's college, were not directly related to climate change, they were still seen as helpful for local people. One of the projects also brought about drainage facilities with pavement near women's college etc. and so community people have been benefited to some extent through these activities. In site 3, only a few projects have been undertaken. Among them was the installation of solar-powered streetlights. Additionally, bus terminals and elevated platform tubewells have been constructed within the vicinity. Solar power streetlights and tube wells- were the two that were 'talk of the town' for vulnerable communities as everyone benefited from these projects. The following section presents the perspectives of the vulnerable communities before they knew about the objectives of the BCCTF.

As per one of the farmers in site 1, the reactions from school and educational institutes being built in the locality have been fairly positive. This is explained and denoted by the following

statement which clearly expresses the level of satisfaction, “*I am happy that there has been a school that was built in our area. My daughter passed HSC and got married recently. My son goes to the school, and it all went well*” (FGD 1 with farmers, site 1). A similar reaction was expressed by a woman in the locality who mentioned that her family was happy with the projects and its long-term impacts. The following statement demonstrates further aspects of satisfaction; “*I am seeing my granddaughters go to school close to our house and this gives me joy*” (FGD 4 with women- elderly, site 1).

One of the interesting findings about the sampled groups is that they are happy with the projects' equality of benefits, despite their well-deserved equity for their adaptation needs, “*Nowadays, our children can have rice at home and attend their school or college. In the past, there was no road, now new roads are built, and they are in use by the people. A lot of changes are taking place which is helpful for us- a lot of development which is impacting our lives positively*” (FGD 1 with farmers, site 1). Another elderly woman indicated how much need is being realised by these projects, “*What is happening here is helpful for us. We didn't have a women's college or B.Ed. college (Teachers Training College) in our area, now we have them. All these are for us, for our grandchildren. These are the good steps taken by the government for our benefit*” (FGD 4 with women-elderly, site 1). From the above statements, it is clear that expressions from the elderly FGDs show a general level of satisfaction.

The farmers also expressed overall contentment on the fact that there are major developmental initiatives taking place in the communities - thereby leading to satisfaction among themselves for the long-term outcomes they bring. Also, there has been an overall sense of satisfaction about the women's college being developed and that there has been positive feedback from the elderly women in the site to the government, stating that the educational perspectives and future is believed to be better due to it, for example, one respondent expressed her satisfaction with a rhetorical question, “*Who is it for? Isn't it for us? Yes, we are happy about it! Of course, we are!*” (FGD 4 with women-elderly, site 1).

It was interesting to observe that some members of the communities who were interviewed were not solely content for themselves but also for the benefit of the wider community. The kinship and fondness they share within the communities demonstrate that even though a

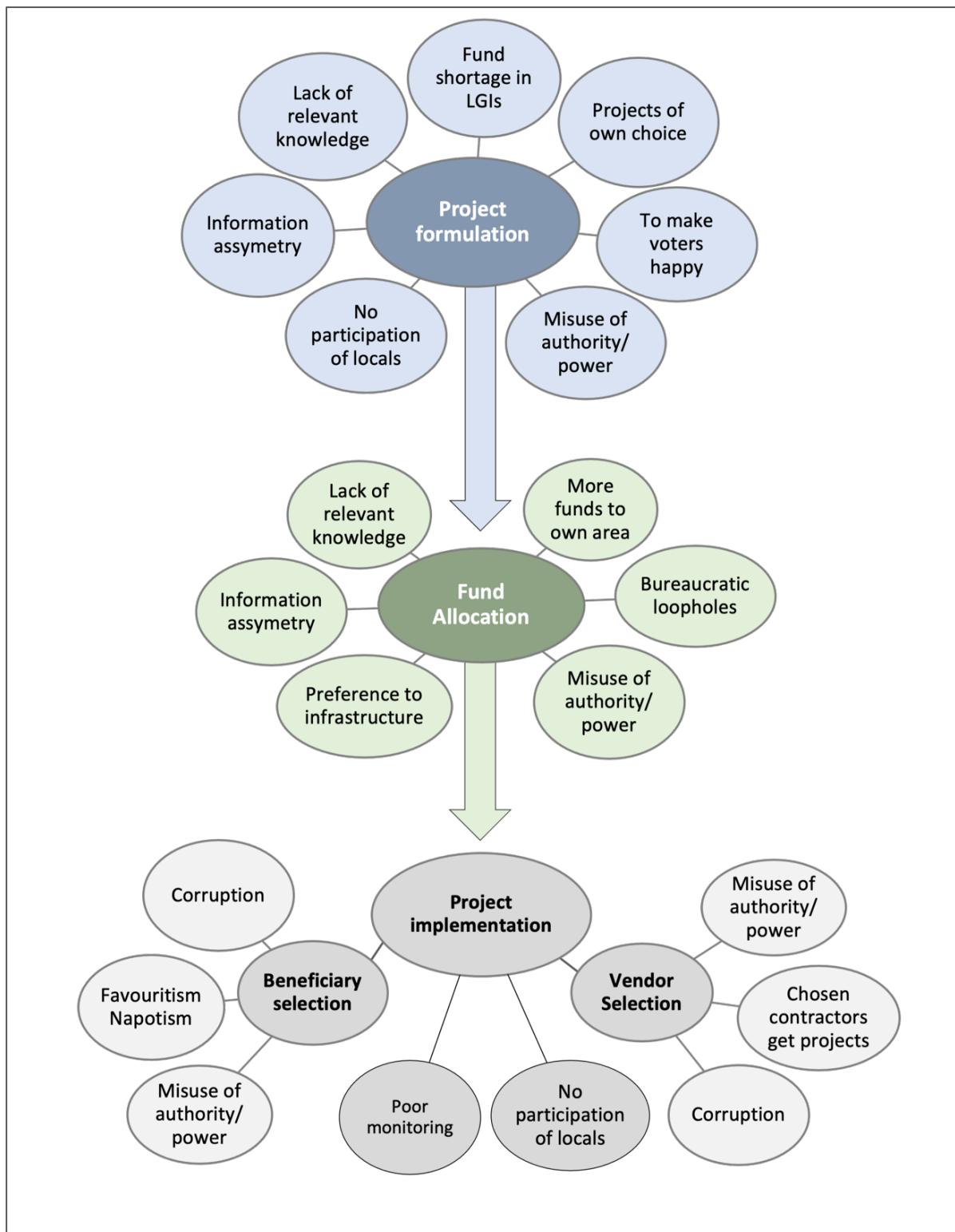


Figure 6-1: Thematic presentation of factors influencing project formulation, fund allocation, and implementation phases of climate adaptation projects (Source: Author illustration)

certain intervention does not bring direct benefit to a single person, they are satisfied that the development activities are helpful to the communities at large. This can be explained by the statement by For example, one of the daily labourers who was interviewed stated; "*It is good that there has been canal excavation, and this is good for all of us. It does not somewhat directly benefit me but what makes me happy is that many people are finding it useful*" (FGD 7 with day labourers, site 2).

It is often necessary to fetch water from long distances within the sampled localities. One elderly person commented about the fulfilment of her wishes, "*Now we have a tubewell near to our house which made our life less difficult than before*" (FGD 8 with women-elderly, site 2). Thereby the sampled community shows overall satisfaction with the implementer of the facility.

One farmer at site 3 stated that the canals would get blocked due to waste water and that there were no major steps being taken to address this. However, recent interventions have built walls on the sides of the canals and farmers in site 3 expressed satisfaction ; "*In the past, filthy water and a lot of wastes used to block the canal. They have been cleared and walls are built on both sides of the canal with walkways on the top which is a good step*" (FGD 9 with farmers, site 3). Similarly, women's colleges have brought in a new ray of hope, although the elderly women in site 2, indicated that solar lights could have been a supplementary benefit. One respondent opined, "*Women's college has a new building but if they had installed a solar light, that could have benefited a lot more*" (FGD 8 with women-elderly, site 2).

The majority of the people held similar views about the benefits of solar lights and the advantages that streetlights have brought within their everyday comfort. They have noted a decline in problems because of the installation of the lights due to visibility and decrease of accidents which would have otherwise happened had the lights not been there. For example, one of the day labourers who was interviewed in site 2 mentioned that the lights have been tremendously helpful; "*We are very happy with the lights as it has reduced fear among us to walk in the night in the streets*" (FGD 7 with day labourers, site 2). In addition, one respondent stated, "*Streetlights cause less theft now*", noting that before there were thieves and people doing mischief in the streets, they would sit in clusters as a group. Now with the streetlights,

they can no longer sit in the groups and in clusters therefore, people can feel safer walking down the same street, which they would have otherwise avoided. Girls also feel safer to go to the schools now (FGD 8 with women-elderly, site 2).

Similar thoughts and expressions were made by fishermen from site 3 that they have expressed relief for their children's education and access to basic electricity. For example, one of the fishermen who was interviewed posited that; "*although this has not directly impacted in the areas where I work, the access to electricity and education in our community has served to be good for our children*" (FGD 10 with fishermen, site 3). Another woman from site 3 added "*electricity is an asset for us*" which demonstrates their relief for the streetlights in the villages and that the movement after sunset is much safer with reduced attacks and reduced fear. Women now feel much safer to step out during evening hours. The mobility of women during evening hours was otherwise almost impossible. There has been an establishment of a sense of pride and safety is now associated with the streetlights in the community. The solar lights project was considered as having a high impact on well-being of the sampled groups. When questioned about the recent development activities and their benefits, the participants responded that "*the solar light is helpful because it provides them with security*" (FGD 12 with women-elderly, site 3).

Farmers in site 3 have shown overall satisfaction with the project interventions and frequent acknowledgment has been made for tubewells as they provide safe drinking water for the poor people - as indicated by the elderly women; "*Tubewells have been very helpful - we can drink clean water now*" (FGD 12 with women-elderly, site 3).

It is noteworthy that the above remarks have been made based on limited understanding of the formal purpose of the BCCTF and the next section will explore how responses vary when the formal purpose of the funds are known (addressing climate change).

6.3.2.2 Sampled communities' perspectives after knowing the Fund's objectives

Although from the FGDs with the farmers, fishermen, day labourers and women-elderly in Charfesson municipality, the groups were broadly content with their lives, there were differences in opinions about the BCCTF projects when they were made aware about the aims

and objectives of the BCCT Fund. While the communities do have problems related to poverty and having basic services, they also suffer from climate extremes. The BCCTF is dedicated to addressing the climate priorities of vulnerable communities and it is required that their participation is included when designing interventions. The varying opinions from the FGDs will be elaborated next.

During the field visit local people showed that their houses are often broken and in an ill-managed form, although they remain grateful to their Almighty for their own existence. After explaining the purpose of the BCCT fund it is observed that the participants' opinions on some projects changed. From the qualitative findings of the research, it was evident that the demands from the vulnerable communities do include institutional support for general development. For example, the sampled communities need a proper drainage system to overcome waterlogging situations, a consequence of untimely and excessive rainfall. Not everyone is content with the projects, for example, a farmer mentioned that only a certain portion of the people have benefitted and are not necessarily those who ought to be; "*The rich have been benefited, not us*" (FGD 1 with farmer, site 1). Similarly, a day labour from FGD 11 noted that people who are relatively well off are the ones who enjoy most of the benefits. '*Their children enjoy the school education, they are the ones who can walk along the walkways, and they can even wear good clothes. However, it is still a concern of destiny whether they can have a proper meal for themselves*' (FGD 11 with day labourers, site 3).

In terms of community participation, there was similar dissatisfaction expressed by some day labourers; "*The implementers have not discussed or consulted us on the climate change projects*" (FGD 3 with day labourers, site 1). Despite various comments with dissatisfaction due to 'out of touch' in formulation and implementation process to address adaptation needs, FGD 3 found some satisfaction; "*Regardless, we have nothing to say as the establishments have already been made. We are educated or not - our children will be and that is where our satisfaction is*" (FGD 3 with day labourers, site 1).

One interesting finding is that FGDs are not necessarily against the developmental projects; they were unhappy because the adaptation funds are used for developmental projects

ignoring their climate vulnerability needs. It's not the selection of development projects or where the funds sourced from, but the misuse of BCCT funds that participants are less happy about- "*They have built B.Ed. college, women's college, bus stand - all these have no use to me. These projects should have been done with other funds, not with climatic funds*" (FGD 9 with farmers, site 3).

During FGD at site 1, it was emphasised that setting priorities carefully is crucial. Interestingly, FGDs identified the projects that would address their vulnerability needs. For example, they expressed the view that while schools already exist and children's education will continue regardless, what they urgently require is a culvert that would provide multiple benefits, especially during climate crises like floods and other natural disasters (FGD 1 with farmers, site 1). Similar statements echoed, at site 3, there was a clear consensus that the funds should be used for their intended purpose. They suggested allocating the funds for the expansion of saltwater-intruded canals and the repair of damaged sluice gates. This would enable the canal to effectively manage excess rainfall and, conversely, serve as a valuable freshwater source for irrigation during drought periods (FGD 9 with farmers, site 3).

A farmer from site 3 was concerned to know that bus terminals were being established with the money that was otherwise to be allocated for climate needs. A three storied bus terminal was absolutely not necessary in the locality. They mentioned that canal excavation and other forms of initiatives would have been more helpful (FGD 9 with farmers, site 3). However, people from the same FGD mentioned that they would rather have a bus terminal, training college, girl's college etc. but that should not come from the money which has a separate purpose, i.e., climate funds to meet the climate needs.

There were a range of opinions from fishermen FGDs, after being informed about the purpose of the BCCTF (FGD 6, site 2 with the fishermen); they referred to one of the areas in site 2 stating the status of a project: "*We understand there was a project worth BDT 5 crore (US\$500k) aimed at canal excavation although they did not quite execute as it was planned. On the other hand, the authority implemented streetlights but that did not quite help us directly as we are fishermen, and we are out in the water. Also, building, footpath, walkways*

are other interventions that have been made, but how far they address the climate change impacts is not entirely understood or known" (FGD 6, with the fishermen, site 2).

It was observed that the canal in the dredging project was not in the locality where the most vulnerable communities live. According to one of the labourers in site 2, "*Canal excavation only served the purpose of a certain area's people*" (FGD 7 with day labourers, site 2). They assume that service-holders, businessmen who have established a position in the society have access to all the facilities. This was in line with the observed position where the canal was excavated, since this was quite far off from where the vulnerable communities live. They were located in the urban centre and therefore it would only serve the purpose of the people who lived along those areas. Had this been done in an area which was in close proximity to the vulnerable communities, they would have benefited more. Farmers from site 1 indicated the need for better drainage facilities which in turn would limit the damage from water. This was directly linked to their income levels- "*For our cultivation canals and drains are essential. If excess water could drain out through these rivers, our cultivation would have been better, our houses would not be drowned, and crops wouldn't get damaged. Our income could have been a lot better. Now we have a fish farm, but they all get washed away to the river due to overflow of excessive rain or flood water*" (FGD 1 with farmers, site 1).

When the FGDs were asked about the effectiveness of the climate funds given their new awareness, they expressed concern that when they need canals, tubewells or necessary facilities, the money is transferred to the places or houses whose members have better connection with the fund managing authority. The FGDs mentioned that "*They do not get any benefit from the climate funds; it is the funds of the rich and they get all the benefits*" (FGD 3 with the Daily Labourer). The participants suggested ways in which crop yield can be improved by preventing saline water intrusion and also mentioned of other uses of canals apart from removal of excess water which would be an opportunity for alternative livelihood for most people, as the following quote suggests, "*Since there is no canal there is no transportation via boats for people*" (FGD 4 with elderly women in site 1).

The fishermen in site 3 expressed the following sentiments, “*The utilisation of the mentioned fund to supply fishing nets, machinery, boats, and other essential equipment to impoverished fishermen during the fishing season would have greatly benefited our community*”. The victims of extremes highlighted the significant loss of their assets and requested assistance, bringing up concerns about insurance matters that require government attention. “*For us, the fishermen, it's essential to get loans with flexible terms and minimum interest. That would be really beneficial for us*” (FGD 10 with fishermen, site 3). The fishermen conveyed it would be more beneficial for them if the transaction of loans remained user friendly and easily accessible to fulfil their needs. They also indicated that it would be more advantageous if the local representatives had considered their viewpoints instead of allocating resources to general development endeavours.

A labourer from FGD 3 mentioned that the funds have been serving the ones who do not need it; “*This money is serving the people for whom it was preconceived to be spent. The money was never for us and hence it is not serving us any benefit*” (FGD 3 with daily labourers, site 1). These people also mentioned that the schools would only provide benefits to a certain class of people. It was still dubious to them whether their children would actually be able to obtain educational benefits out of those schools or not. According to one farmer in Site 1 “*We are happy with establishments and all the physical infrastructures, but we would have been more benefited from having a canal excavation using this money. That would have had short-and long-term impacts for both agriculture and fisheries*” (FGD 1 with farmer, Site 1).

The FGD with women and elderly individuals stated that they were satisfied with the “development” in their area in terms of schools, hospitals, and communication systems, as a result of various infrastructure improvements. They also consoled themselves by accepting that they are vulnerable, and that the environmental minister has a general contribution in bringing more funds to the area which will bring some benefits in their lives.

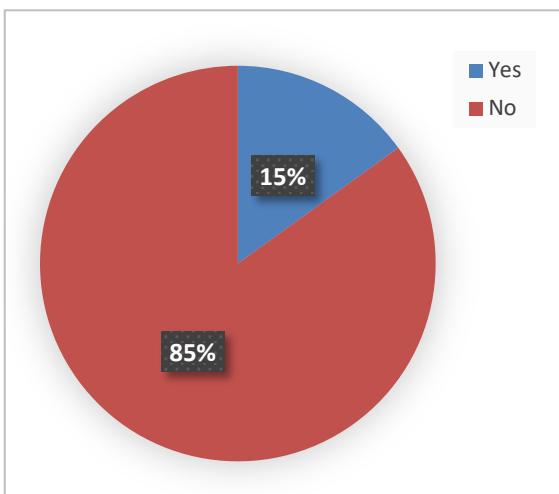
Focus group participants were annoyed about not engaging them in project formulation and implementation, not even asking for their opinions: “*No one asked the way you are asking about us, the way you are collecting information from us. If they did, that could be more*

helpful for us" (FGD 6 with fishermen, site 2). In line with the statement from the fishermen above, the day labourers indicated that many of the challenges that occur after projects are implemented would not occur if the communities directly affected by it were consulted; "*You at least came and listened to us, and we appreciate it so much. In the last year, if someone had come for a day and listened to us, we could have consoled ourselves. We don't have anyone to listen to our miseries*" (FGD 11 with day labourers, site 3).

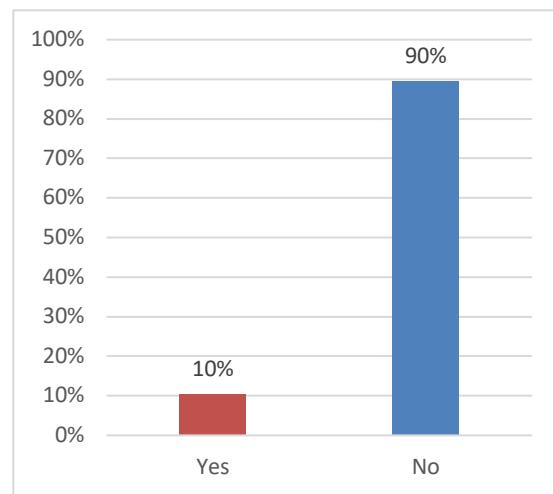
Overall, there were mixed feelings among the FGDs. Some felt the needs for adaptation during climatic extremes were ignored for so long and in so many years that they don't believe any of the adaptation strategies can change their lives for the better. Instead, they keep their trust in God and wait for his direct intervention. Furthermore, it was observed that some people are in fact struggling to manage their next day's meal. This is reflected from the day labourers from site 3, "*For us- what we are facing today, tomorrow will be exactly the same. Today we are crying for food, tomorrow will be crying too. We had almost no benefit from these projects*" (FGD 11 with day labourers, site 3).

During the survey, 85% of the survey respondents stated that they were not aware of any adaptation projects in their areas (Graph 6-1). As people are facing numerous challenges in their lives, respondents were asked if the ongoing climate change projects are addressing their most pressing challenges. 90% of the respondents answered negatively stating that they are not serving their real needs (as shown in Graph 6-2). The survey intended to find out the satisfaction level of community people on the BCCT-funded project in their location (as shown in Graph 6-3). Most of them responded that they were neither satisfied nor dissatisfied. For example, only 47% of the respondents have mentioned that they are satisfied with having the projects on deep tubewell, and 24% are satisfied to have the project on Education Engineering Department academic building in a women's college. Besides this, a few respondents are not satisfied at all, but their responses are not more than 12% on a certain project.

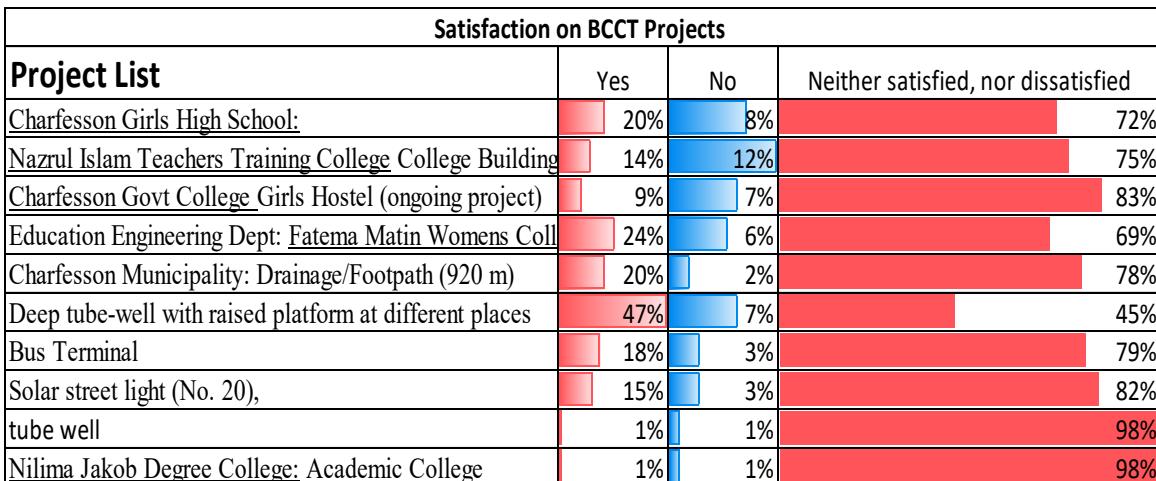
The study also intended to assess how people are equipped due to the project implementation (as shown in Graph 6-4). The study has found that only 1% of the respondents



Graph 6-1: Whether the respondents are aware of the adaptation programs in the area



Graph 6-2: If the adaptation projects address the most pressing challenges

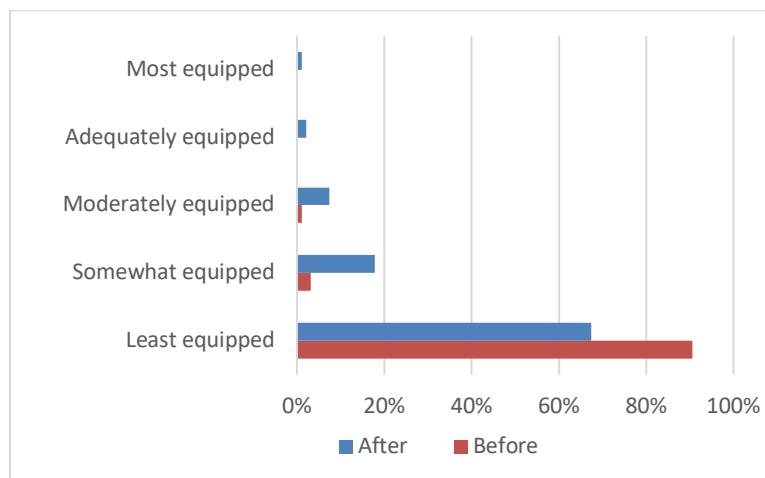


Graph 6-3: Level of satisfaction over the BCCT projects

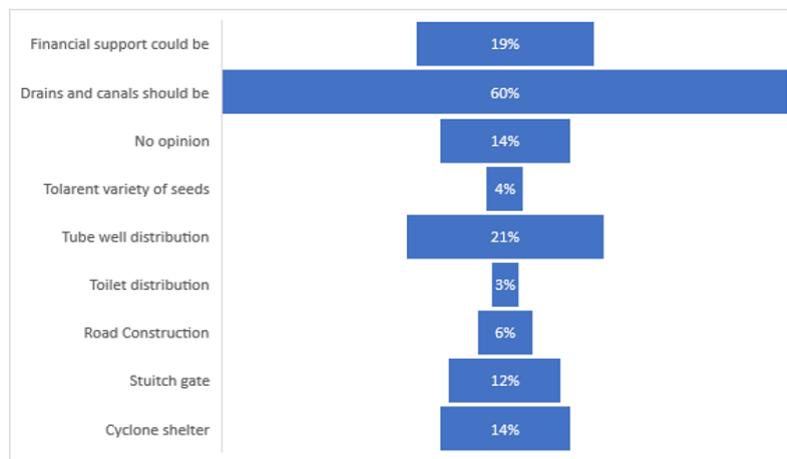
Figure 6-2: Survey results (Graphs 6-1 to 6-3) showing respondents' opinion regarding CC impacts (Source: Author illustration) (For other graphs see Appendix 2)

have been most equipped/prepared to fight the climate change impacts of the projects. Previously, 91% of the respondents were least equipped, and currently, 67% are least equipped/prepared. The changes that the projects have brought is that 18% of the respondents are now somewhat equipped, that figure was only 3% before the projects' implementation.

Furthermore, in response to how projects could be improved to meet their priority needs for adaptation, 60% of the survey participants suggested for excavating the drainage and canals, around 20% for deep tubewell and another 20% asked projects to support them with easy financial access. Other respondents suggested infrastructure like road construction, electricity supply, sluice gate, shelter and housing (see Graph 6-5).



Graph 6-4: How well-equipped/prepared community people are after implementing BCCT projects



Graph 6-5: How could the projects be improved to meet your priority needs for adaptation

Figure 6-3: Survey results (Graphs 6-4 & 6-5) showing respondents' opinion regarding BCCT projects; (Source: Author illustration) (For other graphs see Appendix 2)

6.4 Respondents' views on political influence on climate change initiatives

From the analysis of FGDs in three different sites, it is clear that the local perceptions of needs

for climatic change remained unmet, although a few expressed some satisfaction for the benefit they got from the projects. Ultimately, the question arises- why are these projects selected? Who actually benefits in this process? The following part of the chapter reveals some of the answers, collated from the participants in KIIs and FGDs, which show where the real politics exercised by ministers/MPs/politicians have hampered the effectiveness of projects in their formulation and implementation stages. Thus, the aim of the following section is to explore the politics behind and unfold the mysteries of this 'rent-seeking' process.

6.4.1 Politics of project formulation

Project selection has a number of internal politics, for example, in the way the analysis of the local level vulnerability is assessed that determines what exact measures are needed. The study tried to find out whether there are any formal processes that are followed for project selection and what may be the priorities. The study also asked local people whether there is community participation at the project selection stage and whether the local agencies need to lobby to get these projects.

In order to secure funding from BCCTF, agencies need to follow a formal procedure prescribed in BCCT Act, regulations, and guidelines. The project plan must satisfy the Trustee Board and BCCTF that the project is to meet the adaptation needs of vulnerable communities. If the Trustee Board is satisfied with the proposal, the project will get approved.

As mentioned in Chapter 4, the rural municipalities often do not generate sufficient revenue to undertake development projects of their need on their own. However, for low revenue earning bodies such as the LGIs, incorporating climatic aspects to their projects and making them somewhat relevant to climate change ensures a higher chance for scoring funds. Given that quite a few areas between development and adaptation are blurred (i.e., not clearly defined), many development projects disguise themselves as adaptation projects, attracting large sums of money which will go for infrastructural purposes. It can be inferred that

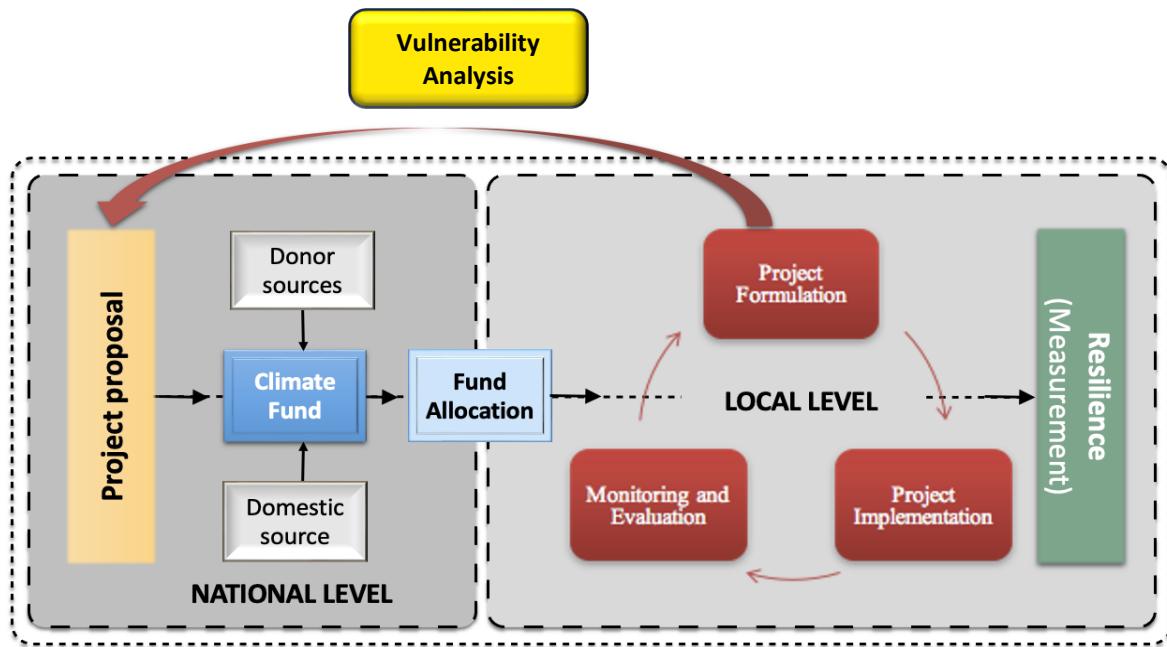


Figure 6-4: Various stages of an adaptation project from fund allocation to implementation at local level (Source: Author illustration)

adaptation projects will face similar problems like other development projects. A KI was asked whether their municipality applied for funding from the BCCTF. It was found that the municipality did apply for funding from the Trust, and the funds were used to construct roads, bridges, culverts etc. The KI 16 responded, “*Yes, there are roads, bridges, culverts, and drainage system projects here. [...] We apply for the funds and since the minister is a local of this area, he looks into this matter specially*” (KII 16 with a Mayor of Charfesson area).

In discussions, it is often inferred that the ministers and local leaders have a large influence on how and which projects will get selected, however, this is the task meant to be done by the engineers and experts of concerned LGI to prepare a project proposal with correct information and data of that particular area and an estimation of cost to execute the project. But in reality, engineers are not empowered enough to override any decisions. Ultimately, they follow what the Mayor or MP wants. During the group discussions with Executive Engineers from different LGIs in Charfesson, they opined with frustration that very limited decision-making capacity remains with them; “*The fact is that our role is limited to just implementing the designs and desires of Chairmen and higher officials. We do not have any*

say in the decision-making process" (FGD 13 with local Executive Engineers). KI 24 also claimed that most of the time a priority list of desired projects is provided by the local member of parliament (KII 24, Executive Engineer of a LGI in Charfesson area). Even the funding agency has the idea about how the vulnerability is selected which is clear from the statement of the BCCTF official, "*Mainly what is done is that the MP or mayor of the area identifies the vulnerability [...] and uses his mechanisms to collect information to prepare the project proposal*" (KII 4, a mid-level official in BCCTF).

According to KI 7, "*Many projects are taken under political consideration, and public representatives take the full advantages of it*" (KII 7, an expert and former top-level BCCTF official). This could have been avoided if project formulation and implementation were done fairly without MP or Ministers' interference. He stated that to achieve the best outcome, government officials and experts should handle these matters cautiously and establish a mutual understanding with them. Again, some light was shed on the importance of empowering local authority by an expert from BCCTF. KI 2 indicates that local governments can select appropriate projects only when they are politically empowered and strengthened by the government (KII 2, a top-level official of BCCTF). BCCTF should choose and authorise projects according to the adaptation needs expressed by grassroots communities. KI 26 mentions that, when it comes to adaptation, a bottom-up approach in project selection is more impactful and efficient than a top-down approach. "*BCCTF should select and approve projects based on the demands of grass-root people*" (KII 26, an NGO Head in Charfesson area). This approach could address the real needs of vulnerable people.

Statements from former BCCTF officials demonstrate that there is a rising importance of recognizing the difference between climate related issues and development issues. From the sampling and consultation, the locality where the projects are implemented shows a wide variety of development projects which are implemented with climate funds. It is particularly true in the case of Charfesson. According to KI 7, an expert and former top-level BCCTF official, "*The public representatives need to understand the difference between climate related problem and development related problem*" (KII 7 with an expert and former top-level BCCTF

official). If a community requires a school in their area, it would not be appropriate to solely rely on the BCCTF to provide the necessary funds for its construction.

An expert member of the technical committee, KI 11, stated that one of the primary constraints leading to less effective project formulation lies in the inadequate coordination among ministries, which is actually deteriorating, despite some successful project implementation by them. According to his statement, previously, skilled engineers from the Roads and Highway Division (RHD) or Local Government Engineering Department (LGED) effectively worked on such infrastructure-based projects. However, presently, the individual ministries took over this responsibility disregarding their experience, skills, and efficiency in executing projects. Ministries opted to establish their own engineering departments, such as Education Engineering Department (EED), Public Health Engineering Department (PHED) to independently carry out their projects. *“Ministries prefer [...] to execute their own projects, so that they have control on their own funds and projects. I don’t see any use of this?”* (KII 11, an academic and expert member of the technical committee).

A former top-level BCCTF official, KI 7 stated that the individuals who are most vulnerable have a greater comprehension of their own challenges. It was understood from his expression that the challenge or key issue lies in the fact that they fail to engage them effectively. Those responsible for project formulation go through multiple stages without involving the community at any of these stages. As a result, too often the formulation is not effective, and does not serve the purpose of vulnerable people. Had the discussions taken place with local stakeholders regarding their concerns and interests during the project formulation stage, much more could have been accomplished. *“Instead, project formulators tend to prioritise scientific and expert-driven methodologies rather than addressing the actual issues with the valuable insights gained from the local community”* (KII 7, an expert and former top-level BCCTF official).

In most of the project proposals LGIs justified their selections as the projects will create income opportunities for the poor of the study area. Whereas KI 23 argued that without being skilled workers, people cannot get work, even not in the climate projects. *“Local day labourers*

are not suitable for work. They will not be chosen" (KII 23, a Relief and Rehabilitation Officer in Charfesson). The farmers of site 1 argued that even the councillors or members do not involve the local labours in their projects. "*They are detached and don't involve local labourers or workers. They do what they feel like!*" (FGD 1 with farmers, site 1).

Again, it was understood from the Relief and Rehabilitation Officer that individuals working as day labourers can be trained using the climate funds, so that they can explore alternative employment options within this area. Alternatively, the government can expand benefits to a larger number of people by running successful programs like "Generating alternative employment opportunities for the ultra-poor", supported by the World Bank to union level. If each union can employ a minimum of 500 individuals, more employment opportunities will be created. Additionally, using climate funds, the government can introduce region-specific programs to generate suitable employment opportunities, ensuring that work opportunities are tailored to the specific needs of each area (KII 23, a Relief and Rehabilitation Officer in Charfesson).

On the contrary, realities also indicate the frustration of farmers of site 1 who mentioned that their opinions are seldom taken into account. Also, election period is a time when elites take the advantage of showcasing their contribution to the society although in regular times, the situation is quite the opposite. The statements below show the phrasing of it, "*You visited us today, that's why we got the opportunity to meet and express our feelings. They don't have time to listen to us*" (FGD 1 with farmers, site 1). Similar statement echoed by the day labourers of FGD 3, "*Before election they make empty promises- they will construct new roads, they will provide tubewell, sluice gate etc. but after the election, they don't keep up with those promises; even they don't show their faces to us*" (FGD 3 with day labourers, site 1).

The LGI heads who are responsible to formulate the projects at local level sometimes lack relevant knowledge and training regarding climate change, adaptation, and other relevant issues. There have been some observations based on their knowledge about local vulnerabilities. As the LGI heads were born and grew up in the area, they are aware of local vulnerabilities and how they are changing. They identified new diseases, thunder and

lightning-hit death, overflow of water in residential areas, interruption in children's education, inundation of low arable lands and households, river erosion, and waterlogging as the main vulnerabilities of their area. Moreover, atypical rainfall affects cultivation causing huge losses to farmers, and untimely storms obstruct fishing and sometimes fishermen die, due to being struck by lightning and sinking of their boats as they do not always take adequate measures to handle the stormy weather. Sometimes vulnerable people migrate because of low income from climate change affecting agriculture livelihoods and loss of property due to riverbank erosion (KI 16, KI 17, and KI 18: Mayors of different municipalities under Barisal division).

The findings also indicate a lack of understanding among the LGI heads like mayors regarding the laws and policies that govern the formulation and implementation of BCCT-funded adaptation projects. The interviewees admitted to having incomplete awareness in this regard. When specifically asked, KI 18 and KI 16 provided the following responses respectively, *"I do not have much idea on BCCT Act or BCCSAP"* (KII 16, a LGI head and political leader of Charfesson) and *"No. I am not aware of these acts and guidelines"* (KII 18, Mayor of another municipality under Barisal division).

In contrast, BCCSAP (2009) includes a pressing need for awareness to *"strengthen a number of existing organisations that are already underperforming implementing the regular development program"* (p. 75) and to *"enhance the capacity of Govt. staff for policy, program and project formulation and implementation, through training and other ways"* (p. 73). But none of the projects focussed on the needs of poor farmers and fishermen. Whereas BCCSAP suggests, *"Comprehensive and participatory planning and investment to protect the livelihoods (income, employment, health) of groups who will be especially severely impacted by CC (e.g., marginal and small farmers, fishermen...)"* (p. 41).

However, this situation is not uniform for the whole of Charfesson. KI 18 took pride in the fact that he worked for his own people and decided projects after talking to them. He said that *"I talk to local people and try to understand their problems. I remember those when selecting adaptation projects"* (KII 18 with a mayor of another municipality under Barisal division). KI

16 also stated that, to him “*higher priority is on communication and drainage so that clogged water can flow out, then cyclone shelters, then health and other services*” (KII 16, a LGI head and political leader of Charfesson).

KI 23 argued that during disasters, the locals are reluctant to leave their cattle in unsafe conditions and seek refuge in the cyclone shelters. Therefore, it is crucial to build protective structures using soil at an appropriate elevation (locally named as matir killa) where cattle can be kept safe during disasters, so that people can stay at cyclone shelters without the fear of losing them. Obviously, the needs and demands vary among the localities. The demands of this area are different from the areas such as Barguna or Khulna (sub-districts). Their requirements should be known as per the basis of their need. So, the climate affected ones need to be surveyed at field level to know which interventions will be more effective for them (KII 23, Relief and Rehabilitation Officer in Charfesson).

Similarly, if the climate fund could be used to promptly assist the poor victims in recovering from extreme events, then the fund could also be considered effectively utilised. The government typically provides general relief assistance to the victims of natural disasters, which usually includes rice or other essential supplies. However, in some cases, people are left with damaged houses and disrupted livelihoods due to these calamities. KI 25 suggested that, “*If climate funds help them immediately to recover these damages; the fund can be counted as properly utilised*” (KII 25, Social Welfare Officer in Charfesson).

In contrast, KI 24 shared his experience of choosing a project location “*Recently, the education minister wanted to build five new buildings, and repair ten olds. The minister asked for a list that can determine the suitable sites for new construction and repair. After I prepared the list, he himself identified five projects changing the locations completely. Surprisingly, it was found that we already spent funds on all of the selected projects a few months ago*” (KII 24, Executive Engineer of a LGI in Charfesson area). This KI also claimed that only a handful of people in the area had any knowledge regarding the existence of a fund for climate change. The KI attributed this to the low level of formal education and high influence of religious superstition in the area. All the people of the group discussion informed that they were not consulted

before the implementation of any of these projects. They also stated that it would be better for them had they been given the chance to participate and voice their demands during the implementation stage of the projects. (FGD 5 with farmers, site 2; FGD 6 with fishermen, site 2). However, the following statement shows the perspective from one of the Charfesson DPHE representatives- *“Actually the vulnerable people have not been consulted for the site selection of the tubewells. The WATSAN committee decided on where to set up the tubewells based on the information available as well as by considering individual applications for tubewell.”* (KII 14 with Executive Engineer, Public Health in Charfesson)

Given the minister's political influence and bias, it seems possible that a large portion of the funds claimed in the name of adaptation goes towards general development activity. This is possible through the grey areas present in the differentiation of climate adaptation projects and development projects. Furthermore, given the lack of in-depth knowledge of climate change related issues possessed by ministers, developmental activities take priority over adaptation practices. Gender issues are also seldom taken into account, although recently some projects like cyclone shelters have these concerns integrated into their design. However, as new issues arise, gender factors must actively be taken into consideration; *“However, climate change is all about new problems and thus we need to properly establish if these new issues actively take into consideration especially gender and elderly matters.”* (KII 7, an expert and former top-level BCCTF official).

In addition to establishing a robust monitoring and evaluation strategy, aligning with the interests of ministers/MPs can contribute to the successful implementation of projects. There have been instances where certain politicians have demonstrated effective utilisation of allocated funds, indicating a level of good governance, even if the frequency of such cases may not be substantial. *“Some political leaders understand this such as Ms. ***, always pursue the funds and select appropriate projects for vulnerable people and closely monitor the progress of the projects. They also make others accountable for the funds. In this kind of situation, funds are properly utilised in the appropriate projects with the help of honest politicians”* (KII 6, a former top level BCCTF official).

According to one KI, it is necessary for fair-minded people to get elected as Local Government Institution (LGI) heads in order to expect their active participation as they are more likely to represent the genuine needs of the people, leading to improved involvement and performance. This insight was shared by KI 22; *“People should vote for political leaders with reasonable integrity, who have the courage to establish the truth as truth and the lie as lie”* (KII 22, a local councillor and environmental activist of Charfesson).

6.4.2 Politics of project implementation

Local level politics also influence the project implementation phase which includes a number of steps like selection of the third-party vendors (contractors), overseeing how far the project has progressed and what are the challenges entailed in the process, and whether it had been done properly or not. There are some images (Figures 6-4 to 6-11) taken from the field trip which help to illustrate the dynamics.

From the previous section, it is evident that in the formulation stage, the projects are selected with influence of local MPs and Ministers often for their personal interest without considering the real needs of the poor communities. On top of this, the projects may be given to a third agency of their own preference for implementation. There is still a glimpse of hope for the vulnerable communities who may benefit if the projects are implemented properly. Unfortunately, the quality of these projects' may be compromised due to corruption and unfair practices on the ground, which can be seen as the last barrier for adaptation.

After receiving the funds from BCCTF, LGIs cannot execute the projects right away by themselves. They have to appoint third-party vendors (contractors) for execution, although monitoring remains part of their responsibilities. It is important to select appropriate vendors through a fair tender process. From the interviews and FGDs, it is evident that projects are typically allocated by the local MP belonging to the ruling government. The projects are often assigned to local political leaders and active supporters of the MP. *“Mainly they execute the projects”* (KII 20, a Journalist in Charfesson). According to KI 11, an expert member of the technical committee of the Trust, commented that unfortunately there are various unfair practices in play, such as preventing certain individuals from participating in tenders.

Consequently, it becomes challenging to determine whether the process was conducted fairly or unfairly, especially when interested parties are excluded, which is a common occurrence (KII 11, an academic and expert member of technical committee). For instance, when tenders are announced, interested parties often reach mutual understandings, leading many of them to withdraw or decide against participating (KII 11).

Whatever the number of tender schedules are dropped, all are in control of a single person in power. *“In reality only one participant takes part in the tendering process”* (KII 24, Executive Engineer of a LGI in Charfesson area). Again, he elaborated, *“In the current scenario, local MPs control the whole process within their jurisdiction. In my knowledge, govt. officials have nothing much to do with this”*. Similar opinion is echoed by KI 20, that no matter whether it is at the municipal or sub-district level, MPs decide the outcome of any tender within their jurisdiction, often with a 20% commission involved. Local political leaders exploit licences obtained from legitimate licence holders to participate in project tenders. Although these leaders oversee project execution, all the invoices and bills are settled under the name of the licence holder, who receives a percentage in return for allowing the use of their licence (KII 20, a Journalist in Charfesson).

According to KI 26, all contractors in Charfesson, and not just limited to this area, but throughout the Bhola district, enjoy the favour of the ruling party. *“All the contractors in Charfesson are directly involved in politics”* (KII 26, an NGO Head in Charfesson area). The case is the same for Lalmohon or Tojumuddin (neighbouring sub-districts of Charfesson), they added. The contractors' work quality may be compromised because they are required to pay a percentage of the project funds to secure the contract. The funds go to the local MP and to the ministry, leaving the contractor insufficient funds to deliver a good project. The contractor is left with only 60% of the budget to cover project expenses and make a profit. Consequently, the quality of the work gets compromised; *“How do you think a contractor will deliver a good project as well as make some profit?”* (KII 22, a local councillor and environmental activist of Charfesson).

Additionally, it is common for contractors from other districts to sell their contracts to local subcontractors, who are often affiliated with political parties. Sometimes, the subcontractor also gives the project to multiple subcontractors. In this give and take, the contractor changes, and so does the value of the budget. The budget drops significantly. As per KI 26: *"In this situation, who should be held accountable for poor quality of work? Say, for instance, I gave a project to someone for BDT 10000 (BDT 100=USD 1). He gave someone else with BDT 200 less. That person gave it to another person for BDT 500 less and so on. This is how the actual allocation of BDT 10000 becomes BDT 5000 and the contractor is helpless, and the project becomes an ill project"* (KII 26, an NGO Head in Charfesson area). This continuous transfer of contracts results in changes in contractors and budget reductions. In this complex situation, it becomes challenging to hold anyone accountable for the poor quality of work.

During the tendering process, Contractors who win tenders often transfer the contract to another party, making a profit. Both the authorities and government officials also receive financial benefits in this process. Similarly, the contractors also gain financially from this arrangement. Politicians prefer to allocate tenders to the third party who may happen to be one of their followers, as it strengthens their support base and contributes to the party's financial stability. *"Politicians like to allocate the tender for their followers so that they become solvent which is good for the party"* (KII 24, Executive Engineer of a LGI in Charfesson area).

Local administrative authorities such as the MP, Mayor or Councillor of Municipality take decisions regarding site selection, beneficiary selection, etc. and later implement the projects (FGD 4 with women-elderly). They seldom consult with the community because of their overarching requirement to stay in power. Local political leaders are motivated by the authority and are more involved with them rather than engaging with the people of the community. People tried to broach these issues, but local leaders and authoritative personnel have neglected the comments and suggestions received by them (FGD 1 with the farmers, site 1). The decisions regarding the projects are taken by the authority and in most of the cases, are done without consulting the local people. Moreover, demands from the people are rarely heard and taken into consideration (FGD 6 with the fishermen, site 2).

During the project formulation and beneficiary selection, the vulnerable communities expect their opinions to be taken and a needs assessment survey to be done. However, the safe water sources in the form of tubewells built in elevated platforms by DPHE (Public Health Engineering Department) were installed adjacent to a comparatively well-off household (Figure: 6-8, observed during fieldwork). Underneath the tubewells, acknowledgement plates with the names of the minister have been engraved. However, these tubewells ought to be provided to the poorer communities/households. However, the underlying assumption is that if the community as a whole is less vulnerable, then individuals within that community will also be less vulnerable.

Based on the information gathered thus far, it appears that favours take priority in project implementation. KIIs emphasise the challenges associated with assessing vulnerability at an individual level for everyone although in certain projects and specific scenarios, there have been partial attempts to assess individual vulnerability to some extent. But often community members mentioned that they do not get any benefit from the climate funds. It is the funds of the rich, and they (rich) get all the benefits (FGD 3 with the daily labourers, site 1). Another fisherman complained that in order to obtain a tubewell, it is necessary to obtain a recommendation from a leader or a minister. Very often poor community people are unable to secure the support of such leaders, resulting in their inability to acquire a tubewell; *“Unfortunately, we can’t get the leader and can’t get the tubewell as well”* (FGD 6 with fishermen, site 2).

When it comes to the allocation of tubewells, KI 15 stated that approximately 5-10% of the beneficiaries receive preferential treatment, often being relatives or acquaintances of the mayor or councillor (KII 15, a LGI head and political leader of Charfesson). FGD 2 participants mentioned that although they allocated a tubewell for 10/12 families, they placed it in the premises of their known person instead of a common place convenient for everyone. *“This happened because the number one councillor is his uncle”* (FGD 2 with fishermen, site 1). It was also known from a chairman of a subdistrict that it is not uncommon for mayors or councillors to have a tubewell located in close proximity to their own residences. It appears that even divine favouritism plays a role in this process. *“Even God also favours his loved one.*

That's how it is!" (KII 15, a LGI head and political leader of Charfesson). Also, solar streetlights were installed near political leaders' relative's houses. According to FGD 9 with the farmers, one of the participants was found to have solar streetlights. When he was asked how he had arranged his way to having the light, he mentioned that his uncle has a good connection with the minister. The minister then requested the mayor and the mayor arranged for the solar light to be installed where it was requested (FGD 9 with farmers, site 3).

In Bangladesh, it is a common practice to align oneself with the ruling party, in order to receive government benefits, regardless of their own political view. Without the political blessing, it becomes extremely difficult to pursue anything e.g., family card, VGD card, or even any Government relief. Local political leaders tend to help those who work for them during elections. Similarly, just to get a tubewell or streetlights adjacent to their houses, they become the active supporter of the local councillor or influential political leaders and campaign for them (FGD 3 with day labourers, site 1).

One interesting finding of this research is that during group discussions when FGDs were asked if their needs were fulfilled by the projects implemented in their area, most of the comments of the participants related to only two projects i.e., the tubewell and solar streetlights - these are the projects that most impact their day to day lives significantly. Therefore, these two projects may be enough to win the hearts and minds of the respondents, even though they do not address specific adaptation needs.

Another aspect of favouritism revealed that political considerations frequently compromise technical matters. For instance, at times, the location and direction of roads or dams are altered to protect the land of wealthy or influential individuals, disregarding local interests. These influential individuals manipulate the planning of dams and influence the demarcation process, resulting in the placement of dams on lands belonging to marginalised farmers; "*Consequently, poor farmers lose their land and become landless in this unjust process*" (KII 6, a former top level BCCTF official).

From the vulnerability analysis conducted in the study area (described in Chapter 5), it is found that the sampled communities need money for their survival, to tackle the risks and

impacts of climate disasters. Hence, they need easy access for loans and grants. Unfortunately, there is not much institutional and government support available for them. Even when relief is provided, it is seen that some people are not receiving the money, although they are registering for schemes. For example, from the interviews the process of allocating tubewells involves the municipality selecting 10 to 12 families for each tubewell. However, in order to obtain a tubewell, these families have to continuously pursue the officials and typically spend a certain amount of money (around \$50) for each. Once the families have fulfilled these requirements, the tubewell is sanctioned for them. However, the entire process takes nearly a year before the tubewell is actually installed (FGD 2 with fishermen, site 1).

The canal digging part of the tubewell project was not properly executed, as mentioned by the participants of FG 8: *"We didn't see any canal excavation take place. In theory, they showed, but practically they did nothing"* (FGD 8 with women-elderly, site 2). Instead of removing soil and junk, only a walkway was constructed, causing debris to accumulate and block the water flow within the canal (FGD 6 with fishermen, site 2). On the other hand, *"This would have been helpful if soil were removed", the fisherman added in frustration.* A journalist talked with the contractor of the canal dredging project and was informed that illegal shops and houses occupied both sides of the canal and also the design for the walkway was actually inside the canal which is why canal digging was hampered. The solar projects also turned out to be a disaster project in financial terms: *"The solar lights placed in municipality areas are of extremely poor quality. Each cost BDT 100,000 (\$1000) but did not light up even 3 months after installation"* (KII 20, a Journalist in Charfesson).

The MP/Minister/Mayor tend to focus on easily visible infrastructures to demonstrate that development is going on; *"They spend funds to build women's college, teachers training college and other development works by the roadside just to make it easily visible by the people, whether they serve the purpose of the vulnerable people's need or not- that's not important for them"* (KII 24, Executive Engineer of a LGI in Charfesson). In his opinion, as the budget is limited, it would have been more effective if the projects were taken in rural areas focusing on actual needs of those climate affected people, *"Unfortunately, that does not happen"*, he added. The aim of attracting additional funds is to demonstrate to the local

population that numerous development projects are taking place in the area for publicity purposes. *“The objective of bringing more funds is to show local people that a lot of development works are going on in the area for publicity. That’s why the projects are built around the same place where they’ll get more appreciation from people”* (KII 24, Executive Engineer of a LGI in Charfesson). Therefore, projects are often concentrated in areas where they will receive more recognition and appreciation from the people.

There is a saying that emphasises the value of publicity: the more publicity you generate, the more confidence people will have in you. *“Most of the educational institutions built by the Educational Engineering Department (EED) are named after individual’s name except a few. People like to do it to gain popularity. This is not right”* (KII 20, a Journalist in Charfesson). This naming practice is often done to gain popularity.

“In coastal areas like Charfesson, if relevant infrastructure were built, the situation would be improved, and they could at least be used as shelter during disaster. Unfortunately, that does not happen in reality” (KII 24, Executive Engineer of a LGI in Charfesson). If the local communities were given the opportunity to participate, it could greatly facilitate the identification of their specific needs and enhance transparency in project implementation (KII 4, a mid-level Project Monitoring Officer of BCCTF). Local people possess comprehensive knowledge and understanding of their situations, including the project tender process and the individuals involved. *“Common people know everything- what’s going on in the tender process, who is involved in what- they can understand despite they are not educated”* (KII 24, Executive Engineer of a LGI in Charfesson).

In contrast, the projects BCCT funded are primarily driven by the decisions and actions of MPs, Mayors, and chairpersons. However, farmers have indicated that the input of local low-income communities is not considered in this process, and the authorities proceed based on their own perceptions of what is beneficial: *“They do what they think is good for them”* (FGD 1 with farmers, site 1). Finally, a fisherman expressed his frustration for being ignored by the leaders who make empty promises during election: *“Political leaders come only during the election; once election is gone, they’re gone too”* (FGD 2 with fishermen, site 1). This is how the vulnerable community are deprived and detached from the implementation process.

Whereas these projects should be implemented by the community, for the community, and with the community.

Further to the statements outlined, it can be inferred that one of the primary obstacles around successful project implementation is project oversight. One major issue is the shortage of competent personnel, *“We have shortage of efficient manpower- the right person is not placed for the right job. It’s not that the projects are not moving forward, but not the way those should be”* (KII 11, an academic and expert member of the technical committee). For instance, BCCTF does not directly select or assess the project beneficiaries; instead, local members or councillors are responsible for this task, based on their experience of vulnerability levels and priority needs. BCCTF’s role primarily involves approving the funds only; but *“the fair selection of beneficiaries is very important to achieve the funds’ objectives”* (KII 4, a mid-level Project Monitoring Officer of BCCTF). Locally LGI Engineers are responsible for monitoring the projects, but they may be motivated by financial benefit and often, loosen up monitoring the projects in exchange for money, KI 4 added.

However, there are occasions when political leaders face time constraints due to other commitments. Despite their genuine intentions, they may find it challenging to closely monitor the projects, even though they diligently strive to secure funds for the benefit of vulnerable communities. In such cases, political influence may not always be negative, issues arise as they lack local offices or personnel for on-site project monitoring. Public executives are available to provide the necessary support in this regard (KII 7, an expert and former top-level BCCTF official).

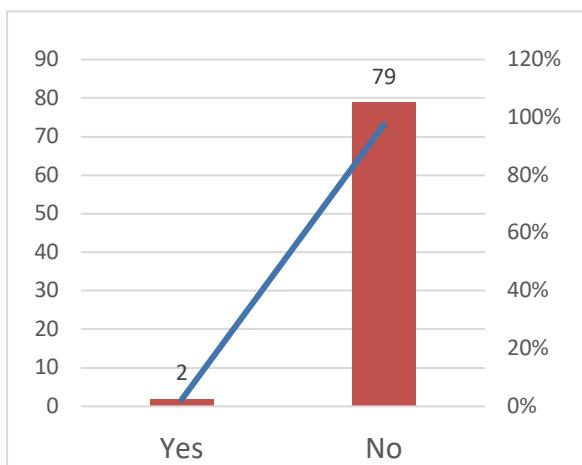
One respondent stated that the local MP stands out from others as he is truly dedicated to serving the people and enjoys great popularity among the local community (KII 20, a Journalist in Charfesson). A fisherman in site 1 expressed his gratitude towards the MP that they are aware of the developments taking place in their area, and their children are able to study in schools that have been established as part of the BCCTF projects when they believed those projects were solely implemented by the minister, not as part of a climate change programme (FGD 2 with fishermen, site 1); *“His efforts have led to significant development that greatly*

benefitted our area. In fact, our minister has accomplished more than any other leader in the Barisal division" (FGD 2 with fishermen, site 1).

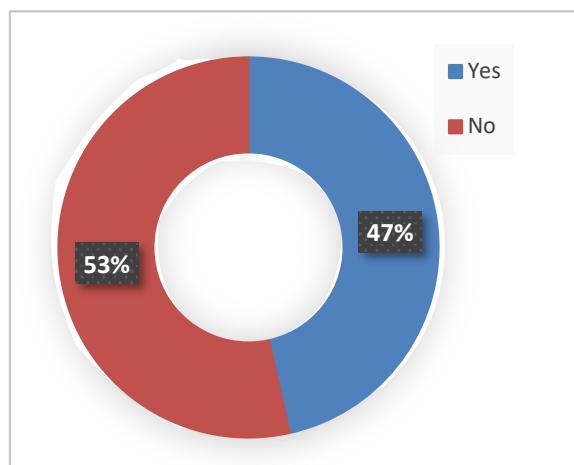
It is important to note that the MP needs to offer a certain amount of money to the ministry (minister/officials) in order to secure funds for his constituency. "*He does so by taking a percentage from the contractors involved in these projects*" (KII 20, a Journalist in Charfesson). This arrangement ensures that both he and the local people benefit from these initiatives, the journalist elaborated. When the local journalist and climate activist was asked if the people are happy with the adaptation projects in their areas he stated: "*They all are in smiley faces as they see a lot of development going on. They are happy that a lot of funds are coming*" (KII 20, a Journalist in Charfesson) and "*Actually, the MP we have is different from others*".

During survey, the respondents were asked about how much inclusion they have in the adaptation projects which were being implemented in the study location (see Appendix 2: Graph 6-6). Results showed that respondents were included very marginally with 98% of the respondents who said no (as shown in Graph 6-6). If the local community people get the scope to participate in the project implementation committee, 53% of the respondents opined it would bring better results (Graph 6-7). Besides, 47% of the respondents think that participating in the project implementation committee could not improve results.

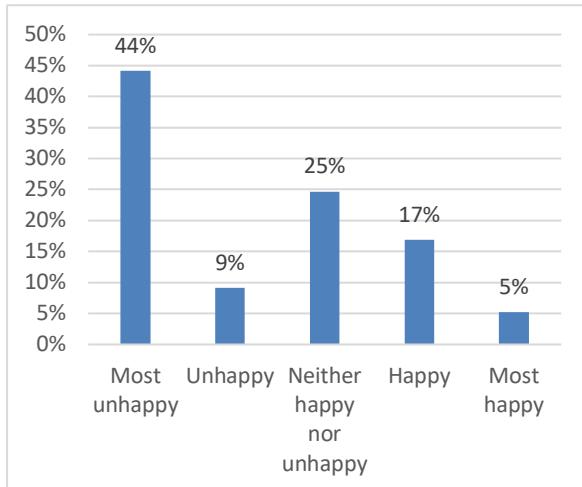
On the other hand, Graph 6-8 shows that most people are not satisfied with political involvement in adaptation projects. More than half of the respondents stated that they were not happy. Furthermore, 25% of the respondents stated that they were neither happy nor unhappy. Contrary to the response supporting their unhappiness, 22% of the respondents said they were happy. However, interestingly, 80% of the respondents are still in favour of political involvement in climate change-related activities as this brings fundings for the area where everyone is benefitted from the development directly or indirectly (Graph 6-9). Only 20% said that political parties or persons are not involved.



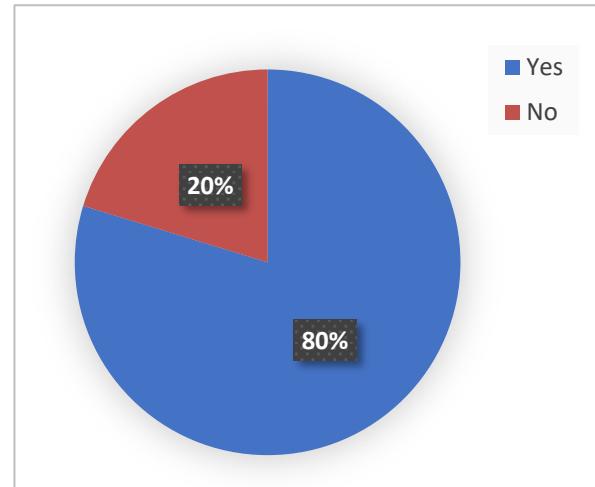
Graph 6-6: People included in committee relating to adaptation projects



Graph 6-7: Whether people participation can bring better result



Graph 6-8: If people are happy with the involvement of political people



Graph 6-9: If people want political party/persons' involvement in CC related activities

Figure 6-5: Few survey results (Graphs 6-6 to 6-9) showing respondents' opinion about politics of project implementation; (Source: Author illustration)

Figure 6-6 shows an academic building in a girl's college with the name of the Minister signposted on top of the building. There has also been the establishment of a Teacher's Training College, where the acknowledgement of the name of the Minister's father is written (Figure 6-7). Underneath the tubewells installed, acknowledgement plates with the names of the Minister have been engraved (Figure 6-10). Upon visiting the site, the implemented

projects also included a bus terminal (Figure 6-8). There has also been a canal-dredging work and walkway built in the periphery of the region (Figure 6-9, 6-13). The local leaders have also built a drain cum footpath near the girls' college (Figure 6-11). On the other hand, it was noted and observed from the informants from vulnerable communities and the local level implementers that roads for communication were built along with walkways having solar streetlights (Figure 6-13).



Figure 6-6: Academic building in girl's college



Figure 6-7: Teacher's training college



Figure 6-8: Bus terminal in Charfesson

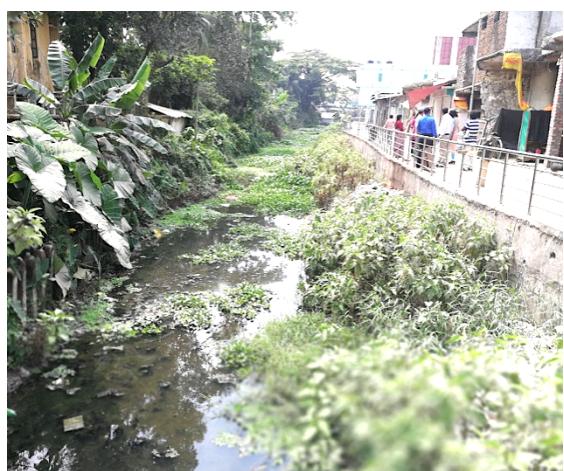


Figure 6-9: Canal dredging and walkway



Figure 6-10: Tubewell with elevated platform



Figure 6-11: Drain cum footpath near the girls' college



Figure 6-12: Roads built for communication purposes



Figure 6-13: Walkways and solar streetlight

Figure 6-6 to 6-13: Various adaptation projects funded by Bangladesh Climate Change Trust Fund (Source: Author illustration)

The discussion raises a critical issue about the potential unintended consequences of development projects in the region. While development efforts may be targeted at helping the poor, they might end up benefiting the relatively better-off individuals due to their land ownership. This situation creates a complex dynamic where the intended beneficiaries do not receive the full benefits of the development projects. Interventions sometimes address the priority of implementing climate change activities in certain areas. This issue is crucial as climate change disproportionately affects vulnerable regions, and allocating resources and interventions based on contextual needs and vulnerabilities is essential. There is a need to more accurately redefine poverty to account for the unique conditions in coastal areas. Without a proper understanding of poverty in these regions, it becomes challenging to assess whether development projects are effectively targeting and benefiting the poorest and most vulnerable.

These findings therefore present a detailed perspective on how poverty is perceived and experienced in coastal vulnerable regions and how political power at different levels plays a role in BCCTF project effectiveness. It highlights the limitations of using a uniform observation on poverty. There are cases where the poorest who are landless migrate to urban areas for better prospects and as a result, the individuals left behind in these regions tend to own land and might not fit the conventional definition of absolute poverty. The findings emphasise the importance of considering geospatial context when defining poverty and implementing development projects and a deeper understanding of the contextual factors influencing poverty dynamics in these regions.

6.5 Discussion

The purpose of this chapter has been to understand the voices from the frontlines and how they perceive their needs and vulnerabilities. This chapter presented thematic analysis followed by a quantitative data analysis of the interviews conducted with the various FGDs and KIs regarding effectiveness of BCCT funded projects. Emerging themes between the interviews were discussed and linked to the quantitative data. The findings incorporate perspectives from farmers, fishermen, daily labourers, and the elderly for understanding their levels of awareness, contentment, and involvement in climate change initiatives in the area.

By analysing the various aspects of how the projects are formulated or implemented it was understood that projects are generally top down selected, not demand driven. Local influential people including people representatives and local political leaders influence the selection process and local people are not generally consulted. There are no initiatives to create livelihood opportunities for the poorest vulnerable people. The BCCTF projects in the study area are mainly on infrastructure development and water supply and do not directly address adaptation needs. Political influence, exploitation of loopholes and corruption appeared part of many project processes and monitoring processes appeared ineffective (in some cases). Alternative strategies could include providing alternative livelihood options for the poorest through inter-departmental initiatives. GoB could build housing for the poor and vulnerable people who are landless or living in non-resilient housing.

The main findings of this chapter bring together the necessity for adaptation in vulnerable communities and detail the range of adaptation efforts carried out by the BCCTF and assess the disparities between the projects implemented in the Municipality of Charfesson and local communities' experiences and perceptions of adaptation needs.

BCCTF has undertaken various interventions, including canal dredging, drainage improvement, and streetlight installations. Local communities reported that frequent climatic events and disasters damaged roads, posing challenges to communication systems. Moreover, consecutive flooding events resulted in waterlogging and an unhealthy living environment in the municipality. Insufficiently developed drainage systems exacerbate this issue, as heavy rainfall exceeded the municipality's drainage capacity, leading to waterlogging and unsanitary living conditions. The BCCTF focus was on supporting families affected by climate-induced disasters and lacking access to educational facilities by constructing educational infrastructure such as schools, colleges, and hostels. However, it was observed that these educational facilities were not always resilient enough to withstand climate-related events. To address vulnerability and align with the goals of the BCCSAP and the MDG of increasing education in rural areas, several BCCTF projects were initiated to build educational infrastructure, with a particular emphasis on infrastructure development that can be used as cyclone shelter as well, when needed (Islam et al., 2021b; Rasheduzzaman et al., 2020).

One crucial aspect of the projects was also the installation of solar streetlights to counteract the disruption of electricity during disasters caused by strong winds and heavy precipitation (Abdullah-Al-Mahbub et al., 2022). The lack of electricity has led to transportation and communication challenges, particularly at night when road communication became risky. The streetlights can give the community a sense of security benefits and enable ways to foster confidence in local people contributing to their overall wellbeing. By adhering to the Sustainable Development Goals (SDGs) to reduce carbon emissions, the use of renewable energy sources like solar power, was implemented to enhance communication and transportation facilities (Mandal et al., 2018).

Furthermore, to address the issue of inundated roads during frequent cyclone and flooding events, bus terminals were constructed through the Trust. The floods hinder access to educational and healthcare centres, making the local population more vulnerable to disasters (Parvin et al., 2023a; Alam, Karim and Hoque, 2020). The construction of bus terminals aimed to provide a safe shelter for the community during disasters, offering support to those in need. Also, BCCTF implemented projects to build roads that also served as embankments, often offering protection to communities and their resources from tidal surges. These structural solutions on river slopes safeguarded houses and crops, as well as the lives and properties of the locals during disasters (Rahman and Rahman, 2015). The projects also brought employment opportunities and increased annual income for the residents. However, it is worth noting that without a few exceptions no vulnerability assessment was conducted (Yasmin, 2018).

The majority of people were completely unaware of how climate adaptation projects were being implemented, while only 1% of the population sampled had heard of the BCCTF. Most of the participants stated that they had never heard of the projects funded by the BCCTF. Furthermore, this lack of awareness and understanding regarding climate change activities extends beyond this case study area (Chowdhury et al., 2022a; Irfat and Raihan, 2022). As a result, a vast portion of the general population living in vulnerable areas, including public representatives and relevant officials, lack detailed knowledge about climate change, its impacts, or even the existence of a climate change Trust Fund in Bangladesh (Rahman et al., 2016).

The majority of respondents expressed satisfaction with the significant development initiatives taking place in their communities, also supported by studies such as Rahman et al. (2016) and Yasmin (2018). Additionally, many are pleased with various interventions, such as the establishment of a women's college and other facilities which are seen as beneficial for the educational prospects and future of the community (Mallick et al., 2011; Dasgupta et al., 2010). However, it is important to note that many of the positive remarks are made based on a limited understanding of the true purpose of the BCCTF. The study revealed how opinions change when the actual purpose of the funds is known, suggesting the wider community is not fully aware that the funds were intended for climate change interventions. Interestingly,

participants' opinions on some projects changed once they became aware of the true objective of the funds.

The allocation of funds has been heavily criticised for following a predominantly top-down approach, with trustee members making decisions on fund distribution without engaging in grassroots-level planning and discussions, also argued by Rahman et al. (2016) and Swarnakar et al. (2017). Trustee members are potentially ill-suited for determining fund allocation. It is suggested that a bottom-up approach should be adopted, involving active participation from local communities in assessing their own needs and determining the most appropriate course of action (Younus, 2017a; Swarnakar et al., 2017; Conway et al., 2019). This approach would tap into the knowledge and expertise within the community, increasing the chances of successful project implementation.

There is also a knowledge gap among the parties responsible for formulating projects at the local level. They lack relevant knowledge and training concerning climate change, adaptation, and related issues. However, they do have some understanding of local vulnerabilities (Aryal et al., 2020). As many of the heads of LGI were born and raised in the area, they are familiar with the specific vulnerabilities present.

Information asymmetry exists at all stages of project formulation to implementation. LGIs can exploit loopholes and capitalise on information gaps by formulating projects according to their own interests, leaving the community in the dark. The LGI heads or officials do not share information about the project risks or the source or the purpose of BCCT funds. During the implementation stage, information asymmetry is also evident- according to the rule, there should be a signpost providing some information in it regarding the projects: who the project is funded by, starting, and ending dates, purpose of the project and the project executing contractor etc. Whether funds are utilised properly or not does not greatly affect LGIs or leaders - any loss or misuse of the BCCT funds is a loss for beneficiaries. Consequently, the areas that require adaptation measures the most, do not always receive the necessary financial support in the BCCTF cases considered in this analysis.

Local communities were rarely consulted regarding selection of projects, beneficiaries, and intervention locations (see also Barrett, 2014). Consequently, their demands were not taken into consideration in the projects, neglecting their insights and perceptions (Sheriffdeen et al., 2023). The system tends to prioritise a scientific and expert-driven approach, which has not produced the desired outcomes. Instead, a bottom-up approach should simultaneously be tried out where communities at local level could carry out their own assessment and determine the best course of action (Sherman, 2014). This will also leverage the community knowledge and may lead to a better chance of success.

Political processes influence project selection and implementation, not just as found here, but also more widely in Bangladesh (Mahmud and Prowse, 2012). Whether operating at the municipal or sub district level, MPs possess the power to determine the results of tenders within their respective jurisdictions, and such decisions frequently involve a certain amount of commission. Local political leaders take advantage of licences held by legitimate licence holders to participate in project tenders. While these leaders supervise project implementation, all invoices and bills are settled under the name of the licence holder, who receives a percentage in exchange for granting permission to use their licence (see also Hamiduzzaman, 2014).

Beneficiary selection is a significant factor that often goes unattended at all levels of project formulation to implementation. KII highlight the challenges associated with assessing vulnerability at an individual level for everyone. However, in certain projects and specific situations, there have been attempts to assess individual vulnerability to some extent. Furthermore, feedback from vulnerable communities indicates that some political figures are proactive in making promises during election periods, but it is frequently noticed that these promises remain unfulfilled. In order to gain popularity, it is a very common practice in politics to name any reputable establishment after the name of famous politicians, even though they are built by public resources.

Tracking and monitoring is crucial for any successful implementation of projects which are expected to be done by the BCCTF officials and district level officers. Regarding project

monitoring, in Chapter 4, the BCCTF officials mentioned that, though they don't have much say or control over fund allocation, they do project monitoring properly. However, due to politics at the local level and the unfair practices that go on, the monitoring does not seem to be done as effectively as claimed (see also Rahman, 2016).

6.6 Conclusion

Overall, the chapter can be concluded with the general finding that resource mobilisation and development in the study area which the BCCTF brings, does bring some benefits to the vulnerable communities sampled leading to their reasonable satisfaction with the projects - they accept all the developmental work positively noting that 'beggars can't be choosers'. The ministers and political leaders (contractors) appear to become the primary beneficiaries through financial and political gain. Overall, low participation in project design and execution and low awareness among the sampled vulnerable communities left the projects lacking in focus on locally important climate change adaptation issues.

The political dimension of the results of Chapter 4 and Chapter 6 will be discussed in Chapter 7.

Chapter 7: The dynamics of ‘power-patron-clientelism’ in the adaptation process of Charfesson

7.1 Introduction

The third research question of this study aims to understand the dynamics of the socio-political situation that prevails in the study area and the challenges it brings along, which hinders successful adaptation there, through the lens of patronage-clientelism culture. This chapter is a detailed synthesis of the key issues obtained across the result chapters 4, 5 and 6, guided by the research questions presented. This is an exploratory research which explores the broader linkages relating to the existence and emergence of patronage and political clientelism practices in the climate adaptation landscape of Charfesson, Bangladesh. The chapter discusses narratives underlying the power structure that determine the availability of adaptation funds to the poor and vulnerable and how the community perceives that local-level politics play a role in adaptation programs. This discussion also elaborates on the research findings associated with BCCT fund allocation, project formulation and implementation in light of relevant academic literature and theories.

There have been many publications (Ciplet et al., 2013; Rai et al., 2018; Ayers et al., 2014; Sovacool, 2018; Eriksen et al., 2015; Eriksen et al., 2021) that argue that the funding process of adaptation cannot be free from biases. For instance, Eriksen et al. (2015) argue that *“Adaptation is a socio-political process that mediates how individuals and collectives deal with multiple and concurrent environmental and social changes”* (p. 523). Their argument is that “power” is often yielded in the adaptation process as it is always a political process. Projects that are positive for one group might not be for another, and the role of the government is important in determining how outcomes are distributed. Power distribution and exercise is not equal but rather unequal (Eriksen et al., 2021). The power-inequality imparts remarkable counterproductive outcomes in the adaptation process: the vulnerability of climate-affected people worsens rather than alleviation or adjustment. The vulnerable people must be involved in the adaptation process through political empowerment (Eriksen et al., 2021).

In the context of climate change adaptation in Charfesson, the patron-client relationship

manifests as a socio-political dynamic wherein vulnerable populations often fail to receive the necessary support from governments due to entrenched political economy factors. Patrons leverage their authority and knowledge to maintain control over decision-making processes while clients navigate this power dynamic to secure resources and support for their communities. Understanding the intricate dynamics of the patron-client relationship is essential for crafting effective and equitable strategies. This chapter delves into the significance of incorporating concepts of subjectivity, knowledge, and authority from Eriksen et al. (2015) into the analysis of this relationship, shedding light on how power dynamics manifest and influence adaptation practices.

To recap Eriksen et al. (2015) the theoretical premises of this research surround firstly the matter of subjectivity, which plays a crucial role in shaping the actions and decisions of individuals and institutions involved in adaptation processes. It encompasses the diverse perspectives, values, and interests that influence how stakeholders perceive and respond to climate change challenges. In a usual understanding, political leaders may prioritize growth over conservation, reflecting their own subjective experience, priorities and ideologies. Similarly, vulnerable communities (not only in Charfesson but elsewhere) may have different perceptions of risk and adaptation needs based on their sociocultural contexts and livelihood experiences. By acknowledging and interrogating these subjective factors, we can better understand the motivations and behaviours driving adaptation actions.

The research also underscores the ideas surrounding the theory of knowledge (Eriksen et al. 2015), which is another fundamental aspect that informs adaptation practices. It encompasses the various ways in which people understand and interpret climate risks, adaptation strategies, and vulnerabilities. Different actors possess different forms of knowledge, including scientific expertise, traditional ecological knowledge, and local experiential knowledge. Scientific knowledge provides technical insights into climate change processes and potential adaptation measures, while traditional knowledge offers valuable insights into ecosystem dynamics and adaptive practices developed over generations. Local experiential knowledge, rooted in livelihood experiences, provides nuanced understandings of climate impacts and effective coping strategies. This research recognizes the plurality of knowledge systems, and by promoting knowledge exchange and co-production, adaptation

efforts can be more contextually relevant and effective.

This research, by critically examining the dimensions of subjectivity, knowledge, and authority, explains how power is reproduced or contested in adaptation practice. Power dynamics shape who gets to define adaptation priorities, whose knowledge is valued, and who benefits from adaptation interventions. In many cases, existing power structures reinforce inequalities and perpetuate vulnerability, limiting the agency of marginalized communities in shaping their own futures. However, by challenging dominant narratives, amplifying marginalized voices, and fostering inclusive decision-making processes, adaptation efforts have the potential to contest power imbalances and promote more equitable outcomes.

The discussion has been organised into three main parts - fund distribution (Section 7.2), project formulation (Section 7.3.1), and project implementation (Section 7.3.2). The political dimensions behind the adaptation initiatives of BCCTF are explored using three elements of Eriksen's (2015) model (ibid, see Figure 2-3) i.e., subjectivity, knowledge, and authority. The discussion also examines information asymmetry - which influences the unevenness of development and adaptation interventions. Finally, the study comes up with a new model, titled 'Charfesson Model of Adaptation', which represents the major findings of the study: the key players' role and responsibility in all the phases from fund allocation to implementation of climate projects, exposing the barriers for successful adaptation among vulnerable communities.

7.2 Power and patron influence fund distribution (Answering research question 1)

Research question 1 asks about the current funding profile of the local climate change funds in Bangladesh, especially of the Bangladesh Climate Change Trust Fund (BCCTF). From the analysis in Chapter 4, it was found that fund allocation was not based on consistent measures of the nature and extent of vulnerability but more on the choice of the BCCTF structures and influences. The scope of political power and patronage was evident in the process. The following section explains the relationship between power and patronage that influences climate fund distribution. With theoretical implications related to how resources are

channelled to areas with influence and how infrastructure gets more priority, their basis is explained with respect to Eriksen's (2015) 'authority', 'subjectivity', and 'knowledge' along with other conceptual and theoretical groundings. This power and patronage aspect suggests lack of participation and a comprehensive vulnerability assessment are causing ineffective project allocation and design.

7.2.1 More resource channelled to preferred areas with the influence of patrons

In this research, patrons are the influential individuals (such as ministers, MPs, mayors, politicians) with power and authority who are in a position to use political power or influence to help, protect or benefit another person in exchange for political loyalty or other services (Lee, 2020). On the other hand, clients are at the receiving ends who take the benefits from the patrons. Patron and client jointly influence the projects in the adaptation process with an intended objective of gaining individual benefits and support (Opute *et al.*, 2020). The analysis in Chapter 4 suggests that more funds are allocated to certain areas than others. Since 2010, while the funds were indeed going to vulnerable locations, they did not follow the extent of vulnerability of locations which varied considerably. A division-wise allocation of funds portrays that due to patron's, out of eight divisions Barisal and Chittagong received more than half of the allocations, neglecting other divisions including Khulna (a bigger division than Barisal) with similar magnitude of vulnerability.

An important finding was obtained from tracing fund allocation through divisions within the country, districts within a division, and localities within a district. The trust was headed by ministers from Chittagong district of Chittagong division during 2009-2014, when the highest funds - more than a quarter - flowed to Chittagong district of Chittagong division alone out of 27 vulnerable coastal districts in the country. Whereas during 2014-2019 while the ministry was headed by the minister from Pirojpur district and the deputy minister from Bhola district of Barisal division, the allocation jumped to over half going to two districts - Bhola and Pirojpur in Barisal division and negligible amount to Chittagong division (5%) and Khulna division (1%), with almost equivalent extent of vulnerability from climate change impacts (see Figure 3-2 and Figure 5-3 in Chapter 3 and 5, respectively). Within the division, allocation was also not truly based on the vulnerability of districts; out of 6 districts in the Barisal division, Bhola and

Pirojpur districts received the majority of funding (more than half of the total funds allocated for 27 coastal districts). This is likely the influence of the top two Trustees who originated from these two districts. During both the Ministers' tenure, such subjectivity and inefficiency of the regulatory body were evident; as the funds' approval process was done in the absence of the majority of the Trustees under the influence of the ministers in power (Appendix 3).

Moreover, within the Bhola district, fund distribution was not fully based on vulnerability either. The constituency of the state minister (Charfesson) received the highest amount among the 9 sub-districts. Nonetheless, inside Charfesson, the higher vulnerable locations were not necessarily receiving the funds. For instance, a union under the Charfesson subdistrict, which is lot more vulnerable than Charfesson Municipality area, due to higher exposure of riverbank erosion, salinity, and sea-level rise, received less funds than Charfesson Municipality. Despite the severe needs, the Chairman of the union council could not convince the minister to allocate funds even though the minister was fully aware of the vulnerabilities of the locality. However, the neighbouring municipality got the funds despite less priority although both the Chairman and Mayor are from a similar political background. This is a very common picture of discrimination in fund allocation, where funds are allocated not as per priority. This is clearly echoed by Eriksen's 'subjectivity', where MP (Member of Parliament) had good intentions to develop his area; his subjectivity prevailed above the BCCTF's goal—the MP felt if the tourism sector develops, then local people will be the ultimate beneficiary; thus, it will serve some purpose to reduce poverty. This will give benefit only for a few vulnerable individuals; however, it would not have a direct impact on vulnerable communities to address their needs; therefore, the ultimate goal for the funds of BCCTF would not be achieved. This practice is not necessarily in Bangladesh only but globally, which was pointed out by Barrett in a study in Malawi, where he found that proportionately less funds were allocated to the area with higher needs (Barrett, 2014).

Overall, fund allocation appears to have been influenced by the 'heavy-weight' ministers, the decision makers in the Trustee Board, who played an active role as patrons to their clients—the Mayors, Upazila Chairman or other agencies. In the role of patrons, ministers' subjectivity prevailed and due to the information asymmetry existing between the Trust and the local agencies, information was manipulated to serve the patron's own interest in fund allocation.

However, a gap in the allocation process was evident as they failed to acknowledge and absorb expert opinions and comments in their decision-making process. Thus, allocations were not done fairly and proportionately (according to levels of vulnerability) as they are mostly managed by the clients, i.e., LGI heads, also suggested by Clay et al. (1999), Jayne et al. (2001), and Reinikka and Svensson (2004). They identified few factors in particular, government interest and ethno-regional patronage that drive resource allocations at subnational level.

The authoritative nature of the patrons, i.e., ministers, plays a role as they ensure their actions with regard to fund allocation are implemented, to make sure the LGIs are satisfied on their behalf and that the people of their constituency are benefitted such that both their clients (LGIs and vulnerable people) are happy with the allocation. In doing so, the minister may have influenced the community to vote for him. LGIs also act as clients during elections, regardless of whether the objectives of the funds allocation are justified, and the aim of the funds is served (Beg, 2021). Therefore, the overall client's (vulnerable communities) demands and vulnerabilities are undermined. The patrons are uniquely positioned to use their power to undermine the actual needs, which has been explained by Eriksen et al. (2015) with reference to "authority". This political influence also observed in Brazil and Mozambique, highlighted by Nelson and Finan (2009) and Artur and Hilhorst (2012) where the funds are directed for the specific purpose of patronage to obtain political support within targeted constituencies.

Such instances echo with other findings where political influence reinforces political clientelism in Bangladesh. This is related to a fragile legal system, a dominance of strong executives, and a nexus of economic, political, and administrative elites who often misappropriate and exploit resources and power (Moniruzzaman, 2018). In Bangladesh, there is a conscious patronage culture and the presence of elites in a political economy where there is a lack of responsibility, and accountability both in terms of democracy and politics (Riaz, 2019). In some cases, a strong connection with the political elites makes it easy to attain climate projects, also supported by Sharmin et al. (2017).

There exist positive aspects of political influence- sometimes, areas or projects can be deprived of proper attention due to insufficient political backing, potentially swaying

distribution away from areas of potential need to areas of less vulnerability. For the BCCTF, it remains to be seen if the fund could have been allocated better - some areas do receive preferential treatment though there are differences in vulnerability so it is understandable that some areas may receive more funds than others. However, this study revealed that funds are not being proportionally distributed among all areas, with Barisal and Chittagong preferentially receiving more funds although it should be noted that these areas are climate-vulnerable and should receive some funds. Climate-vulnerable people often suffer from these power dynamics, as political elites control access to resources and decision-making processes, exacerbating existing vulnerabilities. The marginalized are side-lined in adaptation initiatives, perpetuating cycles of poverty and inequality.

The effects of subjectivity were significant among the ministers' ministry-wise fund allocation and distribution, which was demonstrated later in the Charfesson Model (Figure 7-1). The influence of ministers was evident where authority was misused, and poor knowledge of ministers derived the criteria for fund allocation. Some ministries received a significantly disproportionate share of climate funds. The Ministry of Water Resources (MoWR) received a major share during 2009-2014 which fell by almost 90% in 2014-2019 with the change of the minister. The Ministry of Local Government, Rural Development and Cooperatives (MoLGRDC) received three times the amount of funds during 2014-2019 than 2009-2014, reflecting the role of patrons as influencers of fund allocation.

7.2.2 Infrastructure projects have received more priority than economic and social recovery projects

Analysis of project proposals revealed that among six thematic areas the LGIs focussed on traditional infrastructure development projects like building roads, schools, footpaths, etc. The Trust can provide funds in six thematic areas but does not prescribe any policy or guidelines regarding proportionality across those themes which left opportunity for imbalanced fund distribution. Understanding this gap, several stakeholders raised their concerns and expressed the need for proper, achievable, and realistic distribution guidelines for fund allocation with specific and clear instructions based on the prescribed six themes. These could drive the patrons in the Trustee Board towards legitimacy, and their subjectivity

would be enriched with dominance over subjectivity, as argued by Eriksen et al. (2015). The LGIs (or other agencies) requesting funds could also play a stronger role in feeding back to the Trust and challenging the BCCT's decisions leading to change or even overturn completely where necessary and making the LGIs' role more effective (Eriksen et al., 2015). The patrons tend to put down ambitious resolutions, mostly prior to the elections, through claims made to clients about their delivery of projects.

Through KIIs, it is revealed that Infrastructure-based projects are costly yet relatively easy options for the ministers (i.e., patrons in BCCT) to justify the spending of funds. This can be related to the knowledge gap of the patrons as the approved projects were short-sighted with no long-term vision, which was supported by the BCCT officials and LGI heads themselves that the political leaders have little knowledge regarding the rules, regulations of BCCT and BCCSAP. In contrast, these projects could have been based on thematic areas of BCCSAP, which could serve the objective of the BCCTF as well as the adaptation needs of the vulnerable community. However, the developments can be seen positively by the local community people and appreciated, considering them as long-term developments. They also help the patrons to gain popularity among the clients and help re-elect later in their tenure because the infrastructures are often tagged with their names or their family members' names. This was observed in the case of schools, colleges, and tubewells projects. The study reveals that the patrons always preferred infrastructural projects which are a lot more visible and impressive to the local community. The tubewell, women's college, bus terminals- are all iconic places where patrons even put their own names for publicity. Seeing all these infrastructural developments, the whole community along with the vulnerable community, become less interested in actual impact and more interested in 'how it looks than what they actually get.' This whole synopsis has been described in the Charfesson Model (Figure 7-1), where climate change adaptation funds merely help the actual climate victims with the trickle-down effect.

This observation of general development activities with adaptation has been a known phenomenon in literature like Smith et al. (2016), where they proposed an integration and coordination of two sets of policies and activities in order to save duplication of scarce resources and to get specialised benefits like climate change adaptation. It is also discussed

by Rahman et al. (2020) that the climate change regime is intricately mixed and overlaps with development regimes in Bangladesh, more particularly with BCCTF.

It is also revealed that in spending funds for infrastructure-related projects, there are opportunities for corruption at multiple points by national and local level patrons. The same notion has been pointed out by Kabir et al. (2021). That is why BCCTF does not get enough projects to fund in thematic areas other than infrastructure to meet the adaptation needs of vulnerable people because LGIs and local patrons do not have much interest in those projects. As a result, investments in, for example, vulnerability reduction, agricultural inputs, and financial support are not as visible as the infrastructure-related developments - although they are more targeted for adaptation needs. Patrons also influence the technical team who recommend projects to the Trustee Board to approve infrastructure-based projects. Kabir et al. (2021) found the political consideration in fund approval as a major challenge in the governance of the BCCTF. Therefore, through the authority of the patrons, subjectivity prevails, knowingly or unknowingly, in deciding how the needs of the people should be met. Hence, knowledge and subjectivity are key factors that underlie the BCCTF interventions.

Barrett (2013) explores whether funds allocated for climate-affected communities eventually reach the most vulnerable sections of the population or not. He finds issues due to the political influence of the local governments, who are responsible for the implementation of the adaptation activities. Similar political influences were also seen when Bangladesh tried to address its arsenic-related groundwater problems (Khan and Yang, 2014). Thus, these results and complementary studies suggest that there are some deep-rooted problems in the working of the local government, as there may be some cases where they are misdirecting the money that rightfully belongs to the most vulnerable people in Bangladesh.

7.2.3 Lack of comprehensive community participation and vulnerability assessment causing ineffective project appraisal

The gap present in the availability of information between the field and the Trust results in the suboptimal distribution of funds. There are many areas with vulnerability that go unnoticed because of a lack of information and systematic identification of vulnerability. In

essence, since most areas in Bangladesh are facing some form of vulnerability, it can be reasonably assumed that all the funds are somehow going to vulnerable areas. However, without proper vulnerability assessment, it cannot be guaranteed that the funds are being distributed to the most vulnerable areas first, where it is needed the most. Thus, there exist overlooked areas in dire need which may not receive funds or receive low amounts, as found by Barrett (2015).

It is evident from many of the KIIs and other results that there is a lack of a systematic and comprehensive vulnerability assessment within the ongoing climate change interventions (see also Raihan et al., 2010). Effective vulnerability assessment is a prerequisite to allocating funds and needs to include a comprehensive socio-economic perspective (Ali, 1999). Alamgir et al. (2020) suggest that effective methods to address vulnerability exist, and their use could improve project design and allocation, as supported by Islam and Nursey-Bray (2017). Thus, vulnerability assessment is supposed to reflect the actual needs of vulnerable communities. However, there are no prescribed tools designed by the Trust for this purpose. The technical committee that scrutinises and validates the proposed projects and the Trustee Board that approves them should have the appropriate knowledge about the vulnerability scenario of that given area to give legitimacy towards their decisions (Eriksen et al., 2015).

The study reveals that patrons materialise their interests through the use of power and influence without focusing on these important aspects. They use the opportunity of not having any comprehensive vulnerability assessment as a way to validate the projects which most suit their interests. Information asymmetry is evident, as no prescribed policy is in place for project selection and to hold agencies accountable for less effective projects. These ways of how they behave as patrons find parallels in the “Principal-Agent” problem as the Trustee Board (Principal) approves projects for vulnerable communities based on biased information provided by the ‘Agents’ i.e., LGIs or other agencies (Grossman and Hart, 1992). This dilemma arises in circumstances where ‘Agents’ do not need to bear the risk yet are motivated to act in their own best interests, which are contrary to those of their ‘Principals’. Often, patrons influence the decision knowingly in favour of their ‘Agents’ when they have common interests.

Unfortunately, because there is no insistence on LGIs about the participation of local people in need assessment, ultimately, Eriksen's 'subjectivity' played an influential role in decision-making rather than 'knowledge' - which could have been gained from local people through participation. Local knowledge was vital but unfortunately did not reach the decision-makers or may be distorted by the powerful to influence decisions.

A number of participatory approaches and methods, like Community-based Adaptation (CBA) have evolved to address disaster risk reduction effectively. CBA to climate change is one of the most important ways to strengthen the resilience of communities through comprehensive development. It is imperative that local actions are incorporated within national policies (Ayers and Forsyth, 2009). The CBA concept, mostly executed by NGOs in vulnerable communities, ensures direct participation of community members in the decision-making process. This seems to be one of the most effective ways to assess the adaptation needs of the vulnerable community. CBA is needed through greater networking, information sharing and support for enhancing the activities of various CBA actors (Huq and Reid, 2007). Participation of vulnerable communities i.e., CBA could be a sustainable solution to corruption and inefficiency in adaptation and a positive step for the BCCTF (Younus, 2017).

There are other cases of good examples of adaptation interventions funded by multilateral donors such as the World Bank, and the Government has done successful projects together in the drought-prone areas of northern Bangladesh in agriculture, fisheries and livestock (Sutradhar, 2015). As per the Local Governance Support Project (LGSP) of the Government and the World Bank, the rural institutions are engaged to support the poor local government institutes at the field level. One of the mandates of the project is to seek the needs of the grass-root level communities. This is a development project that seeks the demands through need assessment from the lowest tier of the government (ward level, as explained in Chapter 3, Methodology) and then the project formulation proceeds. However, a contrasting scenario is observed with the BCCT-funded adaptation projects causing dissatisfaction among some of the vulnerable communities sampled in this study.

Another example is the major Social Safety Net Programs (SSNPs) in Bangladesh. This is of four types, including employment generation, programs to cope with various types of shocks and natural disasters and providing incentives towards education and improved health status. A strong high-level political commitment and efficient program management have enhanced the inclusion of various communities and better targeted the users or the beneficiaries, lessening the leakage in financial management, monitoring, and supervision (Ahmed, 2013; Barkat-e-Khuda, 2011). The FGDs have referred to this project and it could be a useful example for climate funds to draw from.

7.3 Needs of vulnerable population unmet from patron's subjectivity, authority, knowledge and clientelism (Answering research question 2)

This section elaborates on why and how the needs of the communities are not met due to clientelism and political interests. Research Question 2 asks regarding the aims and objectives of the government to achieve climate resilience through BCCTF being met in relation to the perspective of sample communities (i.e., vulnerable and marginalised people). When patrons have funds allocated to their locality, they sometimes want to use the resource to further their own interests. The last section showed that the infrastructure projects get priority because of the influence they bring and the advantage it serves in later times. In this section, the aim is to examine how through power and subjectivity, patrons may override the adaptation needs in project formulation. This section also considers issues like corruption, nepotism and favouritism that take place at different stages of project implementation.

7.3.1 Patrons select projects of common interest with brokers, ignoring local adaptation needs

In order to apply for funds, institutions like LGIs are supposed to formulate a project based on the vulnerability needs of the local community collected through information from various surveys and sources. The study found that while local public representatives like Mayors, Chairmen and councillors are capable of identifying the local vulnerabilities when it comes to selecting projects, they shift their priorities from adaptation projects to developmental ones. The rationale for this, supported by several KIIs, is the shortage of funds in the LGIs and patron's interests in profitable development projects under specific thematic areas

(infrastructure).

LGIs are assigned to take scheduled development programs for their areas, and municipalities are supposed to be the richest and most urbanised areas in the districts and sub-districts. But most of the municipalities do not have effective or any drainage system, water supply, bridges, road communication, streetlighting, pavements, or other essential infrastructure. On the other hand, LGI heads face a serious budget crisis or resource mobilisation for their development works and services alongside low revenue in comparison to demand, even struggling to pay salaries for their employees (Mamun and Chowdhury, 2022). LGIs get very small grants from the government as ADP (Annual Development Program) limiting the capacity to undertake developmental projects themselves, and they become dependent on the local political patron to get funds from central financing agencies (Alam and Alam, 2022). Therefore, they may label development projects under the umbrella of adaptation projects to compete for funds. Undertaking developmental projects such as bus terminals, footpaths, and road networks in the name of adaptation can be termed as an 'adaptation paradox', where development takes place at the expense of adaptation from climatic disasters (Ayers, 2011).

Local politicians are generally committed to voters as they come to power with some mandates, and at least a few visible projects to satisfy them, showing their desire to keep the promises they made during the election. Furthermore, projects under thematic areas other than infrastructure (T3) demand expertise, and political allies may not have the capacity to design and implement them. Thus, these projects are seen as less profitable for local politicians than developmental ones. However, it is interesting that findings here often suggest that the respondents in the samples are happy to see anything that is new, visible and that spends or circulates money in the locality like purchasing local lands, labours, or products for the projects. Therefore, to address this demand, the local authority may submit proposals to sanction maximum funds on visible infrastructure as justified by a key informant from BCCT: "*Visible infrastructures ensure the people's satisfaction and the political leader's trend is to satisfy them*" (KII 1 with a top-level official of BCCT).

For instance, solar streetlights are actually not a direct adaptation, though respondents supported new lights in their area in the dark, as they bring a sense of security to them. Actions which directly address adaptation needs are more imperative in terms of implementation than mitigation (as Bangladesh is a very low emitter), but projects like solar streetlights are getting approved as part of mitigation measures. Often, these types of projects were taken in favour of the brokers' interest. Here, brokers exploit the patron's power to influence project selection for their mutual interests.

At the field level, the subordinate officials usually have no say over the projects undertaken in their area, even though it is mandatory to take their opinion into account since they possess a deep understanding and formal knowledge of project planning as there is a code of compliance prevails in executive stairs, particularly from administrative cadres who heads the climate fund agencies as argued by Rahman et al. (2020). On the contrary, decisions and designs are usually imposed on them by the patrons, and in most cases, their responsibilities are restricted to only the execution of the orders passed down by the patrons without consultation with them or the affected communities. The following comment from KI 24 shows the level of frustration due to the top-down approach of the patron: "*When it comes to project selection, we get in touch with the local MP who provides the priority list*" (KII 24, Executive Engineer of an LGI in Charfesson area). Clearly, this top-down approach of patrons undermines the capability of the technical people, which is detrimental for any project. Conway and Mustelin (2014) suggested the importance of technical expertise in designing sustainable adaptation practices. Local-level officials do not hold the sole authority to select projects; they have to take approval from the LGI head e.g., the mayor who formally recommends and sends the proposed project to the Trust for final approval.

One of the key findings of this study is that, in the case of selecting projects, local people surveyed are often ignored, and their voices are not heard at all. Their needs are not identified. In some cases, they do not have clear knowledge and understanding of the reason for climate impacts and disasters and see it as fate or curse of God (Schipper, 2010). So, they do not perceive any ethical or moral right to claim the adaptation fund initiatives. They are also deprived through the subjectivity and personal interest of local patrons, who influence

each stage of the adaptation projects. The patrons' (local leaders) subjectivity takes the lead by dismissing the need to engage vulnerable people by saying, "*I know the problems as I have been born and brought up here in coastal areas*" (KII 18, Mayor of another municipality under Barisal division). Here, from the patrons' perspective, it is like a right diagnosis followed by a wrong treatment - an opportunity missed by the patrons where knowledge could have played an important role in changing the subjectivity for selecting appropriate projects. There are some exceptions which have been pointed out by KI 6, where patrons monitor and utilise the fund effectively (KII 6, a former top-level BCCTF official). Their subjectivity guides them to identify and address the real issues in the community and in return they gain trust and respect from all people.

In this research, the interaction with the community highlighted their desire for greater participation so that their needs can be incorporated during the project design. This ought to be one of the most important considerations while formulating any project. Results suggest that field surveys don't reach them, reports do not reflect their needs, and they have limited access or means to reach BCCT officials to express their frustration. In a number of situations, the local chairmen also expressed their dissatisfaction, uttering: "*We are not consulted before the implementation of any projects. They only consult us when they run into problems or face protests*" (KII 13, LGI head and political leader of a sub-district under Barisal division). It appears that from these examples in Charfesson the patrons are the 'playmakers' at both national and local levels. They limit participation from the 'local' people to accomplish their own agenda- to formulate and implement projects to make political credit and financial gain.

After the project formulation, LGIs send the proposals to the Trust for approval and obtain funds. In this step, the patron's subjectivity and political influence may also play an important role. Additionally, insufficient funds create competition among the patrons in BCCT, LGIs and local politicians. This leads to a power struggle involving the mayor who capitalises on the information asymmetry between local experts and the Trust. According to the formal procedure (see Figure 1-2) they send information through project proposals to the line ministry, and based on the information, the ministry sends it to the technical team and Trustee Board for final approval. Despite having expertise, the technical team is weaker as

patrons' authority, subjectivity and information asymmetry allows the projects to still be approved for the benefit of patrons. Also, patrons utilise a loophole of the Trustee Board, which is that only 4-5 trustees remain present out of 17 to make decisions and 5 trustees can be easily pursued for approval.

This seems to be common practice in exercising power over other members of a group and lobbying at various levels to secure funding outcomes. As supported by Chowdhury and Panday (2018), this political action may be interpreted as a process through which some vulnerable communities (clients) are dominated by patrons. That is, politics consists simply of the use of power through coercion. In the case of Charfesson, the minister, who is the supreme patron locally, is also an important member of the Trustee Board, and a resident of Charfesson and an elected member of parliament. The skewed distribution of funds and projects suggests his position in the Trust is likely to have made the lobbying of local patrons (particularly of his area) much easier, given his significant role in project approval, through the misuse of authority and power.

7.3.2 Unfair practices of patrons undermine the Trust's effort to successfully implement projects

After project approval, the formal procedure of implementation is rolled by the LGIs. Executive engineers are fully involved from planning to execution of projects through third-party vendors i.e., brokers. who get selected by the LGIs through a formal tendering process. Sometimes, these processes are easily manipulated and given to the chosen third parties. These third parties may be politically blessed by the Ministers, MPs, Mayors, or other patrons. In return, the patron receives financial benefit (from the KIs, up to 30-35% of the funds received), and other facilities to keep the blessings for vendors alive. Ministries and other authorities who are involved may receive a percentage of this benefit from the patron. Such manipulation and malpractices are common in South Asian countries along with Bangladesh as shown by Ruud (2019). A similar statement echoed by Hamiduzzaman (2014) that due to the political influence, procurement in development projects faces various issues, especially in the tendering process, where the bidding process is designed to favour the chosen parties with short bidding or rebidding without adequate grounds, as portrayed in the Charfesson

Model (Figure 7-1) in section 7.4.

Once the projects get started, executive engineers are meant to visit and oversee the progress of the projects. This process is sometimes not maintained, as Eriksen's 'authority' intervenes-patrons interfere and create pressure on engineers not to scrutinise or raise any concern to stop the funding in implementation. Sometimes, engineers themselves become part of the chains of patrons while the monitoring process becomes just a tick-boxing exercise, as discussed earlier in Bhuiyan (2015) and Kabir et al. (2021). The intended beneficiaries are sometimes unaware of the source of funds for projects, nor do they know when funds are meant to be utilised to address the vulnerability of people and for adaptation. Instead, they may feel, whatever the developments are taking place, they are the courtesy of the patrons, that their leaders are investing for the betterment of their lifestyle and therefore, they should be grateful to the patrons and pay back this favour during elections, by casting their votes in favour of their leaders. From the FGDs and survey, this appears to be a common perception in the study sites. Elite group- wealthy and influential people in the community are part of manipulation in project allocation in the study area, which is also evident in Nepal, India and Tanzania, which is found in several studies like Yates (2012), Nightingale (2017), Taylor and Bhasme (2020) and Omukuti (2020).

Throughout the FGDs, the respondents raised their concerns about unfair practices going on. According to them, many of the beneficiaries are close relatives or political followers of the ministers, mayors, or councillors. And thus, they are given priority in the selection process where other poor people are deprived (Haider and Mahamud, 2017; Hossain, 2007). Whereas vulnerable people do not get their basic entitlements, for example, a tubewell is meant to be allocated 1 for every 12 families as part of the project initiatives, but in some cases, they cannot get one unless they get recommendations from the leaders or even MPs and pay a substantial amount of money as a bribe. Moreover, nepotism may decide the location of the tubewell and solar streetlights. Patron's relatives or acquaintances get favourable treatment to have one next to their houses- an example of Eriksen's 'authority', which was misused at the local government level.

It appears that local councillors/members need to please some people in order to sustain their power and authority for the present and future. Here, neither knowledge, nor subjectivity plays any role; the driver is mainly potential nepotism and/ or political motives. With regards to the Government's safety net program, some instances of systemic corruption were evident. For example, the formal process of selecting beneficiaries of the government programs is not fully followed in the study area (Pervin, 2013). Sometimes, middle class families get the VGD card (Vulnerable Group Development card, a social security card) because of their capability of giving bribes (Mahmud and Prowse, 2012; Robinson and Verdier, 2013). For the case of seed distribution at subsidised rates from the government, FGDs within farmers revealed that many of the seed receivers are not even farmers at all. Francken et al. (2012) also claimed in his study that political governments tend to favour politically engaged citizens, who are likely to vote them. Jayne *et al.* (2001) also found evidence that the Ethiopian government used the allocation of food aid to transfer resources to "politically favoured regions".

This kind of irregularity was also visible in BCCT-funded projects in Charfesson. But people do not make much noise about this. They still welcome the party and leader and hold a supportive mentality towards them because of the wider benefits they perceive from the infrastructure projects. One interesting finding is, in most of the cases, the community learned to accept these irregularities, which are reflected in one of the LGI head's statement, "*Even the god also favours his loved one!*" (KII 15, a LGI head and political leader of Charfesson).

Occasionally, the favoured beneficiaries (clients) are verbally attacked by their frustrated neighbours because they are deprived of the benefits. In some instances, people tried to resolve these issues, but local leaders and authoritative personnel neglected comments and suggestions received by them. Sometimes, people try to meet councillors to raise their demands regarding initiatives that can be taken through different projects, but they refuse to meet them. Even the councillors do not visit them except during election time, as uttered by a frustrated fisherman: "*Once election is gone, they're gone too.*" (FGD 2 with fishermen, site 1). Moreover, one FGD participant, who is affected by the impacts of climate change, has also

tried to meet the Minister; however, due to their predefined schedule and other business of the Minister, the attempts went in vain.

Similarly, as Atkins et al. (2007) discuss Bangladesh's broader political context, the notion of patronage is to favour people who have supported political factions during the election campaign or in other ways. As a result, individuals who are relatives or have a connection with the higher authorities can obtain support through projects. In the local council, if the beneficiaries have support even from the councillors, they have higher chances to get the facilities offered in a project. In this way, the political system in the study area, in some cases, uses subjectivity and authority adversely, influencing knowledge and understanding. One of the significant problems of patronage and clientelism is that the provided facilities may not be used properly. For instance, while at least ten farmers or fishermen can use tubewells offered in the projects analysed, in some cases, they were provided to just a single-family, depriving others.

From the field data, it is also revealed that often the patrons do not disclose the source of funds of all those projects. They use their personal names as brands to rename project facilities, whether it's the name of a college or any establishment or an essential tubewell. They give the impression that all the developmental work is done from their own source of funds. *"Before, all we knew was that these projects were done by our minister!"* (FGD 2 with fishermen, site 1). Thus, the community people feel an obligation to vote for them (Lee, 2020). Hence, such types of projects are implemented and chosen by the patrons which will have certain advantages and benefits to the poor and marginalised, while on the other hand, the patrons would also gain people's votes through such acts.

Monitoring and evaluation are crucial tools to keep processes on track. BCCT fund monitoring from the administrative ministry has a role to play, along with district and sub-district level monitoring teams, while the evaluation is also carried out by a third party. However, a widely held perception is that, in Bangladeshi culture, corruption is deeply rooted, where accountability has faded away. Therefore, a paradigm shift is needed in order to bring about change and uproot corruption. Even BCCT officials regrettably admitted that they could not

make decisions on project allocation properly. However, BCCT officials do maintain a strict monitoring process to ensure at least the funds are utilised properly. Although fieldwork results show in the process of project implementation, vendors pay local leaders (patrons) a percentage of the project's funds. They also bribe the engineers so that engineers and LGIs do not scrutinise, and monitoring is not done properly. This finding is supported by Kabir et al. (2021). He argued that contractors submit the bills and receive the money, leaving the projects undone/half done, sometimes with faulty designs with poor quality materials, which can be hazardous to use by the community. As a result, the project ends up with poor quality as at best, only 50-60% of the allocated funds actually spent for implementing the project.

There is no doubt that corruption is widespread in Bangladesh and even the climate funds are not an exception (Sovacool and Linner, 2016; Rahman, 2018; Roy, 2016; Ayers and Huq, 2009). Patrons' subjectivity, misuse of authority, and poor knowledge (Eriksen et al., 2015) often led to various types of corruption. As suggested by the qualitative analysis, frequently, the system experiences unfair manipulation by the local and political leaders to extract the funds and use them for their own personal gains or to implement projects that have little to no relevance in countering the threat of the changing climate and its related disasters. This happens too often in the rural vulnerable areas where the voices of the vulnerable people are not heard. They are oppressed by the powerful patrons and their group of people who constantly misuse their authority and power in the form of criminal activity or dishonesty (Mahmud and Prowse, 2012; Sovacool and Linnér, 2016). Most noteworthy, this act compromises the rights and privileges of vulnerable communities.

Furthermore, in every stage of bureaucratic activities, too many obstacles appear, and most of them can be untangled only with bribery or embezzlement, also supported by Stefes (2005) and Rahman et al. (2016). Unfortunately, many of the people in positions of authority are susceptible to corruption- knowingly or unknowingly. Corruption may reflect greedy and selfish behaviour sometimes inherited through subjectivity and poor knowledge- arising from their social, cultural and educational background. Patrons' followers also take advantage of brokers, LGIs, and engineers- they all abuse entrusted power for private gain. They erode trust in project implementation. This hampers climate change adaptation and overall economic

development and further exacerbates inequality, poverty, and social division, and ultimately, the environmental crisis remains unchanged. Again, unequal power relations and corruption reduce the vulnerable community's ability to cope with climate change's stresses. Moreover, social exclusion adds an extra burden to already vulnerable segments of the population (Sovacool and Linnér, 2016).

Similar to the findings of this research, Lessig (2013) observed institutional corruption, when systemic and strategic influence which is legal or even currently ethical, compromises the institution's effectiveness by diverting it from its purpose or weakening its ability to achieve its purpose, or weakening either the public's trust in that institution or the institution's inherent trustworthiness. A study by Julius (2011) identified corrupt practices as a social impediment to economic development in developing countries. It reveals how large sums of government revenue have been undermined by the corrupt practices of the political and economic elite, which have enriched a few but impoverished the most. Moreover, corruption reaches to maximum level when patrons utilise their discretionary power through their nominated people (principal-agent theory) with very little or no accountability (Myint, 2000), also mentioned in Section 7.2.3. This corruption also takes the next level when local leaders exploit the rules and regulations to generate economic rent in their favour. Klitgaard (1998) defined this Corruption (C) using an equation showing a direct positive correlation with Economic Rent (R) and Discretionary Power (D) and a negative correlation with accountability (A) i.e., $C=R+D-A$. This means, with the increase of economic rent and discretionary power, the corruption intensifies and only effective accountability can eradicate or at least control the corruption (Myint, 2000).

Corruption can also be explained with principal-agent theory, where agents are the only beneficiaries (Tacconi and Williams, 2020). This kind of corruption arises due to patrons' subjectivity and knowledge asymmetry, where clients (agents) manipulate or misguide the patron (principal) for his personal interest. In systemic corruption, the patron himself is also corrupt and misuses his authority for political and/or financial gains using agents in his locality. Many researchers, such as Morse (2006), Fjeldstad and Isaksen (2008), Johnston

(2014), and Rose-Ackerman and Palifka (2016), argue that systemic corruption can be better handled using collective action theory rather than principal-agent theory.

A number of studies suggest that anti-corruption measures, such as increased salaries to motivate officials, increased penalties for corruption, an effective law enforcement system, freedom of the press, and strong anti-corruption institutes, could combat corruption (Huther and Shah, 2000; Barber and Talbott, 2003; Heeks and Mathisen, 2012; Mungiu-Pippidi, 2015). However, all these measures still might not be enough and may fail to address systemic corruption (Tacconi and Williams, 2020; Smith et al., 2003). Therefore, it is important that public oversight is increased by further strengthening civil society organisations and freedom of speech. Also, educating people with ethical lessons across the community could be effective, where the principles of morality will prevail, and collective action theory will have positive impacts on the country as argued by Tacconi and Williams (2020). However, regarding civil society organisations Kabir et al. (2021) found that the growing involvement of various non-state actors opens new doors for corruption together with the state actors.

Local LGIs need to be empowered to come out of the control or patronage of national patrons (MPs or ministers) in order to implement projects successfully, or at least as the fund is intended to. Again, there is a risk in this. The risk is, by empowering the LGIs (Mayors/ chairmen), s/he might be transformed as another patron, with less accountability and too much authority and power. In fact, the organisation's success heavily depends on morally strong leadership along with good governance (Khan, 2015). The credibility of BCCTF and its good motives can be undone by the influence of patrons' power and subjectivity like 'bad drives out the good' as suggested by Gresham's law (Bedeian and Armenakis, 1998). That's why it is important to get the balance right. KI 22 rightly pointed out the need for good leadership, "*People should vote for political leaders with reasonable integrity, who have the courage to establish the truth as truth and the lie as a lie*" (KII 22, a local councillor and environmental activist of Charfesson). Despite multiple flaws, Ayers and Huq (2009) have argued that Bangladesh is ahead compared to many other developing countries in addressing climate change, but corruption in financial issues still remains a big problem.

Overall, the section has shown that the patrons' interests are materialised through the use of power and influence. The clients are under a constant expectation to ensure that the patrons are satisfied with their loyalty, and this leads to a biased selection when it comes to selecting projects and beneficiaries, also supported by the study of Mallick and Vogt (2011). It can be summarized that in the cases examined here, vulnerability, which should determine where the funds will be allocated, is second in priority when implementing climate initiatives.

While beneficiaries may be content with the patrons who bring money to the locality when the actual purpose of the funds was disclosed to respondents, they expressed dissatisfaction, since they prioritised climate change-related initiatives above development-based initiatives. However, communities do not complain about the development work because it still somehow benefits their livelihoods, and hence, they remain loyal and supportive towards the patrons.

7.4 Charfesson Model of Adaptation - A challenging adaptation process with a glimpse of hope

Based on the field data and the above discussion, a model titled the "Charfesson Model of Climate Change Adaptation" (Figure 7-1) is derived, which outlines the nexus of three parties Patron-Broker-Client relationship, who placed themselves in a triangular relation to serve their own purposes. It captures the anomalies in various stages of BCCTF projects. In this model/ diagram - patrons' roles at both national and local levels are illustrated in each stage of fund allocation, project formulation and project implementation. This also highlights patrons' authority and use of power, their subjectivity, and the implications of poor knowledge for exploiting weaknesses in fund management, following Eriksen's (2015) theory.

In Charfesson, patrons are positioned at the national and local levels. The presence and dynamics of such multilevel patrons and clients have been discussed and pointed out in earlier literature like Khan (2020), Sarker (2008), Huq (2016). They are the ultimate beneficiaries in each of the stages of climate change adaptation projects/ programmes. Out of this adaptation process, Charfesson's most vulnerable communities receive limited benefits from those patrons and clients (general people of Charfesson) through trickle-down effects (Parel, 2014).

From the *national* patrons (Ministers, MPs, or powerful members of the Trustee Board) clients receive funds in their favour for the implementation of adaptation projects. Here, the clients are LGI heads, Mayors, and Upazila Chairman, who are also in the role of local patrons for their community. In return, they provide profit as well as loyalty in the form of active supporters to national patrons. They also campaign in favour of patrons during elections.

For the *local* patrons, public executives receive privileges such as favourable postings or other facilities in return for incentives and loyalty. These executives are the people who formulate projects of patrons' interest. There are brokers who influence the local patrons to secure the contract of the project and execute it. The funds brokers receive are distributed to local and national patrons and only around 60% of it goes towards the project's execution while his loyalty towards the patron remains intact. Meanwhile, public executives apply poor monitoring to favour the projects and the brokers and receive financial advantages in exchange for relaxed accountability.

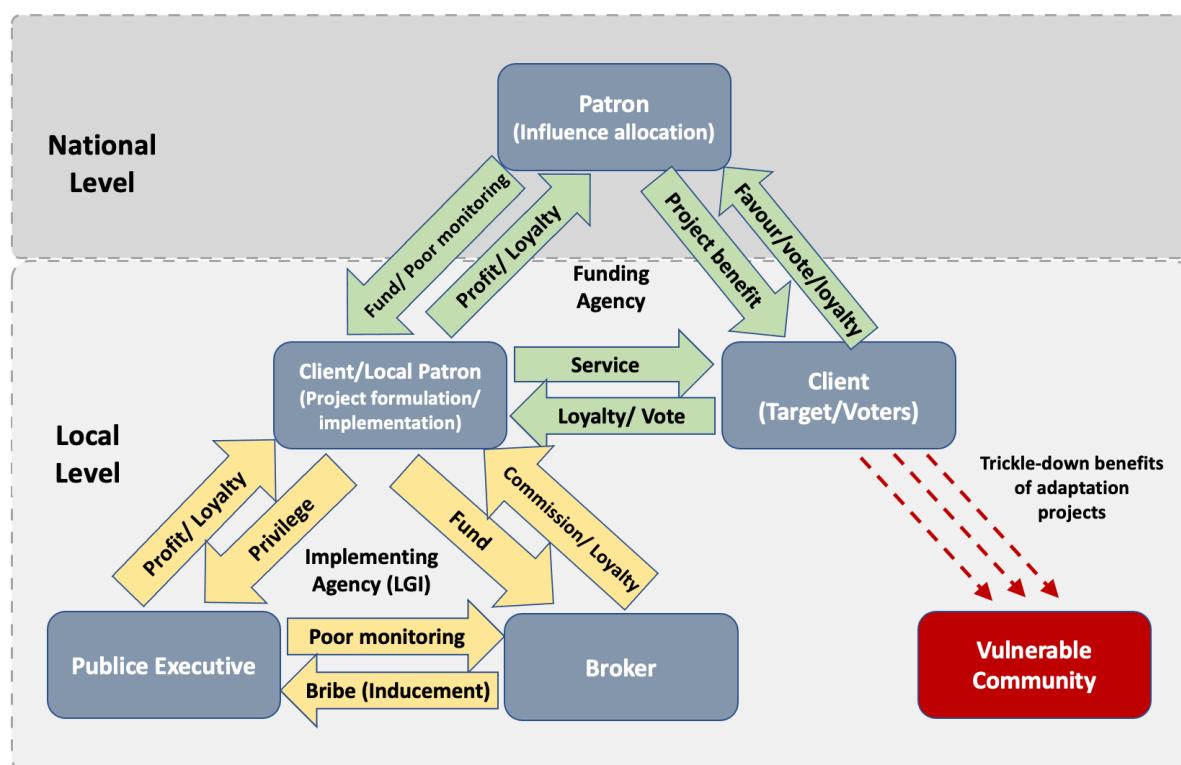


Figure 7-1: Charfesson Model of Climate Change Adaptation (Author illustration)

The clients- the general people in the community live in oblivion without knowing the source of funds and purpose of the projects. They feel excited about everything going on around them and try to get some benefit from these projects. They also reciprocate this favour, demonstrating their loyalty by casting votes for their national and local patrons with satisfaction.

The patron-client-broker relationship in the context of climate change adaptation projects is also deeply intertwined with the concepts of Eriksen's (2013) subjectivity, knowledge, and authority. As mentioned earlier, at both national and local levels, patrons occupy positions of power and influence, positioning themselves as the ultimate beneficiaries of adaptation initiatives. In project formulation, Eriksen's knowledge, subjectivity and authority- all came into play. Patrons, both at national and local levels, have insufficient knowledge or knowledge asymmetry to select effective projects in the most vulnerable areas. During the interviews with local mayors, it was evident that mayors, even local MPs, are not fully aware of the purpose of BCCTF. Ultimately, their subjectivity without sufficient knowledge drove them to implement less effective projects for adaptation. As shown in the Charfesson model, in many cases, unsolicited proposals from local vendors and brokers posed risks of systematic corruption in the whole formulation process. This includes "bribery, extortion, and embezzlement" in a system where "corruption becomes the rule rather than the exception". Patrons' 'subjectivity', which meant to come from appropriate 'knowledge', didn't materialise thus, provided neither 'identity' nor 'meaning' to authority, as expected (see Figure 2-3). Ultimately, the authority in patrons' behaviour and actions became questionable, whether knowingly or unknowingly. They imposed their authority as power in projects' funding and execution, which also became biased and did not address the adaptation needs. As a result, subjectivity took over, and 'legitimacy' failed to be obtained (see Figure 2-3).

As demonstrated in Charfesson model, Figure 7-1, patrons use their authority to bring back monetary gain along with loyalty and support whenever they need it from the clients. Local patrons also exercise their authority on local executives (engineers) over their knowledge and experience for their personal or mutual gains. Ultimately, experts' knowledge and expertise are compromised or completely ignored. Even vendors and brokers also ensure that the local

executives' monitoring is done softly by offering bribes or attractive incentives. Thus, vendors make unethical profit margins, part of which is shared with all parties involved in project formulation to implementation.

Overall, in this study, the finding is that 'authority' played a bigger role than 'knowledge' - which is a huge concern for any successful project execution. It is understandable that sometimes the 'subjectivity' of the patron can lead to poor project formulation and implementation unknowingly; therefore, it can be excused. However, in many of the cases, it is not innocent mistakes; it is rather the 'authority'-led influence of patrons that brush aside the 'knowledge' in fund distribution, project formulation, and project implementation.

From the above discussion, it is established that the vulnerable community is seemingly satisfied with the developments going on within their locality partially because of the fact that they are not aware of their full right, which they deserve from the projects executed by the BCCTF, and because of that they have no voice to raise, and their lots have been surrendered to nature and to the patrons.

The real clients- the vulnerable community, are the victims of climatic change and in actual needs of adaptation. They search for the support for their livelihood and are in constant battle for their survival. Their vulnerabilities are not assessed effectively for adaptation. Therefore, their needs are not fulfilled by the projects run with the funds of BCCTF. This vulnerable community are not aware of the purpose of the funds -

Who is it for?

What is it for?

Who is allocating this?

- All these questions to the Charfesson vulnerable community remain unanswered, unfortunately!

7.5 Conclusion

In examining the above-discussed dimensions of subjectivity, knowledge, and authority (Eriksen et al., 2015), it becomes evident how power is reproduced in the patron-client

relationship in climate change adaptation. Patrons, driven by their own perspectives, values, and interests, often prioritize their own political or economic agenda over the needs of vulnerable communities. Clients, such as local government officials and community leaders, may align themselves with patrons in exchange for resources, support, or political favour. This subjective lens influences the distribution of benefits and resources in adaptation projects, often resulting in limited benefits trickling down to the most vulnerable communities (Parel, 2014). Patrons may possess specialized knowledge about climate risks and funding mechanisms, giving them a strategic advantage in decision-making processes. Clients rely on this knowledge to secure resources and funding for implementing projects in their communities. However, the uneven distribution of knowledge can exacerbate power differentials between patrons and clients, further marginalizing vulnerable communities.

However, by critically examining these dimensions, opportunities arise to contest existing power structures and promote more equitable adaptation practices. Empowering vulnerable communities with knowledge and agency, fostering transparency and accountability in decision-making processes, and challenging entrenched interests and inequalities are essential steps towards building more inclusive and effective climate change adaptation strategies. There is an urgent need to reframe adaptation policy, practice, and analysis to address the underlying power dynamics and inequalities inherent in the patron-client relationship. By adopting a more inclusive and participatory approach to adaptation, enhancing the effectiveness and equity of climate change responses is possible, ultimately fostering sustainable and resilient futures for all. This study has explored the complexities of the patron-client relationship within climate change adaptation, highlighting the socio-political dynamics that shape adaptation outcomes for vulnerable populations. By critically examining power dynamics, subjectivities, and knowledge systems, we can better understand how to navigate the challenges of climate change and build more equitable and resilient societies.

Chapter 8: Conclusion

8.1 Conclusion

Bangladesh is widely implementing adaptation both by the communities and by the government through the BCCT and other partnerships with various stakeholders. This research explores the extent and emergence of political clientelism, taking the case of Charfesson, an area in the southern district of Bhola. In doing so it explores how actors have played a significant role in controlling new development resources and bolstering their roles in various programs related to climate change. In this case, the clients, at the receiving end, are in urgent need of recognition of their needs and entitlements. The research critically evaluated the findings in the context of political clientelism and political economy as they relate to climate change adaptation. This final section discusses how the analyses will feed towards further work and provide recommendations for extended research in the area.

The research considers power structures that determine the availability of climate finance to the poor and vulnerable. It was also essential to understand the global climate finance situation and how Bangladesh set its own adaptation-mitigation priorities by setting up its own fund. Sovacool and Linnér (2016) refer to challenges in Bangladesh as a 'failing state'; however, they also highlight the successful implementation of resource mobilization in its national social priorities like education, agriculture, and food security. This research shows that for adaptation, there are significant challenges. Bangladesh, as Huq et al. (1999) mention, also needs to equip itself with knowledge of potential climate change and its consequences for adaptation.

The research shows that the majority of the works funded by BCCT fall under traditional development projects neglecting the needs of sampled vulnerable people. The participants acknowledged this gap clearly. There is an argument that climate change may give some opportunity to manage funds for traditional development works (Ayers, 2011). Construction of roads, schools and drainage systems are traditional development works, at the same time contributing to adaptation, but the difference is the context that projects have not been

designed or selected with local climate vulnerability in mind. People are suffering today, and now, however, many activities are not directly addressing these needs.

However, BCCT prefers to implement such projects as many people want to see the implementation of visible development through projects like schools, colleges, roads etc. That is why, while there have been a number of climate-addressed development interventions in the study area, they have not addressed the problems they are aimed at.

Another key problem in the study area is the scarcity of resources compared to the huge demand. Due to a lack of proper understanding regarding the differences between adaptation and development projects as well as an acute shortage of development funds, climate funds are being used in conjunction with development funds to carry out purely developmental activities. Even though this may temporarily improve the quality of life and socioeconomic aspects of all the residents of the area, it is not sustainable as vulnerability from climate change remains a threat with the potential to negate any benefits gained by the development projects in vulnerable areas. Development goals and climate change interventions should have a synergy in designing adaptive strategies for the poor. Hasan et al. (2020) refer to the importance of the concerted effort of the two in order to prioritize sustainability over myopic targets. This research also advocates for such collaboration to have enhanced initiatives for climate change mitigation and environmental sustainability in Bangladesh. Chowdhury et al. (2020)'s policy review on various aspects like environmental pollution, increased efficiency, climate change etc. also puts importance on this issue.

Many of the BCCT project activities outlined in the project proposals to address local vulnerabilities (in the proposals submitted to BCCT) have not been realized. This includes canal dredging, culvert, drain, water source, electricity and even some financial instruments, which includes loans or insurance. To fully operationalize the project aims, the local government needs a lot more capacity and resources to meet the needs of the poor (see also Aminuzzaman, 2012; Hedger and Rabbani, 2014). This links with the long debate on the adaptation paradox - how the least developed countries have limited resources, inadequate infrastructure and inefficient systems of governance and yet bear the largest brunt of climate

change (Ayers, 2011). This is exacerbated by issues of maladaptation (Dhakal and Mahmood, 2014).

The study findings show that there is insufficient technical capacity and knowledge management, such as in available systems, tools, and skills for GHG emission inventories, climate change vulnerability assessments, and adaptation planning. One important point to mention is that it was found that the original idea was to continuously grow BCCRF and slowly downscale the BCCTF. At some point, BCCRF was to take over the whole process and would run with funds from foreign donors. A key informant (KII 7, Former top-level BCCT Official) argued that they would not have to use internal funding. Because, as a vulnerable country, Bangladesh should receive funds from developed countries, while it has been mentioned in climate negotiations, BCCRF failed to be handled properly and has not expanded. There is a lack of knowledge among local political leaders too regarding the objectives of climate funds (Ruud, 2014), and they may be treated as other regular development funds. There is a need to establish communication and an awareness structure which can inform the political leaders of the differences that exist so that an informed approach can be undertaken to raise and allocate climate finance (Rahman et al., 2016). It is unclear why the politicians are not informed of the purpose and concept of the BCCTF or if they are why they choose to ignore it. This arises from the political structure of the country and the lack of accountability.

As suggested by the qualitative analysis here, the sampled locations sometimes experience unfair manipulation by the local and political leaders to extract funds and use them for their own personal gains or to implement projects that are unrelated to changing climate. Moreover, the formal process of selecting beneficiaries is not fully followed in the study area. These manipulations are done for a variety of reasons as noted by the previous analysis chapter (Chapter 7). Often political leaders favour their hometowns and cities, so they attempt to allocate funds to those areas to gain the loyalty and admiration of the local residents to strengthen their political campaigns and agendas; part of the '*patronage state*' (Nelson and Finan, 2009).

The results also highlighted a lack of a systematic and comprehensive vulnerability assessment within the climate change intervention projects. Any information used is only provided by the local agencies living in the areas that sometimes act for their own vested interests, causing bias in the selection and design of adaptation projects. Alam et al. (2013) referred to the existence of these political economy factors within adaptation processes. From this research, the findings advocate for the fact that there should be a systematic and comparative study to assess the vulnerability of different zones of Bangladesh, including flood-prone areas (Roy and Blaschke, 2015). Experts are needed to provide a more efficient workflow and assessment of vulnerability and while documentation exists it is in paper format which makes indexing, retrieving and sharing difficult. Overall, the findings indicate that a lack of vulnerability assessment is a critical problem in the project areas and for new interventions.

The relationship between patrons and clients is a challenging one in the entire area of Southeast Asia and is a contested case in Bangladesh (Scott, 1972) which has several inner political interests which the political parties compete over (Warner, 1997; Robinson and Verdier, 2013; Robinson and Verdier, 2002). In Bangladesh, there is conscious patron culture and the presence of elites in a political economy with low responsibility and accountability both in terms of democracy and politics. Approaches to adaptation must be coupled with concepts of transformation to merge politics and power to strengthen the resilience of the poor and needy. Hence, it is important that the understanding of adaptation (and resilience) includes underlying political structures, trade-offs, risks and vulnerabilities (Bahadur and Tanner, 2014). Good governance is a major concern for global administrators, academicians, donor agencies and politicians to support progress and development and patron-client behaviour is one of the primary factors in assessing the good governance of a country. It can be argued that a culture or practice of patron and client is very much entrenched in the Bangladesh political system and is a constraining impact on the institutionalization of the initiatives of good governance (Sarker, 2008).

Corruption in climate change adaptation and politics in lobbying remains a core problem along with maladaptation in adaptation projects in situations where there is a 'double inequity' between climate change as a responsibility of the rich nations versus the

vulnerability of the poor nations (Sovacool and Linnér, 2016). Hossain (2007) refers to politics in Bangladesh not serving pro-poor outcomes because resources targeted to the poor are inevitably and 'easily captured by local elites'. However, Lewis (2011) argues that the Bangladesh government has at least made a good start by putting climate change as one of the main agendas of future and current policy.

Overall, the study shows that the interest of the patrons is to materialize their interests through the use of power and influence. The clients are under constant expectation to ensure that the patrons are satisfied with their loyalty, and this leads to a biased selection when it comes to selecting the beneficiaries. Many of the BCCT decisions depend on local politics showing the existence of hierarchy and pressure from higher authorities when projects are selected and later implemented in zones. This often takes place in a subtle culture and the issues are seldom spoken about, resulting in a very silent presence of patronage culture within the political domain. But within adaptation and processes, there is an increasing focus on the social and political processes which may lead to positive change through highlighting issues and demanding transparency.

Theory about these issues includes Gresham's law syndrome which draws on the core assumption that there may be cases of distortion that arise from the failure of the government (Rolnick and Weber, 1986). Bangladesh, as a least developed country, has been witnessing a progressive level of regress in the area of governance since 1971, the year in which it obtained its independence. In terms of the behaviour in public administration and breaking apart of most of the norms in personnel administration, Gresham's Law Syndrome can be seen (Khan, 2015). This stems from the failure of the administrative or governmental body to be able to distinguish between the good and the bad (Selgin, 1996). It also arises from a place when the government fails to discriminate between what is desirable and what is not (Selgin, 1996; Fetter, 1932). Hence, this leads to situations where meritorious performances are not recognized, i.e., when an issue is not rewarded - there will hardly be any incentive (Khan, 2015; Greenfield and Rockoff, 1995). This research extrapolates from this concept and explores the case for the sample communities in Bangladesh and how power relations explain

the tendency of political elites (Khan, 2015). This creates a vicious cycle which supports continued bad administration and activities within the governance platform.

Gresham's law provides a lens to look at such scenarios with more clarity and depth. As such, there is a clear understanding that while one political elite may want to bring positive changes within their political sphere, deep beneath lies an intent of power and holding on to the regime with a sustainable team, loyal to them. However, it can be inferred that all the elements of modern bureaucracy that exist in Bangladesh are isomorphic miracles, i.e., they can be like an analogy of how modern institutions may look and appear on paper but prove to be anything but effective. However, there are a number of complexities and weaknesses that exist in the bureaucracy of Bangladesh and Gresham's Law may aid to offer a number of unconventional remedies for governance problems in the case of Bangladesh (Khan, 2015; Bedeian and Armenakis, 1998). Their tendency towards building favouritism is exhibited through their developmental initiatives in which they invest to gain popularity in particular areas - the subjectivity is that used by the political leaders to decide how to spend the funds.

Currently, good governance is a major concern, and it is increasingly being realized that without good governance, developing countries have little chance to progress. Therefore, the factors constraining good governance initiatives must be carefully identified and analysed. By analysing the various aspects of how and where the BCCT funds are distributed, insights were obtained about the overall challenges and efficiency of the fund allocation. The findings of the study identified the presence of political clientelism in which sampled communities are fairly content with the patrons who bring in money to the locality because funds are flowing into their communities and development initiatives are taking place. However, when the actual purpose of the funds was disclosed, beneficiaries expressed dissatisfaction since they are more in need of climate change-related initiatives than that of development-based initiatives. But the communities do not complain about the development work because it is still somehow beneficial to their livelihoods. Both the funding and implementing agencies serve the purpose of the patrons.

Patronage impacts the people who are directly affected by it - here, the poor people in Charfesson - due to the inefficiency of the formal organizations, which leads to problems at the local level. Projects are poorly aligned with local needs due to poor institutional efficiency in the fund allocation process. In some economies, the persistence of patronage is important to avoid political instability and violence (Hodder, 2015); however, in the case of Bangladesh, there is less instability in the economy and comparatively low levels of violence, and therefore the existence and emergence of political clientelism can be considered as more problematic.

BCCT projects are suffering from a reconfigured authority problem because, at all political levels, there are inherent challenges from interference or bias. The whole system needs to be reformed. Political clientelism and its association with governance, social capital and adaptation have a causal relationship with inequality. Adaptation can be a process of change and concerned with the daily interventions of the poor and vulnerable communities; however, when political influence becomes involved, it is essential to consider adaptation interventions within its political context. While it is problematic to view adaptation as a process which is not linked with wider societal changes, it is not safe to assume that the political contestations that lie deep within these processes can be solved through better policies and good governance (Eriksen et al., 2015).

Socio-political engagement defines adaptation, and it determines how individuals and collectives cope with various environmental and social issues. The ideas of subjectivity, knowledge and authority determine the focus of adaptation. Here the role of power in adaptation practices must also be considered. As defined in the literature review chapter (Chapter 2), Eriksen et al.'s (2015) subjectivity refer to the way one perceives a phenomenon, and this has been shown to be important in the context of sampled vulnerable communities in Charfesson and they have expressed the need for enhanced participation during the design process for projects and input to how they should be formulated and implemented.

To summarize, the study has highlighted the importance of facets of political clientelism and its existence in climate change projects. There are instances of political clientelism within adaptation practices whereby benefits by eligible or non-eligible people are obtained in

exchange for their political loyalty and support. Also, there are instances of rent-seeking, where benefits are obtained by non-eligible people through their political influence. Overall, the findings show a strong presence of political economy factors influencing adaptation projects alongside serious climate change problems in the case study area and faced by the poor and vulnerable communities. These challenges need attention and the design of effective interventions which requires Bangladesh to have better governance to support locally led case-appropriate and context-specific adaptation interventions.

The study proposed the following recommendations for designing, planning, and implementing climate change adaptation projects in coastal areas of Bangladesh.

8.2 Recommendations

Considering the aforementioned aspects, certain recommendations can be taken into account. Adapting should be integrated into all stages of intervention, while also becoming an integral and routine aspect of ongoing endeavours. To understand how this relates to the research question, it is important to understand that adaptation is a socio-political process (Eriksen et al., 2015). The relevance of social and internal political processes closely relates to the political wheel's mechanisms. All these help to serve vulnerability over time and space.

Conversely, according to expert opinions, there is a need to enhance efforts in research-oriented activities. Employees should have clarity about their responsibilities, there should be an increase in human resources, and the centralization of the office should move away from Dhaka (the capital city of Bangladesh). This is mainly because specific research tailored to Bangladesh's distinctive conditions should fill the gaps present in the global literature. From some insightful remarks, it was also recognized that the absence of openness, effectiveness, responsibility, and oversight is deeply rooted in the culture of Bangladesh, and therefore, it is anticipated that the Bangladesh Climate Change Trust Fund (BCCTF) would exhibit these traits as well. There was a suggestion to enhance transparency by utilizing websites. Additionally, based on interactions with BCCT officials, it was ascertained that BCCT typically does not review rejected proposals. Occasionally, BCCT revises turned-down proposals if there is a sufficient budget, although such instances are infrequent. As conveyed by one of the BCCT

officials, nearly fifty per cent of the projects are declined due to misalignment with BCCSAP's thematic areas or not effectively addressing climate change concerns., also supported by Rahman (2016).

It is essential to ascertain whether climate finance has the capacity to instigate substantial structural transformations aimed at eliminating poverty. This examination can potentially facilitate a departure from the conventional mode of development, which might have the potential to resolve a portion, if not the entirety, of the climate change challenges, especially at the community level. It has been deduced that the presence of political circumstances frequently exacerbates inequality, leading to a transformative shift in mitigating the vulnerability of coastal communities (Paprocki, 2015). To decipher this fact, it remains critical to understand the historical process that makes people vulnerable in the first place (Paprocki, 2015). The risk of depoliticising the development dynamics is a critical issue that needs to be considered seriously in Bangladesh's climate change perspective. Apolitical development solutions to solve the problem are often linked to power imbalances, occurring at the local and international levels. However, it remains true that local activists are often concerned that the discourse of international climate justice may contribute to potentially changing the history of social and environmental justice. All of that may have a compounded inequality in Bangladesh today (Paprocki, 2015).

On the other hand, empirical and theoretical premises to understand economic development's fundamental causes and differences are critical to understand this form's research. There are a number of social decisions that are chosen, leading to various consequences. Social decisions vary because individuals choose different groups with varying political power (Cawood, 2021). This was notably noted when the examination of knowledge and control became subjects of investigation within the scope of this study. Additionally, it has been observed that a suitable theoretical framework illustrates the fluctuations in resource allocation based on state-related factors. These factors evolve over time and are impacted by political influence within diverse political structures. Economic institutions have the potential to stimulate economic advancement, a phenomenon that emerges when political institutions allocate authority to distinct interest groups (Acemoglu et al., 2005).

There are ways that political power can navigate coordination and cooperation to bring about opportunities in which individuals may take decisions (Deacon and Mueller, 2006). Political decisions are critical to understanding how resources are directed towards a particular authority or institution (Deacon and Mueller, 2006).

Misconduct and political bias were prevalent within the governmental authorities who manipulate legal frameworks to serve their personal interests. Nevertheless, public officials have the potential to violate diverse categories of regulations through various means, each resulting in distinct consequences for the welfare of the public. The central elements that propel corruption and the repercussions of corruption on marginalized communities exhibit a considerable range of diversity (Colenbrander et al., 2018). However, it is very important to understand the consequences and causes of corruption, especially in a vulnerable setup where levels of corruption can lead to the deprivation of resources for vulnerable communities, especially in developing countries like Bangladesh (Colenbrander et al., 2018). Nonetheless, it becomes evident from the economic achievements of developing nations that they encounter analogous manifestations of corruption. Diverse manifestations of corruption can emerge, especially when the presentation of a specific objective takes on a divergent guise from its original intent (Khan, 2006; Rahman, 2018)

Since Bangladesh is widely regarded as one of the most vulnerable countries to climate change, the bureaucratic setup of the adaptation regime and how politics play a role in climate change is a matter of great importance. It should be noted that project implementers should work as a vital arm of the state bureaucracy of Bangladesh (Rahman and Tosun, 2018). There has to be proper implementation and management of a development project and climate change project, including its fiduciary regulatory informational dimensions (Keane et al., 2021). Bangladesh has a large-scale state bureaucracy, corresponding to several colonial inheritances and post-independence adjustments. These, in turn, are still reflected in the way the governance system operates, which can have a behavioural attribute within and beyond the administrative structures (Rahman and Tosun, 2018). This is also reflected in the elitism and how political patronage operates at multiple layers of the governance system from the

time the funds are allocated to the disbursement. Hence, this system favours the core civil services and the line ministries in charge of such operations (Rahman and Tosun, 2018).

Conversely, the adaptation paradox continues to present a significant hurdle in the context of contemporary climate change. This challenge arises when vulnerabilities are encountered at the local level, yet there is a lack of substantial engagement in the adaptation process, which consequently leads to complications in the formulation of effective policies (Ayers, 2011). Climate change risk is outlined at the global level because of the impacts of a global accumulation of harmful greenhouse gases. Technical and expert-based solutions are needed to tackle the vulnerable conditions, but understanding adaptation and intervention are extremely important. It can be understood that adaptation finance is primarily channelled to multilateral entities and through the national government (Keane et al., 2021). Therefore, the involvement of local organisations remains minimal. That means that the social, political and economic processes that outline various processes and inequality are in a country very. It can also be well-argued that small amounts of adaptation finance can significantly impact the capacities and resilience of local organisations; however, it is important to understand the procedural and distributed functions of climate finance. The planning and disbursement of multilateral climate funds could be fair, but governance and tracking become difficult when channelled at the local level (Ayers, 2011). This is where the process becomes difficult and integrated because there are a number of underlying factors and drivers of vulnerability, such as marginalisation and exclusion, which are often not considered when climate finance is distributed at the grassroots levels, especially in developing countries. This means that the governance of climate finance allocation needs to be scrutinised more seriously and critically. Therefore, the national government should consider the rights and responsibilities of the local authorities very carefully to build the capacities and acquire the necessary resources for planning and implementing the adaptation measures (Kissinger et al., 2019).

There should be integration and coordination between the various governmental bodies tackling the climate change problems together at the local levels. Different government departments have different tasks. Those should be aligned and coordinated in interdepartmental processes. For example, fishermen are prohibited from catching fish not

more than 23 cm in the sea in the rainy season. The fishery department provides rice to those fishermen's families as compensation; however, it is not enough for them, so providing alternative livelihood options coordinated with other departments would be helpful through interdepartmental initiatives. Also, GoB could take the initiative to build climate-proof housing for poor, especially landless or living in a non-resilient house. This type of scheme or program might require a lot of funding, but not impossible, as national or international funding bodies like BCCT or Green Climate Fund (GCF) might be the source of funds. But the six thematic areas of BCCT do not include such integrated activities which take into account the diverse livelihood opportunities (Antimiani et al., 2017).

8.3 Research limitations

As the study addresses some very sensitive issues, there was reluctance for some of the primary informants to provide information openly. There needed a number of interactions and trust building before the actual information could be retrieved from the informants, and within the shortage of time and facilitation, it was challenging to have developed that. Moreover, the beneficiaries would also need to be comfortable and that they would not be sure whether to share information and how much.

The sensitivity was also regarding disclosure of institutional information, which if published via any formal or informal windows, could pose threat to the government officials in terms of their attachment to their organisations. Time was spent carefully explaining the research process and guaranteeing anonymity.

Research limitations also included the fact that political clientelism in adaptation is fairly unexplored and not too much literature is available on the topic. Political clientelism as a phenomenon is present in development sector and projects that address development in a locality but the idea of climate change and its relationship with political economy, especially at a grassroot level is fairly new and hence, journal articles were limited in amount.

8.4 Scope for further research

The community in Charfesson have basic adaptation needs to address their vulnerabilities. These vulnerable communities need subsidies in agricultural inputs because they are poor farmers and require constant assistance. People also require easy access to concessional loans which should also be of nominal or least interest. Additionally, the communities require a drainage system that is not convoluted and that they need facilities for canal excavation, sluice gate, culvert and tube-wells for fresh water. However, the people need immediate and detailed training and initial capital for investment livelihood. They also demand transparency in government relief or assistance for the common good of all. Due to lack of proper understanding regarding the differences between adaptation and development projects as well as an acute shortage of development funds, climate funds are being used in conjunction with development funds to carry out purely developmental activities. Even though this may temporarily improve the quality of life and socioeconomic aspects of all the residents of the area, it is not sustainable and the vulnerability from climate change still remains a threat which has the potential to negate any benefits gained by the development projects in vulnerable areas. There could be a number of opportunities in the space of agriculture, fisheries, livestock, technology and infrastructure to build a resilient livelihood for the people in Charfesson. All of these may serve to have a number of opportunities where further research may be conducted.

There could be studies to understand a number of sector-specific challenges in the locality. Sector-specific challenges are important to be addressed by also identifying the cross-cutting barriers to access emerging scopes to add to the value chain. This should be addressed through policy and advocacy interventions. This will help to engage with the local business conglomerates through such multi-stakeholder platforms which will trigger better values and incentives for investment. Further research can be done to understand the market and how BCCT interventions can be linked with the market so that people who are vulnerable to the impacts of climate change also have an income-generating source. The large unserved market is dominated by small and locally operating enterprises or domestic entrepreneurs offering key services to the most marginalised populations which could have otherwise been out of reach. There is a sufficiently large market for the private sector to engage in providing

services. Statistics of untapped households in Bangladesh are huge and the market is expected to grow through schematic approaches and right interventions. There could be further studies of political economy and the impacts of it on market access for the poor and marginalised.

The poor are willing to adapt to new adaptation technologies and their inclusion in the decision-making process is severely critical. A number of adaptation technologies have transformed the livelihood of the poor communities in coastal Bangladesh, enabling them to tackle stress factors like salinity and natural disasters through alternative livelihood options. So further research could be done to understand how people's inclusion could be ensured in the decision-making process whether BCCT would be willing to engage in new technologies which are climate resilient and more context specific. Willingness to pay for goods and services is present within marginalised communities, provided the value of the service is sustainable and worthy. Since marginalised communities have limited and seasonal income, especially in the climate-vulnerable zones of Bangladesh, price-value trade-offs are critical factors in their decision-making process. There could be further research in understanding these local-level dynamics.

Additionally, there could be further research to understand the scope for behavioural change, both among the climate beneficiaries and also among the implementers of climate adaptation projects. In case of access to safe and hygienic water, household members have cheap and alternative sources which meet up the household demand for water, to a manageable extent. Despite choosing inexpensive water over quality, poor communities are still willing to opt for good quality services if the availability and opportunity cost is likely to shift in favour of incentives or some form of financial gain. So how these decisions play out within a local context and how these synergies come into play when it comes to political influence is an area where further research could be conducted.

In summary, the case for Charfesson Bhola demonstrates the case of an institutional gap, whereby field data shows climate change project interventions focus on one or two thematic areas of the BCCSAP as thematic area 3 receives the greatest priority. Data from the analysis

also show that some areas receive more priority due to power and politics, depending on where the elites belong. Funds go to the district from where they were elected and born; hence some areas end up getting more funds than others. Therefore, political influence lies at the core of the dissemination process of project implementation.

On the other hand, it could also be coined that the adaptation projects face the same problems as other development projects and there are issues that, although discrepancies may not be at the allocation stage, at the local level stage, there are many problems and lack of transparency. Also, as indicated through the data, there are no effective vulnerability assessment tools and there is a serious limitation in the scrutinisation process (Downing et al., 2005). There is a shortage of assessment about the extent of vulnerabilities of different divisions or districts, so funds are not distributed according to the level of vulnerability, resulting in less vulnerable areas or less needed projects getting more funds. However, the importance of vulnerability assessment is crucial. The various tools to assess climate vulnerability can help identify people or places most susceptible to harm and identify actions that reduce their susceptibility (Downing et al., 2005). Such tools provide practical information supporting locally developed and relevant adaptation strategies (Mcleod et al., 2015). The chapters before also discuss information asymmetry at different levels, leading to an unfair distribution level. This arises because there are no comprehensive vulnerability assessments, so funding bodies are unaware of local vulnerabilities.

However, the funding objective remains unclear to political leaders, who handle it similarly to other funds. Likewise, disadvantaged communities are not informed about this specific fund. The findings also demonstrate a considerable demand, yet the resources available are limited. It is also noteworthy that marginalized individuals have minimal representation in the decision-making process. Particularly at the grassroots and local levels, participation is greatly restricted, with the trustee board exclusively determining fund allocation (Polsky et al., 2007). Therefore, the study recommends that it would be better if representatives from the government and NGO, and vulnerable communities were included in the Trustee Board and a more participatory approach was adopted.

Finally, summing up the overall narratives of the study, the research puts policies into the context that guide climate change in Bangladesh and have enabled the elites to capture power through a range of services, which includes being a political leader to being a supporter of them. Hence, the forms with which social exclusion occurs when implementing these projects range from planning to implementation at a number of stages, both at the national and local levels. Therefore, it can be inferred that climate change politics and the issue of political clientelism have gone through class and hierarchies and have been able to trap the people who are poor and powerless, who cannot eventually portray their opinions and participation through an acceptable platform. As a result, these communities are fed into almost a primitive patronage culture system which only brings in more gaps between the influential and the powerless communities, along with increasing human insecurity and intensifying conflict within the communities. Again, this conflict may not always be pronounced, as the frustration of common people often remains undervalued and unexpressed. This is, again, due to the fact that seldom do the community people know what was the main aim of the funds which were originated and referring to the theoretical framework used in this research, community people lack the knowledge and information of the right intention of the climate funds.

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Appendix 1: Questionnaires for FGD, KII and survey

1.1 Questionnaire for FGDs with vulnerable community

Confidential
(For research purpose only)

London School of Economics and Political Science, UK

**A demand-supply gap analysis of adaptation activities taken in coastal districts of Barisal,
Bangladesh.**

Checklist for FGD with Vulnerable Community

[Disclaimer: The purpose of this focus group is to gather community perceptions about the climate change related risks vulnerable communities are facing in coastal Barisal area and their views about what measures could most effectively be taken to enhance their collective ability to deal with these climate hazards. The objective is to consider whether Bangladesh Climate Change Trust funded adaptation programs focus on these perceived needs of affected vulnerable population of Barisal area. Please note that the information obtained in this discussion will be treated as strictly confidential and individual names or responses will not be disclosed in any report and publication. Data will be used only for the research study to help direct policy improvements and assess the project impacts in the target areas. We thank everyone in advance for your cooperation.]

Homogenous groups of 6-8 participants will be selected from each of the following profession/groups i.e. vulnerable farmers/fishermen/ day-labourers/ women and elderly from the selected village/locality. It will be considered to include female participants where possible in each group to understand the gender perspective of the issues. It will not include those who had already been included or will be included in other surveys or KII. The written consent of the participants will be taken for video/audio recording of the group discussion. Each FGD session will continue for 40 minutes to 1 hour.

NOTE: This checklist is to be administered in the presence of a group of respondents (described above) from the selected village/locality. Responses to the questionnaire are to be obtained from the group as a whole. In case of disagreement, will probe and discuss further until consensus is reached amongst the group. In case disagreement persists, response will be recorded at a later time with an independent group of individuals from the village. To the extent possible, no single person will be ended up responding for the group and conducting the interview in the presence of a person, in front of whom members of the group will not feel at liberty to speak freely, will be avoided.

Cover Sheet

FGD No.

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FGD date:

					2	0	1	8
					Day	Month	Year	

Geo Reference: Latitude

Geo Reference: Longitude

Meeting place/village	Union	Upazila	District

Starting time:	Time of ending:
----------------	-----------------

Name of the Facilitator	Name	Code
Name of the Note taker		
Name of the Note taker		
Name of the Note taker		

Participant Details

Information about FGD participants

SL	Name	Age (year)	Sex	Marital status	Number of HH Member	Education (years of schooling)	Occupation	Annual HH income (000 TK)	Mobile Number
1									01
2									01
3									01
4									01
5									01
6									01
7									01
8									01

Section 01: Ice-breaking

- 1.1 Please discuss the general socio-economic conditions of people living in this community like poverty situation, economic activities and main livelihood of the common people etc.
- 1.2 What are the advantages of living in this area?
- 1.3 What are the problems and challenges you face living in this area?

Section 02: Main body

- 2.1 What do you understand by “Climate Change (CC)”?
- 2.2 Do you feel that climate has been changed in your area? Why do you feel so?
- 2.3 Does your occupation/profession/livelihood depend on climate? If yes, how?
- 2.4 According to you, what are the main CC variability, climate disaster/ extremes that affect your livelihood most? Please rank those according to impacts they have on you?
- 2.5 What are the major CC related hazards that happened in your area during the past 20 years?
- 2.6 What are the losses/damages you faced due to these disasters/hazards?
- 2.7 For which losses/damages do you struggle the most and feel the need for assistance to cope? (Capital, equipment, food, shelter, water, sanitation, health, communication or other?)
- 2.8 How do you/your community naturally adapt to these?
- 2.9 What are the barriers you face to adopt these adaptation measures?
- 2.10 Do you think the BCCT funded adaptation activities are benefiting the poor and most vulnerable group?
- 2.11 If yes, how these are benefiting (in improving agricultural productivity and food security; protecting water, sanitation and health; promoting livelihood; disaster preparedness; protecting the rural infrastructures and communications etc.)?
- 2.12 Do the adaptation measures assert sustained and long term impacts on lives and livelihoods of the people?
- 2.13 If not, why? Bad planning, poor governance, not targeting the poor and most vulnerable groups?
- 2.14 What are your suggestions to improve the appropriateness, effectiveness and efficacy of adaptation measures by government; by NGOs and others?
- 2.15 Were you/any of your community members involved in any stage of local adaptation activities (Planning, Implementation, Monitoring, Evaluation)?
- 2.16 Do you think your participation could bring better result in your adaptation efforts? How?
- 2.17 What sort of projects would help you better to enhance your adaptive capacity against these hazards?
- 2.18 Are these adaptation projects addressing your overall development needs (mentioned in 1.3)?
- 2.19 Do you think the local adaptation activities have been influenced by political/powerful people? How?

2.20 Have you ever received any awareness/training program delivering knowledge about climate change/adaptation to climate change? If no, do you feel the need of such program? Why?

Section 3: Concluding Remarks

- 3.1 Would you like to add some final comments or recommendations that you think would benefit the adaptation activities of your locality?
- 3.2 Would you like to add something that you feel is important but has not been addressed in this discussion?

Thank you for your cooperation!

1.2 KII questionnaire for LGIs

Confidential
(For research purpose only)

London School of Economics and Political Science, UK

A study analysing the demand-supply gap in Climate Change Trust funded adaptation activities in coastal districts of Barisal, Bangladesh.

Key Informant Interview Guide for Implementing Agency

[Disclaimer: The purpose of this survey is to gather information about the distribution of Bangladesh Climate Change Trust funds since its initialization and to understand extent to which the funds follows its own procedures and how these fit with wider expectations of fairness in adaptation funding mechanisms. It will also look at whether BCCT funded adaptation programs focus on the perceived needs of affected vulnerable population in the coastal districts of Barisal. Please note that the information obtained in this discussion will be treated as strictly confidential and individual names or responses will not be disclosed in any report and publication. Data will be used only for the research study to help direct policy improvements and assess the project impacts in the target areas. We thank you in advance for your cooperation.]

Cover Sheet

Interview No:

Date of the Interview:
 Day Month Year

GO Reference: Latitude

GO Reference: Longitude

Location of the Interview:

Village: Upazilla:

District: Division:

Time of the interview Started at: Finished at:

Name of the respondent: Code:

Section 01: Participant Details (Ice breaking)

- 1.1 How long have you been working in climate change area?
- 1.2 How long have you been in this position?
- 1.3 What is your responsibility in this position?
- 1.4 What is your specific responsibility regarding implementing BCCT fund?

Section 02: Lives and Livelihoods

1.4 How many years have you been living in this area? years

1.5 Is the road network adequate in your area? Yes No

1.6 Is drainage facility adequate? Yes No

1.7 Is there adequate water supply? Yes No

1.8 Is there adequate sanitation facility? Yes No

1.9 Is there electricity supply available? Yes No

1.10 Does this area have gas supply? Yes No

1.11 To you what are the ways to improve the livelihood of poor people in your area? [Tick as many as possible]

(i) Income generation	(ii) Better education	(iii) Proper utility facilities
(iv) Improved health-care	(v) Good governance	(vi) No idea

Section 03: Knowledge on climate change

3.1 Have you heard the term 'climate change'? Yes No

3.2 If yes, would you please explain what you understand as the meaning of 'climate change'?

3.3 Do you feel that climate has changed? Yes No

3.4 If yes, please explain the main aspects of change.

3.5 Please specify whether you have experienced or observed any changes in the following climate variables:

Climate variable	Nature of the change	No strong evidence of change	Period and evidence of such change
Cyclone			
Flood			
Sea-level			
Temperature			
Rain			
Salinity			
Other			

3.5 According to you, what have been the major climate related hazards in your area during the past 20 years?
.....

3.7 Have you heard about BCCSAP and its thematic areas/BCCT Act? Yes No

3.8 Have you ever received any awareness/training program delivering knowledge about climate change/adaptation to climate change? Yes No

3.9 If no, do you feel the need of such knowledge/training/awareness? Yes No

3.10 Specify the reason behind your answer

3.11 Do you think the vulnerable communities have sufficient knowledge about CC/CC related hazards/adaptation? Yes No

3.12 If no, is it affecting the adaptation goals of BCCT?

3.13 Do you feel the need of knowledge delivery/awareness program to them?

Section 04: Adaptation Demand vs. Supply

2.21 Please list the five main challenges of your area at the moment?

2.22 If none of these challenges are related to climate hazards/change, please identify the main climate hazards/change of your area. How important are these compared to other challenges? Please rate these climate hazards against other challenges you face on a scale of 1 to 5 (1=Very low, 2=low, 3=moderate, 4=high, 5=Extremely high).

i) Cyclone	ii) River bank erosion	iii) Flood
iv) Salinity	v) Storm surges	vi) Change in Rain pattern
vii) Change in Temperature	viii) Sea-level Rise	ix) Draught
x) Change in seasonality	xi) Others	

4.1 What are the damages caused to your area due to these first four riskiest climate hazards?

CC Related Impacts	Main problems caused to people*
1st climate hazard	
2nd climate hazard	
3rd climate hazard	
4th climate hazard	

*(i) Loss of lives (ii) People injured (iii) Houses destroyed (iv) Property destroyed
(v) Economic loss (vi) Infrastructure damaged (vii) Communication blocked
(viii) Utility facility damaged (ix) Crops damaged (x) Agricultural equipment damaged
(xi) Fisheries damaged (xii) Fishing equipment damaged (xiii) Loss of land productivity
(xiv) Other

4.2 Do you think these adaptation projects, you have taken, have met beneficiaries' priority needs for adapting to these vulnerabilities?

4.3 How well-equipped do your local vulnerable community feel before or after taking the projects:

a) before taking the project _____ b) after implementing the project _____

Please rate on a scale of 1 to 5, 1 being least equipped and 5 being most equipped.

[Please elaborate on your answer].

4.4 How could the projects be improved?

4.5 Are the adaptation projects addressing the fundamental priorities and concerns mentioned in 4.1?

____Yes ____No

4.6 If yes, to what extent are they addressing the most pressing challenges they are facing?

Please rate on a scale of 1 to 5 (5 = very strongly, 4 = quite strongly, 3 = a little, 2 = not at all, 1 = counter-productive).

4.7 In what way could programmes for climate change adaptation be best aligned with the overall priorities for development support of your area?

Section 05: Following rules and procedure

5.1 In your experience, to what extent are BCCT Act/existing relevant policies being followed while allocating climate funds by BCCT?

5.2 Do you think the funds are fairly distributed among the vulnerable areas? ____Yes ____No

5.3 If no, why?

5.4 Which districts/ divisions/ areas are receiving the highest amount of funds? What is the reason behind that?

5.5 For which of the thematic areas under BCCSAP, have you applied for the BCCT funds? Why have you selected this thematic area?

5.6 What procedure do you follow to assess vulnerabilities of your area?

5.7 Do you consult BCCSAP, BCCT Act and other relevant policies and procedures for planning and implementing the projects? ____Yes ____No. [Please elaborate]

5.8 What types of problems do you face in your area during different stages of adaptation projects like initiation, getting funds, implementation, evaluation?

Points of facing problems	Problems faced	How do you resolve these?
Project initiation/planning		
Getting funds		
Implementation		
Evaluation		

Section 06: Participation

5.1 At present, do you consider people's opinion while selecting climate related projects?
____Yes ____No

5.2 If yes, how?

5.3 Do you think people's participation brings better result? ____Yes ____No

5.4 Specify the reason behind your answer.

5.5 Do you think people should be more involved in the decision-making procedure? ____Yes ____No

5.6 If yes, specify the reason.

5.7 Do you include any member from vulnerable community into any committee of these projects?
____Yes ____No

5.8 If yes, what is the mode of their participation at different stages of adaptation project?

Point of Participation	Mode of Participation*
Project Selection/Planning	
Implementation	
Monitoring	
Evaluation	

*Mode of participation: Inviting to any meeting/ include as a committee member/ Personal Interview/ Telephonic conversation/ Filling up some questionnaire/ others

Section 7: Political Involvement

6.1 Do you think the powerful people have any influence on the fund allocation process of BCCT? ____Yes
____No

6.2 If yes, how do they influence?

6.3 Have you faced any influence of powerful people of your/neighbouring area in selecting or implementing projects in your area? ____Yes ____No

6.4 Do you think this is also the case for adaptation projects?

6.5 If yes, how do they influence?

6.6 Are you happy with their involvement/ performance?

(On a scale of 1 to 5, 1=most unhappy, 2=unhappy, 3=neither happy nor unhappy, 4=happy, 5=most happy). Elaborate your answer.
.....

6.7 Mention the reason if there is any kind of dissatisfaction about their involvement?

6.8 If they are not involved now, do you feel the need of their involvement? ____Yes ____No

6.9 If you know about any incidence, you can share if you want.

Section 8: Concluding Remarks

8.1 Would you like add some final comments or recommendations that you think would benefit adaptation of this locality most?

.....

8.2 Would you like add something that you feel is important regarding climate change adaptation that has not been addressed in this interview? [Please feel free to elaborate].

.....

Thank you for your cooperation! May I take a photo of you?

Duration of the Survey: _____ minutes

Additional Comments and Observations of the Interviewer:

.....
.....

1.3 KII questionnaire for experts and academia

Confidential
(For research purpose only)

London School of Economics and Political Science, UK

A study analysing the demand-supply gap in Climate Change Trust funded adaptation activities in coastal districts of Barisal, Bangladesh.

Key Informant Interview Guide for Experts and Academia

[Disclaimer: The purpose of this survey is to gather information about the distribution of Bangladesh Climate Change Trust funds since its initialization and to understand extent to which the funds follows its own procedures and how these fit with wider expectations of fairness in adaptation funding mechanisms. It will also look at whether BCCT funded adaptation programs focus on the perceived needs of affected vulnerable population in the coastal districts of Barisal. Please note that the information obtained in this discussion will be treated as strictly confidential and individual names or responses will not be disclosed in any report and publication. Data will be used only for the research study to help direct policy improvements and assess the project impacts in the target areas. We thank you in advance for your cooperation.]

Cover Sheet

Interview No:	<input type="text" value=" "/>	Date of the Interview:	<input type="text" value=" / / "/>	
		Day	Month	Year
GO Reference: Latitude	<input type="text" value=" / / / / / / / "/>			

GO Reference: Longitude	<input type="text" value=" / / / / / / / "/>
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Location of the Interview:	
Village:	Upazilla:
District:	Division:

Time of the interview	Started at:	Finished at:
-----------------------	-------------	--------------

Name of the respondent: Code:

Section 01 : Questions for ice-breaking

- i. How long have you been involved in climate change area?
- ii. Are you involved with any organization? If yes, what is your organization's role in climate adaptation?
- iii. What is your role in climate adaptation?
- iv. Are you involved with BCCT? If yes, what is your involvement?

Section 02: Questions for semi-structured interview

- 1) What is the objective of BCCT? Can you share the background of formation of BCCT?
- 2) How important is it to assess the vulnerability to achieve climate resilience? Does BCCT have any specific instrument or checklist to assess vulnerability?
- 3) If no, what process is being followed by the fund seeking agencies to assess vulnerabilities from CC?
- 4) Does BCCT scrutinize the vulnerability (mentioned in the project proposal by the fund seeking bodies) while allocating funds? If yes, what mechanism is being followed? If no, do you think that vulnerabilities should be scrutinized by BCCT before allocating funds? Why?
- 5) Do you think the vulnerabilities are being assessed properly? If no, why? Please elaborate.
- 6) In your opinion, to what extent, are the adaptation projects benefiting the poor and most vulnerable group? Do the adaptation measures consider gender and elderly issues?
- 7) Do you think that the implementing agencies particularly LGI heads have sufficient knowledge about CC/adaptation to CC and the policies and procedures of BCCT? If no, is it affecting the adaptation goals of BCCT? How? Do you feel the need of knowledge delivery to them?
- 8) Do you think that vulnerable communities have sufficient knowledge about CC/adaptation to CC? If no, is it affecting the adaptation goals of BCCT? How? Do you feel the need of knowledge delivery/awareness program to them?
- 9) Do the fund seeking agencies consider people's opinion while selecting climate related projects? If yes, how? If no, do you think people should be involved in the decision-making procedure? Why and how?
- 10) In your knowledge, what types of problems do the implementing agencies face locally at different stages of adaptation projects?
- 11) To what extent, BCCT Act, BCCSAP or existing relevant policies being followed while allocating climate funds?
- 12) At present, which of the thematic areas under BCCSAP is being given the highest funds? What do you think the reason behind that? What could be the possible solution to avoid this?
- 13) What does get priority while allocating funds? Vulnerability or anything else? Do you think the funds are fairly distributed among the vulnerable areas? If no, why? Which districts/ divisions/ areas are receiving the highest amount of funds? What is the reason behind that? Do you think that the powerful/influential people are involved in fund allocation process of BCCT? If yes, how are they involved?
- 14) Mention your perceived level of transparency in the following stages.

Phase	Perceived Level of fairness (1-5, being 1=highest, 5=lowest)	Reason for any kind of Ambiguity
Project selection	3	Govt 1 ngo 3
Fund Allocation	3	2
Project Implementation	4	2
Project Evaluation		

- 15) What happens to those projects which do not get funding from BCCT?

- 16) Are the adaptation projects addressing the fundamental priorities and concerns of poor and vulnerable people?
- 17) In what way could the programmes for climate change adaptation be best aligned with the overall priorities for development support?
- 18) What are your suggestions to improve the appropriateness, effectiveness and efficacy of adaptation measures by government, by NGOs and others? National assessment/ rules, procedure/ to avoid political involvement/ participation?
- 19) How the transparency in BCCT fund allocation can be improved?

Section 03: Sum up Questions

Would you like to add some final comments or recommendations that you think would benefit the adaptation process of your locality?

Would you like to add something that you feel is important but has not been addressed in this interview? Please feel free to elaborate.

Thank you for your cooperation!

Duration of the Interview: _____ minutes

Additional Comments and Observations of the Interviewer:

.....

.....

1.4 Survey questionnaire

Confidential
(For research purpose only)

London School of Economics and Political Science, UK

A study analysing the demand-supply gap in adaptation activities in coastal districts of Barisal, Bangladesh.

Survey Guide for Vulnerable Community

[Disclaimer: The purpose of this survey is to gather information about your perceptions about the climate change related risks you are facing in your area and your views about what measures could most effectively be taken to enhance your ability to deal with climate hazards. The objective is to consider whether Bangladesh Climate Change Trust funded adaptation programs focus on these perceived needs of affected vulnerable population of Barisal area. Please note that the information obtained in this discussion will be treated as strictly confidential and individual names or responses will not be disclosed in any report and publication. Data will be used only for the research study to help direct policy improvements and assess the project impacts in the target areas. We thank you in advance for your cooperation.]

Cover Sheet

Interview No:

Date of the Interview:
 Day Month Year

GO Reference: Latitude

GO Reference: Longitude

Location of the Interview:	
Village:	Upazilla:
District:	Division:

Name of the respondent: Code:

Mobile phone number of the respondent:

Section 02: Lives and Livelihoods

1.12 How many years have you been living in this area? years

1.13 Is the road network adequate? Yes No

1.14 Is drainage facility adequate? Yes No

1.15 Is there adequate water supply? Yes No

1.16 What is the source of water?

(i) Tube-well (ii) Pond (iii) River/Khal (iv) Water supply (v) Rain water (vi) Other

1.17 Is there adequate sanitation facility? Yes No

1.18 Is there electricity supply available? Yes No

1.19 Do you have gas supply? Yes No

1.20 What are the main crops that you cultivate?

1.21 How much land do you devote to each crop and/or aquaculture?

1.22 What are the different livestock or natural resources that you own? How many are they?

Types of livestock	How many?	Total price
Cow/Bull		
Goat/Sheep		
Chicken/Duck/Birds		
Others		

1.23 Please provide information about any agricultural/fishing/transport equipment you have:

Types of equipment	Name of equipment	How many?	Total price
Agricultural			
Fishing			
Day-labourer's tools			
Transport			
Others			

1.24 Do you receive financial help from any other family members in Bangladesh? Yes No

1.25 Do you receive remittance from any other family members? Yes No

1.26 Have you borrowed money from any micro-credit facilities during last 3 years? Yes No.

1.27 If yes, amount of money borrowed: BDT

1.28 What is the current outstanding loan: BDT

1.29 Have you borrowed money from any relative/friend/neighbour/money-lender? Yes No

1.30 If yes, amount of money borrowed: BDT

Section 03: Knowledge on climate change

3.6 Have you heard the term 'climate change'? Yes No

3.7 If yes, would you please explain what you understand as the meaning of 'climate change'?

3.8 Do you feel that climate has changed? Yes No

3.9 If yes, please explain the main aspects of change.

3.10 Please specify whether you have experienced or observed any changes in the following climate variabilities and extremes:

Climate variable/Factors	Nature of the change	Period and evidence of such change	No strong evidence of change
Cyclone	Increased/ Decreased/ No Change		
Flood	Increased/ Decreased/ No Change		
Sea-level rise	Increased/ Decreased/ No Change		
Temperature	Increased/ Decreased/ No Change		
Rain	Increased/ Decreased/ No Change		
Salinity	Increased/ Decreased/ No Change		
Change in seasonality	Increased/ Decreased/ No Change		
Other	Increased/ Decreased/ No Change		

3.6 Have you heard the term 'Adaptation to climate change'? Yes No

3.7 If yes, would you please explain what you understand as the meaning of 'Adaptation'?

3.8 Have you ever received any awareness/training program delivering knowledge about climate change/adaptation to climate change? Yes No

3.14 If no, do you feel the need of such knowledge/training/awareness in this area? Yes No

3.15 Specify the reason behind your answer

Section 04: Adaptation Need (Demand) vs. Supply

2.23 Please tell the five main challenges you/your family face at the moment?

2.24 If none of these challenges are related to climate hazards/change, please identify your main climate hazards/change. How important are these compared to other challenges?

Please rate these climate hazards against other challenges you face on a scale of 1 to 5

(1=Very low, 2=low, 3=moderate, 4=high, 5=Extremely high).

i) Cyclone	ii) River bank erosion	iii) Flood
iv) Salinity	v) Storm surges	vi) Change in Rain pattern
vii) Change in Temperature	viii) Sea-level Rise	ix) Change in seasonality
x) Draught	xi) Others	

4.8 According to you, what have been the major climate related hazards in your area during the past 20 years?

4.9 What are the damages caused to you due to the first 5 riskiest climate hazards mentioned in 4.2?

What sort of assistance/project would help to increase your adaptive capacity to these risks?

CC related hazards*	Main problems caused**	Amount of loss (BDT)	Adaptation measures	Barriers to adopt the measures	How best to address the risk?

*For cyclone/flood last major event, for others due to change happened during last 5 years

**(i) Loss of lives (ii) People injured (iii) Houses destroyed (iv) Other property destroyed

(v) Household utility facility damaged (electricity, water and sanitation) (vi) Employment loss

(vii) Crops damaged (viii) Agricultural equipment damaged (ix) Fisheries damaged

(x) Fishing equipment damaged (xi) Livestock damaged (xii) Loss of land productivity

(xiii) Transport equipment damaged (xiv) Additional medical treatment cost

(xv) Other

4.10 Do you think the adaptation projects, taken in your area, could meet your priority needs to adapt to the above-mentioned CC related hazards?

Sl.	Name of the project	Are you satisfied with the project outcome?	Specify any reason for your dis/satisfaction
1	Charfesson Girls High School: Boundary wall, Gate, Approach road, Land Development work (pond filling) and 1 Floor Vertical Extension of school building	Yes/ No/ Neither satisfied nor dissatisfied	
2	Nazrul Islam Teachers Training College Building	Yes/ No/ Neither satisfied nor dissatisfied	
3	Girls Hostel (ongoing project) in Charfesson Govt College	Yes/ No/ Neither satisfied nor dissatisfied	
4	Deep tube-well with raised platform at different places	Yes/ No/ Neither satisfied nor dissatisfied	

4.11 How well-equipped/prepared do you feel yourself in adapting with the CC hazards:

[Please rate on a scale of 1 to 5]

a) before taking the project:	1= Least equipped	2= Somewhat equipped	3= Moderately equipped	4= Adequately equipped	5= Most equipped
b) after implementing the project:	1= Least equipped	2= Somewhat equipped	3= Moderately equipped	4= Adequately equipped	5= Most equipped

4.12 How could the projects be improved to meet your priority needs to adaptation?

4.13 Are the adaptation projects addressing the most pressing challenges you are facing, mentioned in

4.1? ___ Yes ___ No

4.14 If yes, to what extent are they addressing those challenges? Please rate on a scale of 1 to 5.

1= Counter-productive	2= Not at all	3= A little	4= Quite strongly	5= Very strongly
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Section 05: Participation

5.1 Are you aware of the adaptation programs in your area? Yes No

5.2 If yes, how? From

- (i) Implementing agency (ii) Local public representative (iii) Awareness program
- (iv) Community member (v) Other (Please specify.....)

5.3 When do you get to know about the adaptation projects in your area? During/after

- (i) During initiation (ii) During implementation (iii) After completion.

5.4 Were you or any people you know asked regarding your vulnerabilities before/during doing the work? Yes No

5.5 If yes, how do they ask you?

- (i) Inviting to any meeting (ii) Interviewing personally
- (iii) Talking over phone (iv) Filling-up some questionnaire.

5.6 Do they include you into any committee relating to these projects? Yes No

5.7 Do you think your participation can bring better result? Yes No

5.8 Specify the reason behind your answer.

Section 6: Political Involvement

6.1 Are the active political parties/ persons of your area involved in climate change related activities?
 Yes No

6.2 If yes, how are they involved?

6.3

6.4 Are you happy with their involvement/ performance? Mention on a scale of 5:

1	2	3	4	5
Most unhappy	Unhappy	Neither happy nor unhappy	Happy	Most happy

[Elaborate your answer]

6.5 If they are not involved now, do you feel the need of their involvement? Yes No

6.6 If yes, why?

6.7 Do you think the powerful people of your/neighbouring area influence the allocation, selection or implementation of projects in your area? Yes No

6.8 Do you think this is also the case for adaptation projects? Yes No

6.9 If yes, how do they influence?

6.10 If you know about any incidence, you can share if you want.

[Ask permission to take a photo]

Thank you for your cooperation!

Duration of the Survey: _____ minutes

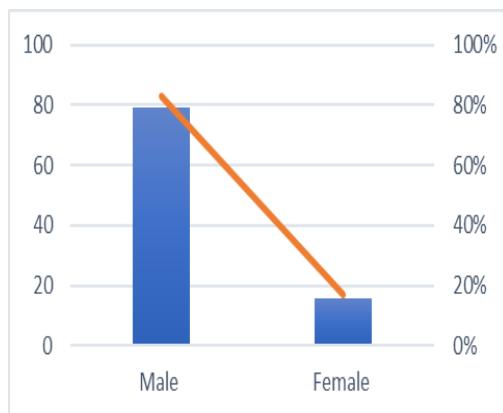
Name of the interviewer:

Mobile number:

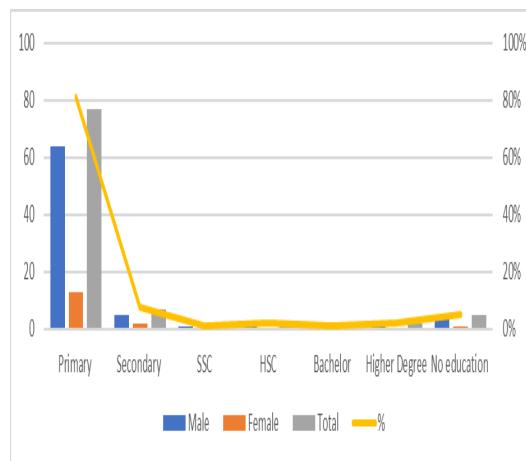
Additional Comments and Observations of the interviewer:

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Appendix 2: Quantitative analysis of survey data



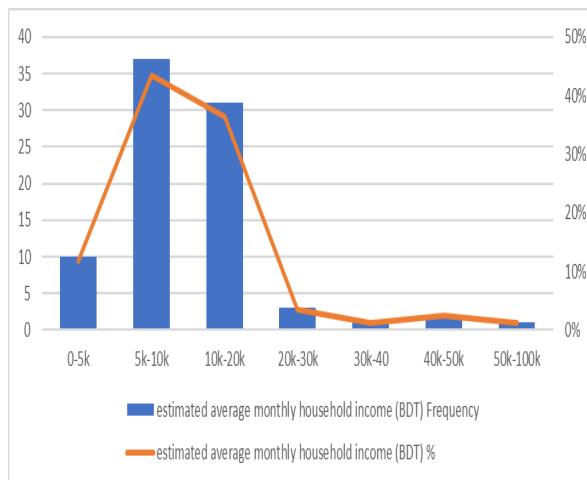
Graph 5-1: Statistics of the respondents (gender)



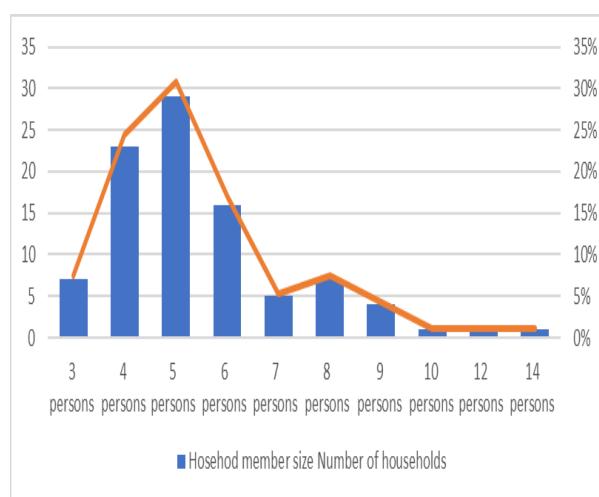
Graph 5-2: Statistics showing education levels of the respondents



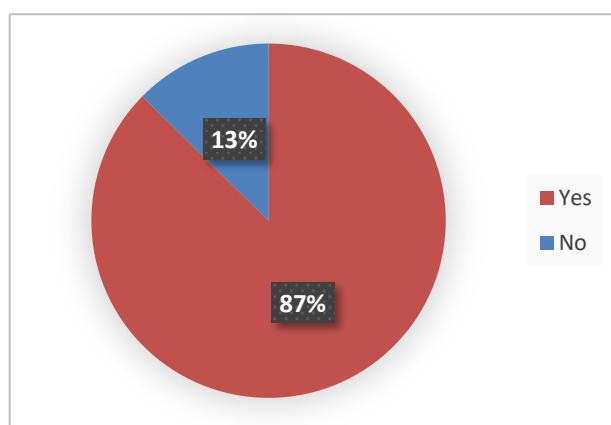
Graph 5-3: Occupation of the respondents



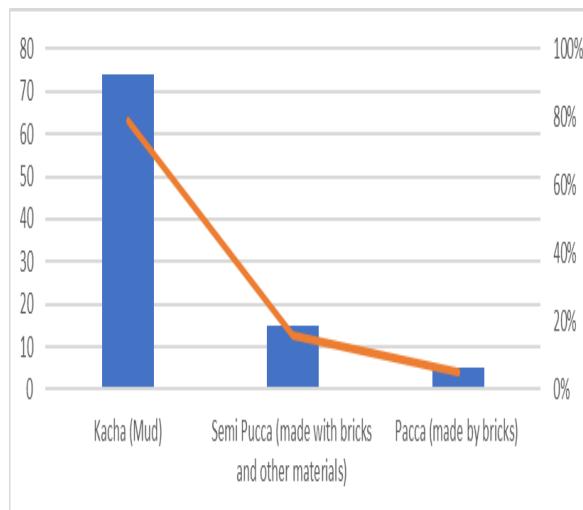
Graph 5-4: Estimated average monthly household income (BDT)



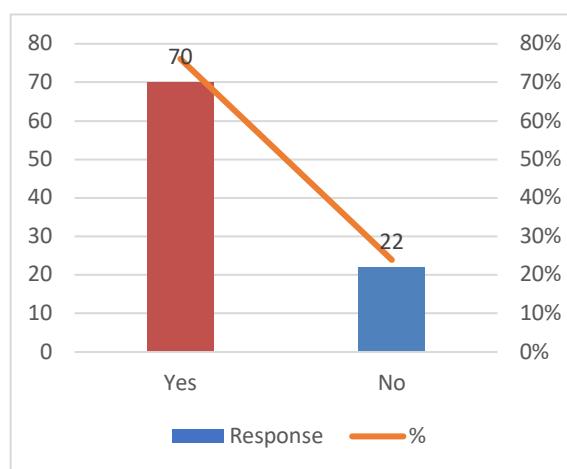
Graph 5-5: Household member size



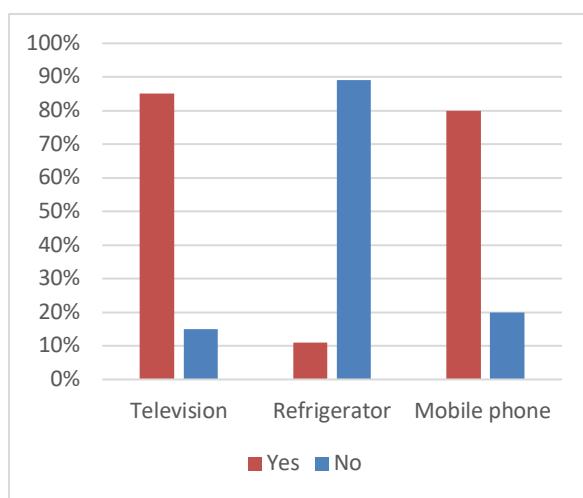
Graph 5-6: % of people who own a house



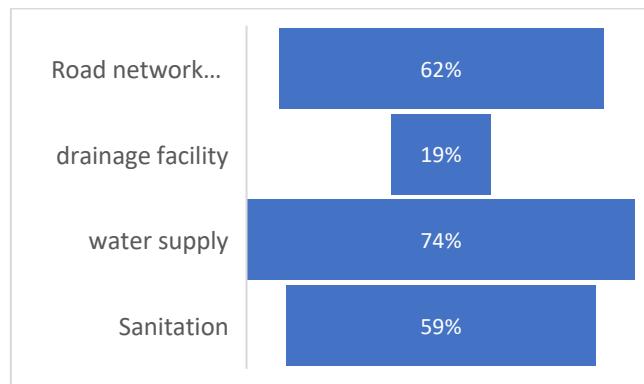
Graph 5-7: Building material of house of the respondents



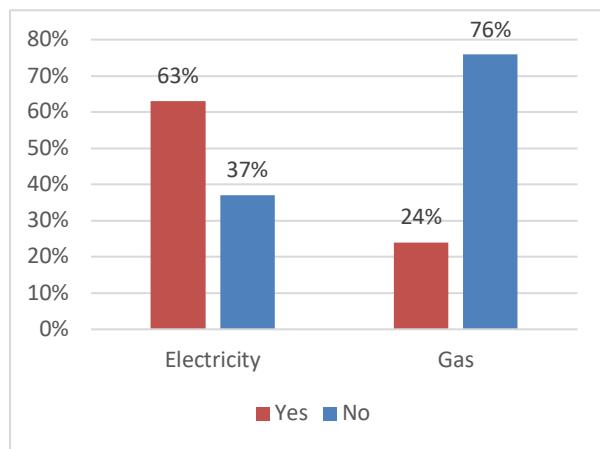
Graph 5-8: Respondents owning a house or not



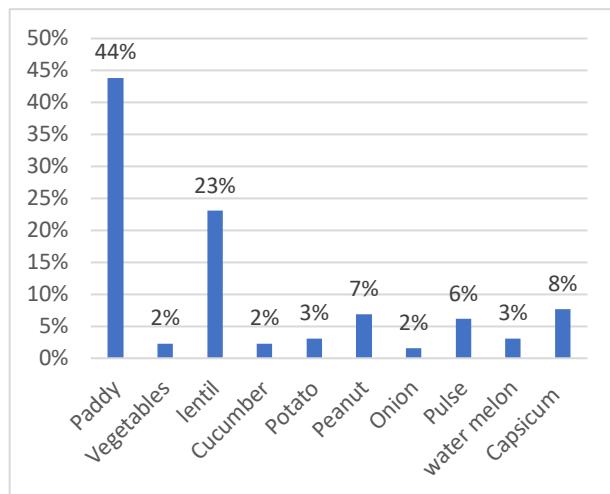
Graph 5-9: Television, Refrigerator, and Mobile Phone



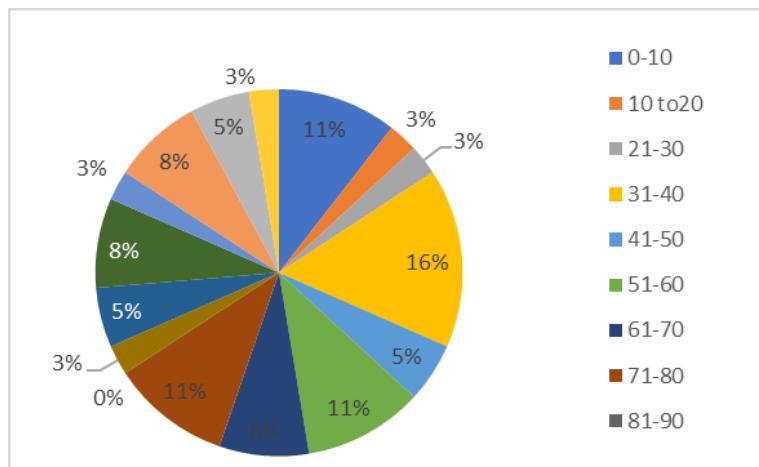
Graph 5-10: Adequate facility



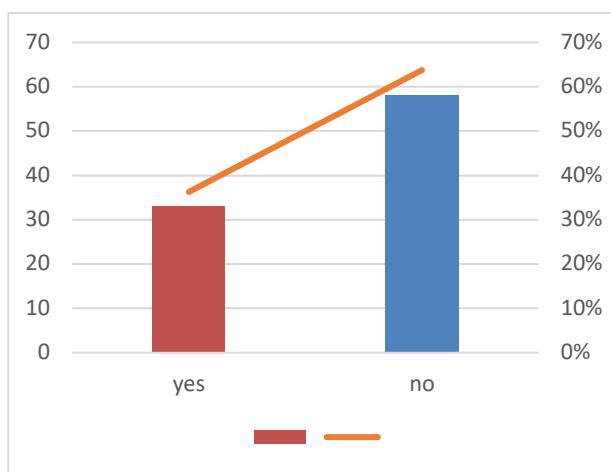
Graph 5-11: Respondents' Access to Energy



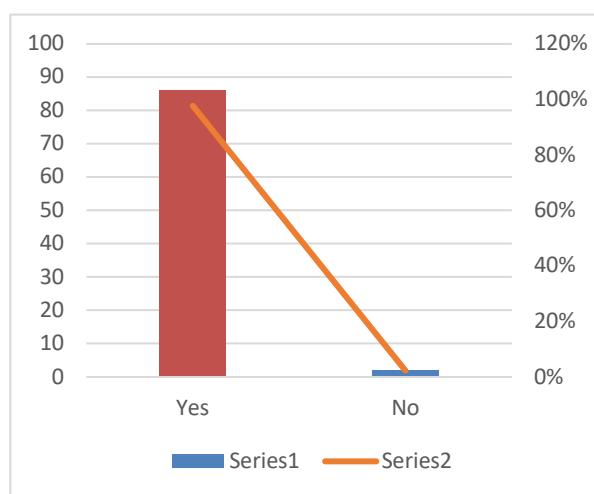
Graph 5-12: Main crops to cultivate



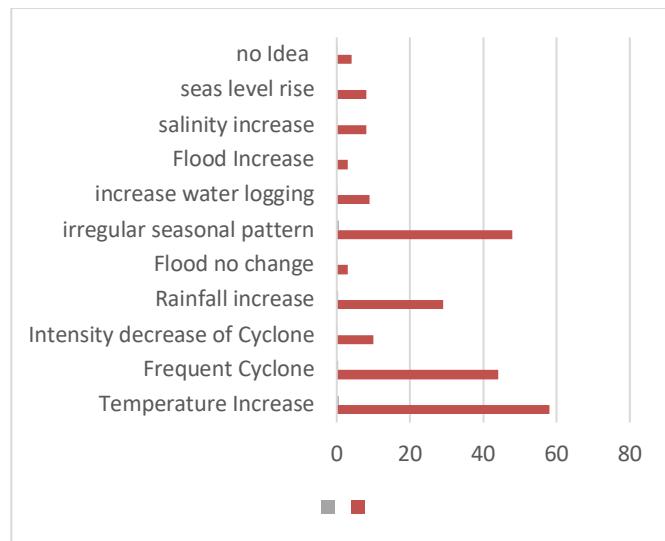
Graph 5-13: Land devoted to each crop



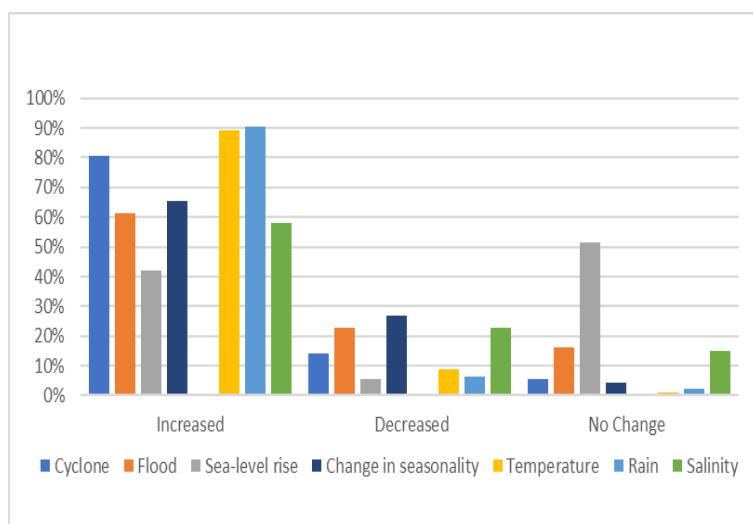
Graph 5-14: Whether the respondents heard of the term 'Climate Change'



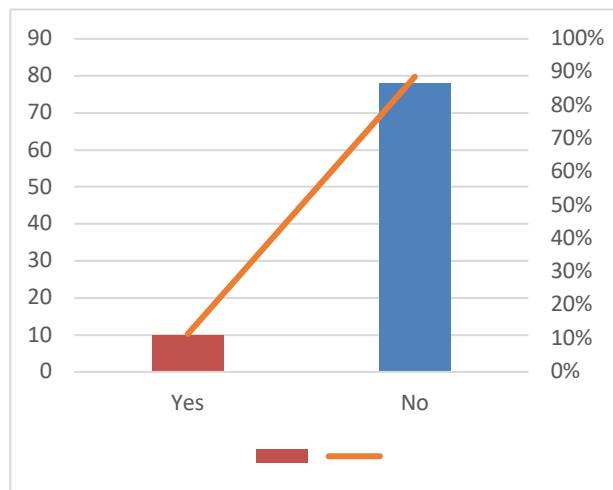
Graph 5-15: Whether the respondents feel that Climate has changed or not



Graph 5-16: Main aspects of change in climate



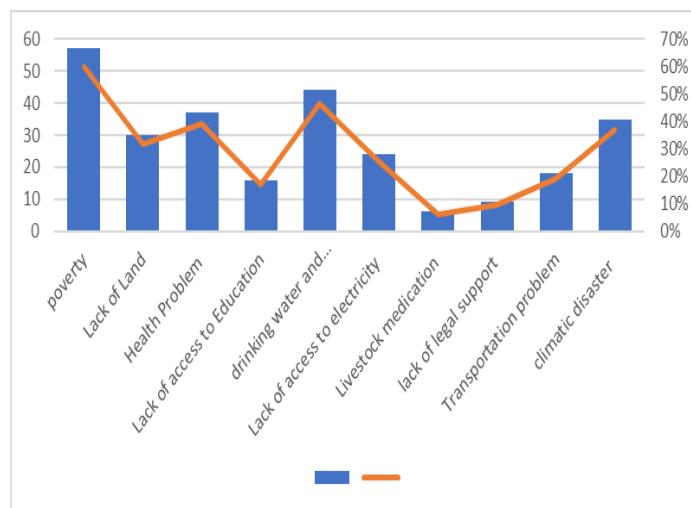
Graph 5-17: Nature of climate change through natural disasters



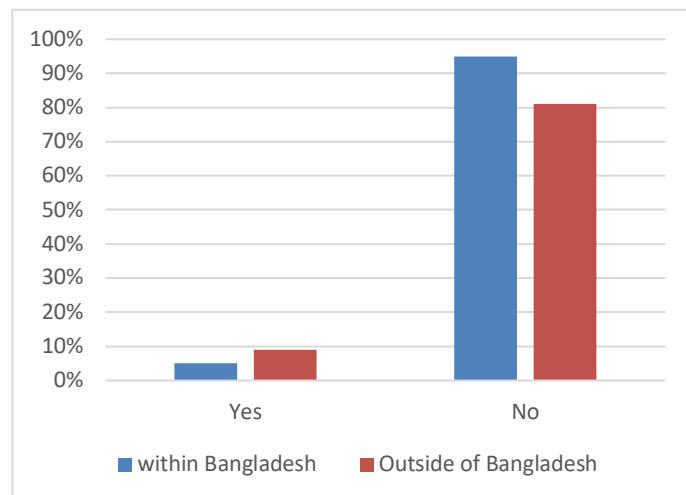
Graph 5-18: Whether the respondents have heard of the term 'adaptation' to climate change

Disasters/hazards	Level Climate Change Impact				
	Very low	Low	Moderate	High	Extremely high
Cyclone	0%	0%	18 19%	58 61%	18 19%
River bank erosion	39 41%	8 8%	1 1%	0%	0 0%
Flood	2 2%	22 23%	29 31%	17 18%	10 11%
Salinity	15 16%	21 22%	25 26%	7 7%	14 15%
Storm surge	17 18%	26 27%	6 6%	0 0%	0 0%
Change in rain pattern	12 13%	41 43%	29 31%	5 5%	2 2%
Change in temperature	10 11%	31 33%	29 31%	5 5%	0 0%
sea level rise	29 31%	17 18%	1 1%	0 0%	0 0%
change in seasonality	17 18%	30 32%	23 24%	7 7%	7 7%
drought	38 40%	9 9%	0 0%	1 1%	1 1%
others	0 0%	0 0%	2 2%	22 23%	6 6%

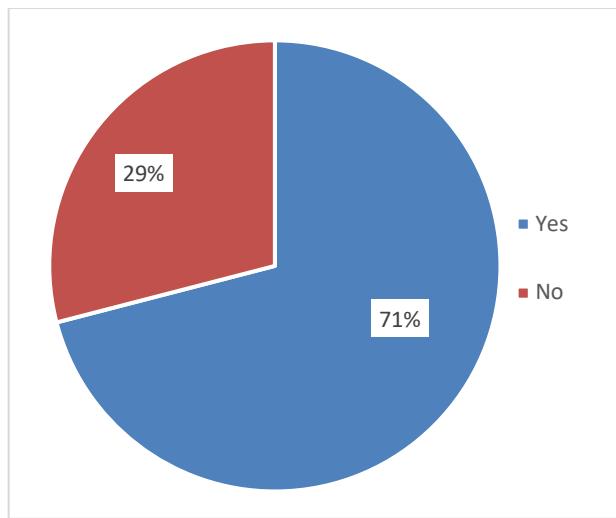
Graph 5-19: Respondents evaluating the level of impacts by climate change for various types of hazards



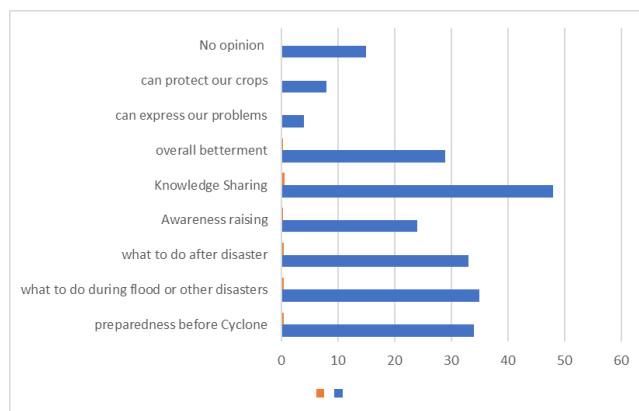
Graph 5-20: Challenges that people face



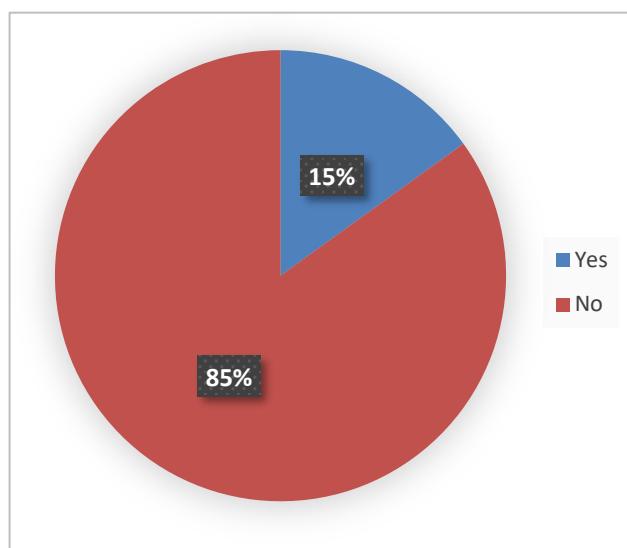
Graph 5-21: Receiving financial help from family members



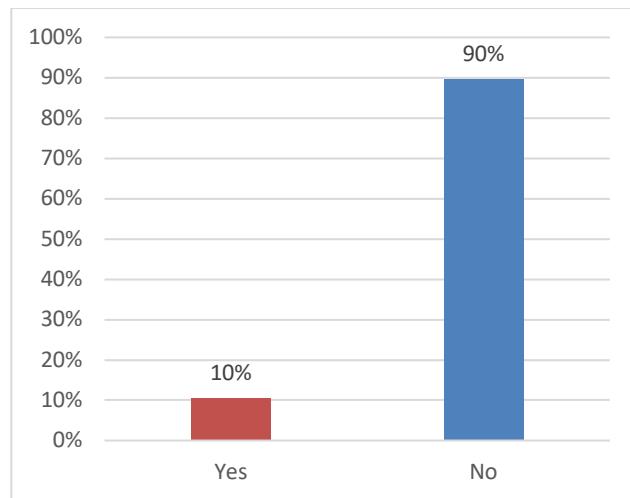
Graph 5-22: Respondents took Micro-credit or not



Graph 5-23: Reason behind training need



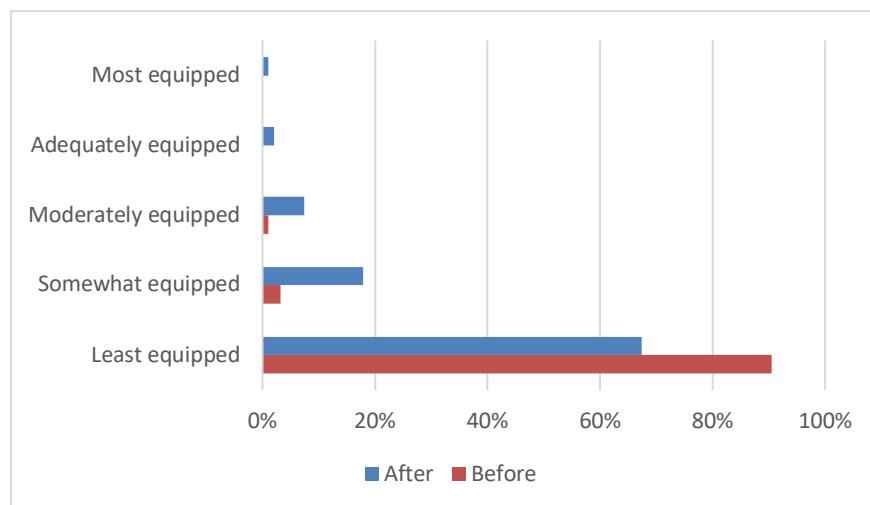
Graph 6-1: Awareness of the adaptation programs



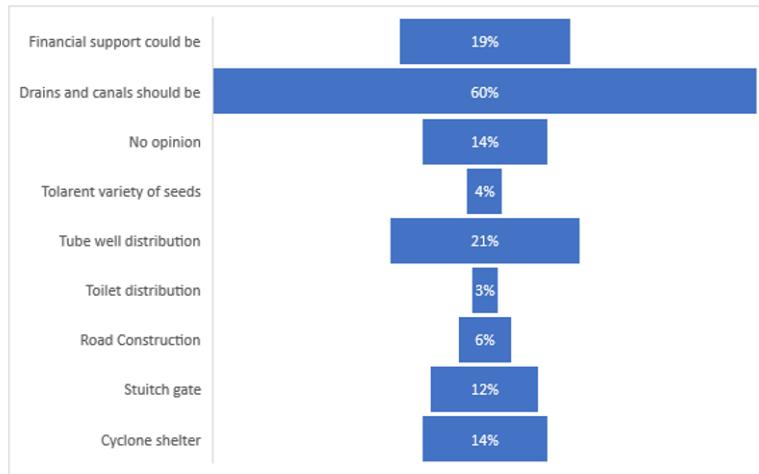
Graph 6-2: Adaptation projects addressing the most pressing challenges

Satisfaction on BCCT Projects			
Project List	Yes	No	Neither satisfied, nor dissatisfied
Charfesson Girls High School:	20%	8%	72%
Nazrul Islam Teachers Training College College Building	14%	12%	75%
Charfesson Govt College Girls Hostel (ongoing project)	9%	7%	83%
Education Engineering Dept: Fatema Matin Womens Coll	24%	6%	69%
Charfesson Municipality: Drainage/Footpath (920 m)	20%	2%	78%
Deep tube-well with raised platform at different places	47%	7%	45%
Bus Terminal	18%	3%	79%
Solar street light (No. 20),	15%	3%	82%
tube well	1%	1%	98%
Nilima Jakob Degree College: Academic College	1%	1%	98%

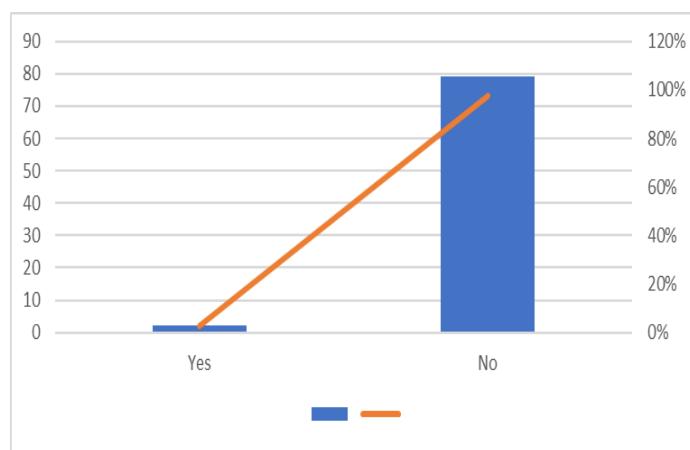
Graph 6-3: Level of satisfaction over the BCCT projects



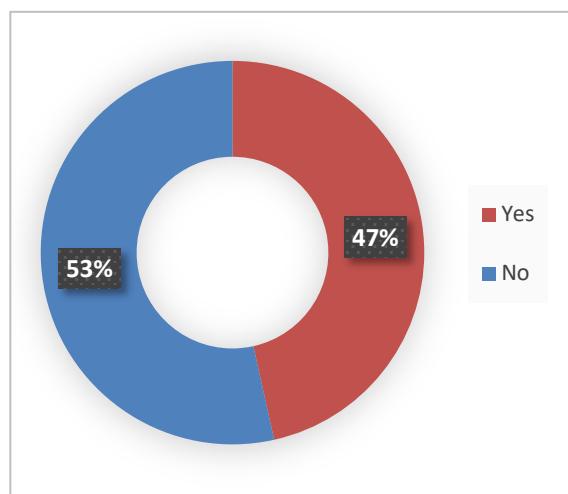
Graph 6-4: How well-equipped/prepared



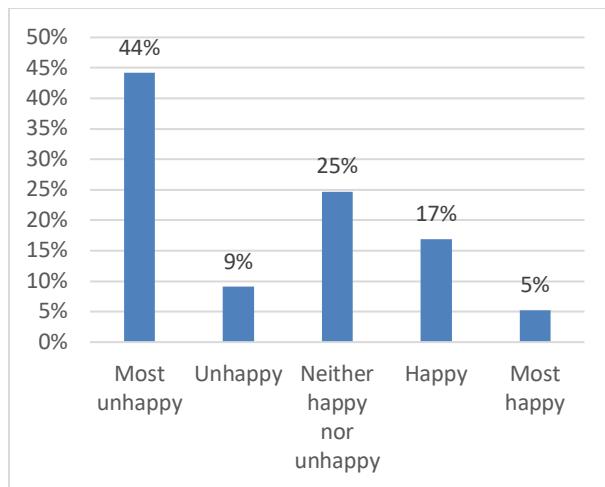
Graph 6-5: How could the projects be improved to meet your priority needs to adaptation



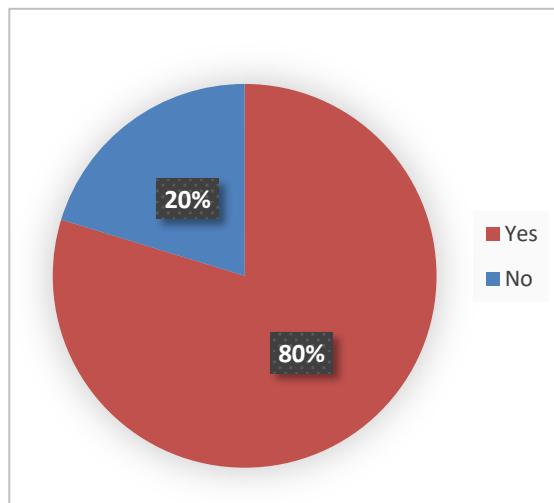
Graph 6-6: People included in committee relating to adaptation projects



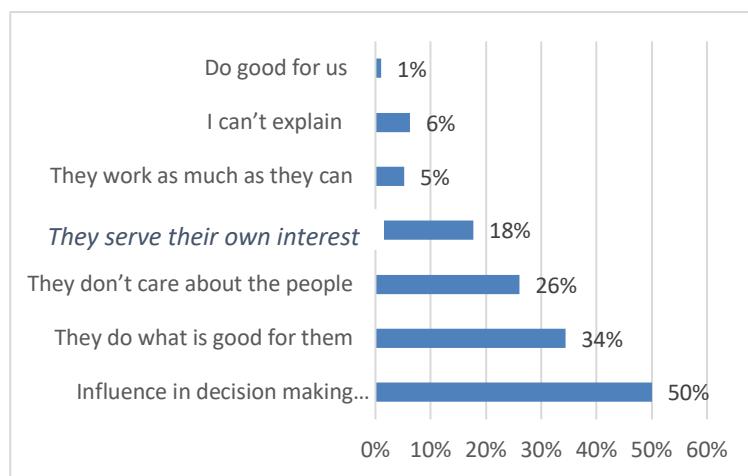
Graph 6-7: Whether people's participation can bring better result



Graph 6-8: Happy with their involvement/performance



Graph 6-9: Political Involvement in Climate Change Projects



Graph 6-10: If yes, how do they influence

Appendix 3: Attendance of ministers in Trustee Board Meeting

Information of the attendance of ministers in trustee board meeting with ministries of agriculture, water resources, foreign affairs, LGD etc.

Date	Other members	No. of ministers attended	No. of ministers in the trustee board	Name of the ministries
16/05/2018	3	2	10	Agriculture, water resources
24/12/2017	2	3	10	Agriculture, foreign affairs, shipping
17/09/2017	4	2	10	Agriculture, disaster mgt
14/06/2017	3	1	10	Shipping
23/03/2017	3	3	10	Agriculture, shipping, water resources
27/12/2016	2	5	10	Agriculture, food, finance, shipping, water resources
29/09/2016	3	5	10	Disaster mgt, food, foreign affairs, LGD, water resources

Appendix 4: BCCT Projects in Charfesson

(in details from project proposals)

The following sections illustrate how projects implemented in Charfesson carried out diagnosis to understand the locality to have better scoping of the study area. Following that, the sections detail the vulnerabilities discussed in the proposals of the projects and, where possible, outlines how vulnerability is assessed. The adaptation initiatives are elaborated to further understand the justification which Bangladesh Climate Change Trust have considered during the formulation of the projects. This section clusters some of the main climate adaptation initiatives taken through various projects to have a better understanding.

Development of Roads:

The first initiative to address climate-related vulnerability through constructing roads was the project '*Infrastructure Development project of Charfesson Range*' which included development of roads mainly to improve communication and transportation facilities. As the project proposal portrayed, geographical and morphological characteristics have made Charfesson vulnerable to climate-induced events: the area is located near the sea and vulnerable to sea-related natural disasters. With sea level rise, the salinity intrusion increases in the area. This has direct impacts on local's economic and social life. Due to increasing salinity in soil and water, agricultural productivity decreases that affects the economy of local inhabitants. Loss of an agriculture-based economy is accompanied by unpredictable cyclonic events, which lead to infrastructure loss and adds extra burden to the poor farmers.

In this situation, the only alternative earning means remain available for the farmers is non-agriculture-based economy. Lack of proper measures for climate-induced disasters are one of the prime reasons behind increasing rural-urban migration. Many farmers migrate in search of employment opportunities and most of them end up in brick kilns and construction sites. To worsen the situation, the jobs offered in this sector are often underpaid and workers are forced to live in filthy conditions with limited food supply. Moreover, migrants are often kept out of social services offered by the government such as education and health care services.

As such the project, '*Infrastructure Development project of Charfesson Range*', aimed to develop structural solutions for the locals to reduce their vulnerability to climate-induced disasters and constructed 5600-metre-long Road. The road construction was accompanied by improving health, education and creating employment opportunities for the locals. However, none of the initiatives taken had direct connections with the identified vulnerability and barely had any role to play to reduce local's vulnerability like vulnerability to salinity intrusion.

Another project, '*Rural development project to mitigate climate effects coastal Charfesson Municipality, Bholo*', has been implemented to provide support, align with, and attain sustainable development. The vulnerabilities registered by the community included lack of proper communication system, unforeseeable flood, lack of drainage system, and waterlogging after rainfall. Damage in roads disrupts communication which in turn hampers access to health care centres, educational institutes, and market access for daily activities. Uncertain or sudden flood events due to excessive rainfall leads to waterlogging and limited movements. Additionally, flooding also leads to drainage congestion and spread of contaminated water that in turn fuses with water, used for domestic purposes.

To respond to the vulnerabilities, better roads were developed to improve communication systems and help increase accessibility of communities to health care centres and educational institutes. Due to repeated climatic events, communication was heavily hampered as most of the roads were damaged and connectivity with markets, health care centres, and educational institutes was lost. Loss of connectivity was marked as a vulnerability by most of the locals in climate-affected communities. Creating roads were mostly done to address communication issues, which led to accessibility to educational institutes, health care centres, and markets. However, drainage congestions due to improper bridge and culverts were not taken under consideration when designing outcomes of this project. Moreover, methodology used in developing these interventions were not mentioned and no vulnerability assessment was done before implementing the interventions.

To address community's needs for immediate reduction of their risk to disasters and ensure deployment of women to empower them. The initiatives included a project '*Development of*

climate-proofed roads to ensure better connectivity with markets of climate-affected communities'. Damaged roads were rehabilitated to improve the communication system. Additionally, the socioeconomic activities were taken under consideration and sustainable rural services were provided. As the community demanded for employment opportunities, this project developed work opportunities to empower the community and strengthen them economically to combat climate-induced disasters and reduce their vulnerability. However, before designing the outcomes, no vulnerability assessment was done, and impact assessment was not a component of the project.

The project, 'Climate resilient road rehabilitation of coastal area at Monpura Upazila, Bhola', serves the purpose to address vulnerability by covering a number of themes of the BCCSAP including T3-Infrastructure development and has been implemented to provide support, align with and attain the MDG particularly food security, agriculture, health and education. Lack of employment opportunities was identified as one of the major problems. Additionally, frequent disasters, damaging roads which affected the communication system leading to reduced accessibility to market as connectivity was hampered between the climate affected communities and marketplaces. Therefore, rehabilitation of such roads must be considered while designing project outcomes.

The project '*Development of climate resilient roads affected by climate change in the coastal area under Charfesson Upazila, Bhola*', serves the purpose to address vulnerability by covering a number of themes of the BCCSAP including T3 infrastructure development and has been implemented to provide support, align with, and attain the MDGs i.e., Education and health.

The main vulnerabilities identified, and mediations asked for the project were increasing unemployment rates in rural areas, damaged rural roads which disrupted the communication system, and lack of transportation. Unemployment rates increased due to increased number of disasters, crops destruction, and inundating agricultural fields reducing agricultural productivity. Moreover, the amount of crop that was produced needed to be transported to market but due to damaged roads, movement of crops was restricted. Climate affected

families were unable to send their children to educational institutes and get to health care centres due to impaired roads.

Therefore, this project constructed roads to ensure connectivity for safe movement during disasters and increased socioeconomic activities. This would also ensure a better communication system for the locals to get access to health care and educational institutes. Further, planned to create job opportunities for locals to empower them to combat climate change impacts. However, no assessment was done, and the methodology used to design such intervention were not discussed.

For the project, '*Project for construction/reconstruction/rehabilitation of roads damaged by climate effects in coastal region, Bhola district*', vulnerabilities were explained as due to repeated climatic events, communication was heavily hampered as most of roads were damaged and connectivity with markets, health care centres, and educational institutes was lost. Loss of connectivity was marked as a vulnerability by most of the locals in climate-affected communities.

In response, the project was designed to address vulnerability by covering a number of themes of the BCCSAP including infrastructure development (T3) and improvement and construction of road and flood embankment (P1). It also ensured to provide support, align with, and attain the Goal 1- eradicating extreme poverty and hunger, along with ensuring gender equity and empowerment (Goal-3) and environmental sustainability (Goal-7).

Damaged roads are often interlinked with increasing transportation cost, which is yet another vulnerability identified by the locals. Therefore, this project aims to remove physical bottlenecks and reduce cost of rural transportation and marketing. As disasters hit the underprivileged community often loses all their resources and are left helpless with support of aids only. Thus, the project aimed to help the rural poor in poverty reduction efforts by creating short- and medium-term employment opportunities both in agriculture and non-agriculture sectors. Additionally, considerable issues regarding vulnerabilities were livelihood opportunity creation, making resilient infrastructure, rivers slope protection, reduced

poverty, protection of main roads from erosion etc. In compliance with the listed vulnerabilities, 26M roads were constructed to improve communication systems and reduce transportation expenses. This construction of new roads was also thought as a solution to the inaccessibility issue of farmers to markets, for selling their agro-based products. However, no vulnerability assessment was done before implementing these interventions and methodology used was not shared.

The other project that finds solutions in developing roads is '*Improvement of Climate Resilient Infrastructure in the Coastal Region to Address Climate Change Impacts*'. Justification for the project viewed that loss of lives in disasters were common due to lack of climate resilient housing and proper shelter centres. Appropriate mediation for the listed vulnerabilities would be development of sustainable livelihood for the poor and vulnerable people in the coastal region of Bangladesh, improvement of existing road network for better adaptation to climate change, and creation of better market facility for produced agricultural products of local farmers to be traded.

In accordance with the vulnerabilities outlined, this project constructed climate-proofed roads to improve connectivity and ensure resilience during and after disasters. These climate resilient roads also served an embankment protecting the communities and their resources from tidal surges. It ensured protection of crops, lives and property during disasters via structural solutions and river slopes to protect houses of communities. Additionally, this project also ensured employment opportunities and increased the annual income of locals. However, no vulnerability assessment was done, and the method followed to design the project was not mentioned as well.

Construction of educational infrastructures- schools, colleges, and hostels:

For projects for educational infrastructures, the major vulnerabilities identified in the project documents are poor education facilities, damaged infrastructure, and lack of shelters to be used during cyclones. Families who were victims of climate-induced disasters and did not have access to educational facilities were targeted in these projects. It was also recognized

that educational facilities were not resilient enough to combat climatic events. The projects, '*Construction of Climate Resilient Infrastructure in Selected Educational Institutions around Coastal Regions*', and '*Climate Resilient Building Construction and Infrastructural Development in Educational Institutions of Coastal Regions*' implemented by Education Engineering Department of Ministry of Education in 2014-15, were designed to address vulnerability by covering a number of themes of the BCCSAP including infrastructure development. They aimed at attaining the MDG of increased education in rural areas while ensuring protection to climate-induced disasters. Therefore, the local agencies asked for more resilient infrastructure for educational institutes, which can be used as shelters during drastic situations. In addition, to promote education related to 'climate change and its impacts' by using skilled teachers in educational institutes, a teacher's training college (TTC) was constructed in that area using the BCCT funds.

Similarly, the project '*Construction of Climate resilient infrastructure in five selected educational institutions under Bhola District*', constructed school buildings which serve as cyclone shelters during disasters. The project tried to address vulnerability by covering a number of themes of the BCCSAP including infrastructure development, which will be beneficial in the long run. In accordance with the vulnerabilities listed in the project profile, this project was executed to construct a boundary wall to limit inflow of floodwater into the school territory, and act as windbreaker during cyclones and storms. Besides, three academic buildings were constructed to increase the resilience of the community. This will address the vulnerability identified and will work as a safety zone during climate-induced disasters. Construction of vertical extension of the classroom and ladies' hostel were also other components of this project that can protect the locals during extreme events, while ensuring better educational facilities.

The project proposals also showed that substantial repair work was also required to improve infrastructure damaged by climatic events. The climatic disasters damage educational institutes by decreasing their capacity to accommodate children. Moreover, the roads, which connect climate vulnerable communities to schools and other educational institutes, are often damaged during disasters making communication even more difficult, leading to an

increasing number of dropouts. So, local government agencies felt the priority to take these projects, as mentioned in the project proposals.

Like the above-mentioned projects, '*Construction of Climate Resilient Infrastructure in Selected Educational Institutions around Coastal Regions of Charfesson and Monpura Upazila Under Bhola district*' project also tried to address vulnerability by covering several themes of the BCCSAP. Increasing sea level not only reduces productivity of agricultural land but also has indirect impacts such as increasing the number of school dropouts. Climate change affects education institutes and often damages them enough to decrease their capacity in accommodating children. Moreover, the roads, which connect climate vulnerable communities to schools and other educational institutes, are often damaged during disasters. Thus, making communication even more difficult, leading to an increasing number of dropouts.

To address these vulnerabilities, '*Construction of Climate Resilient Infrastructure in Selected Educational Institutions around Coastal Regions of Charfesson and Monpura Upazila Under Bhola district*' aimed to establish academic buildings, which are climate resilient too. Beside constructing academic buildings, this project also invested in improving education methods by deploying skilled individuals to mediate. However, there were children from climate-affected families who lacked educational facilities, so this project also increased the number of enrolments per year in schools. Moreover, no vulnerability assessment was done before implementing this project and methodology used to design such interventions were not disclosed.

Installation of water sources and improvement in sanitation services:

In line with the BCCSAP themes the vulnerability of the coastal area was addressed through several projects. The main themes that were considered included food security, social protection and health, water, and sanitation. In Charfesson, frequent flood and cyclonic events lead to damaging water sources and contaminating water used for domestic purposes. So, locals have to rely on contaminated water which in turn leads to spread of waterborne

diseases. The project '*The Safe Water Supply Project in Climate Change affected Monpura and Charfesson under Bhola district*', tried to address vulnerability by responding to a number of themes of the BCCSAP such as food security, social protection, health, water, and sanitation. The project has been implemented to provide support and attain the SDG-6.

The project titled '*Water source installation project to enhance water delivery in the climate affected upazilas- Monpura and Charfesson*', aimed to minimise the vulnerability and installed 694 deep tubewells in Charfesson and 279 in Monpura Upazilas (subdistrict) to ensure better water and sanitation system. In Charfesson, the local agency identified safe water sources and the sanitary system are mostly vulnerable to disasters. Deep tube wells help overcome this problem by providing uninterrupted supply of safe drinking water to the climate-affected communities. Additionally, sanitation is considered under this program as frequent flood events lead to breakage of sanitary systems and contaminates drinking water which causes spread of waterborne diseases. However, before implementing this project, no vulnerability assessment was done, and no study was conducted in order to identify the needs in accordance with the vulnerabilities of locals.

For the '*Safe Water Supply Project in Cyclone Storm Roanu Affected Coastal Area Project*', vulnerability included impact of climate change on water and sanitation leading to diseases. Frequent floods and cyclonic events contaminate water sources and the contaminated water is used for domestic purposes. In coastal zones, locals barely have access to safe water sources during such drastic events, thus tend to rely on the contaminated water which in turn leads to spreads of waterborne diseases. *The Safe Water Supply Project in Cyclone Storm Roanu Affected Coastal Area Project* helps address all these issues. This project aimed to minimise the vulnerability identified and constructed deep tubewells in Charfesson and Monpura Upazila under Bhola district to ensure better water and sanitation systems. In addition, the project considered health care services and ensured better services. However, before implementing this project, no vulnerability assessment was done, and no study was conducted in order to identify the needs in accordance with the vulnerabilities of locals.

Installation of solar streetlights:

During disasters, electricity is hampered due to strong winds and heavy precipitation. This in turn leads to difficulties in transportation and communication as road communication gets risky at night and electronic communication devices are deprived of recharging. The project entitled '*Project for installation of environment friendly solar powered streetlight at coastal Charfesson Municipality, Bhola*' was developed in line with SDGs adage of low carbon emission, and improvement of communication and transportation. The project emphasised the use of renewable energy facilities. In addition, it focused on the awareness of eco-friendly solar energy, which can be produced and used at a cheaper rate compared to the traditional electricity provision. As most of the community members live below the poverty line and their annual average income is not satisfactory, this project also targeted low-income communities in the municipality area and helped them to increase their financial and social status.

The identification of possible solutions in accordance with the vulnerabilities listed was done via frequent field visits. As discussed before, this project tried to line up with the SDGs while concerning the themes of BCCSAP and thus established solar lamps to shift to renewable sources of energy. This is further accompanied by increasing employment opportunities, which ultimately leads to economic betterment, elevation of living standards. Additionally, communication and transportation systems were improved by better road construction and management of the roads during disasters. However, this project did not conduct vulnerability assessment before implementing the interventions. Moreover, it aimed to reduce the carbon emission rates but barely had any technology to measure it.

Another project, 'Rural development project to mitigate climate effects coastal Charfesson Municipality, Bhola', along with developing road communication and drainage systems, installed streetlights to increase road safety at night. The vulnerabilities identified by the community included lack of proper communication system, unpredictable flood, lack of drainage system, and waterlogging after rainfall. Road communication damages, which in turn hampers access to health care centres, educational institutes, and market access for daily activities. Uncertain or sudden flood events due to excessive rainfall leads to waterlogging

and limited movements. Additionally, flooding causes drainage congestion and spread of contaminated water that in turn fuses with water, used for domestic purposes. However, methodology used in developing these interventions were not mentioned and no vulnerability assessment was done before implementing the interventions.

Bus terminal construction:

In coastal areas, roads often are inundated due to frequent floods; this reduces accessibility to educational and health care centres. Moreover, heavy rainfall submerges the bus terminal which worsens the communication system and makes locals even more vulnerable to the disasters. Local people viewed that lack of communication system during climate-induced disasters such as flood, cyclone, and tidal surges as one of the major vulnerabilities. '*Project for construction of cyclone tolerant bus terminal at coastal Charfesson Municipality, Bholā*' was taken to reduce this vulnerability. The project served the purpose to address vulnerability by covering a number of themes of the BCCSAP including infrastructure development and improvement in infrastructure theme, while ensuring sustainability.

The project established cyclone-tolerant bus terminals to improve communication systems while protecting the helpless people during disasters, as these terminals work as shelters. Additionally, infrastructure development activities also increased employment opportunities for the community people. Methodology and outcome of the project was based on field visit data. However, it is evident that no community participation was ensured while developing this proposal. Moreover, similar to other projects no vulnerability assessment was done. Although this project claimed to reduce the vulnerability of the locals, no direct relation was established between planned outcome and reduction of vulnerability of people.

Canal dredging and drainage construction:

There has also been intervention by using the BCCT fund regarding dredging and improving drainage in the vulnerable areas. Consecutive-flooding events cause waterlogging and an unhealthy living environment in the municipality. As most of the drainage systems of the

municipality are underdeveloped, heavy rainfall exceeds the capacity of the municipality leading to waterlogging and unhygienic living conditions. The educational institutes are not spared from swelling. As most of them are non-climate resilient, frequent disasters reduce their capacity to absorb and increase their vulnerability to climate change. Drainage systems were also improved by investment on infrastructure to reduce waterlogging and spread of polluted water during and after disasters.

The community also needs the immediate reduction of their risk to disasters and ensure deployment of women to empower them. Additionally, the socioeconomic activities were taken under consideration and sustainable rural services were provided. As the community demanded for employment opportunities, this project developed work opportunities to empower the community and strengthen them economically to combat climate-induced disasters and reduce their vulnerability.

'Canals as well as ponds digging/development for combating waterlogging due to climate change effect and other infrastructure improvement project under Charfesson Municipality', serves the purpose to address vulnerability by covering a number of themes of the BCCSAP including T3 infrastructure development; P4 improvement of urban drainage system and P7 environment friendly solar system on street. However, before designing the outcomes, no vulnerability assessment was done, and impact assessment of the project was not a component to be included.

Embankment construction:

Loss of lives in disasters are common due to lack of climate resilient housing and proper shelter centres. Appropriate mediation for the vulnerabilities would be development of sustainable livelihood for the poor and vulnerable people in the coastal region of Bangladesh, improvement of existing road network for better adaptation to climate change, and creation of better market facility for produced agricultural products of local farmers to be traded.

BCCT implemented projects such as '*Improvement of Climate resilient Infrastructure in the*

Coastal Region to Address Climate Change Impacts, for building roads which also served as embankments protecting the communities and their resources from tidal surges. It has also been serving as protection of crops lives and property during disasters via structural solutions and river slopes to protect houses of communities. Additionally, this project also ensured employment opportunities and increased the annual income of locals. However, no vulnerability assessment was done, and the method followed to design the project was not mentioned as well.

Rest house construction:

The prime vulnerabilities of the locals due to climate-induced disasters were lack of livelihood opportunities as most of them are dependent on agriculture and have not tried anything else as a livelihood option, lack of resources due to salinity and productivity loss, and absence of better housing and shelters during cyclones and storm surges. With this background, '*Project for Construction of Cyclone Tolerant Rest House at coastal Charfesson Upazila, Bhol*' aimed to minimise the specified vulnerabilities by implementing certain initiatives. Construction of rest houses is one of the interventions for the lower socio-economic groups, as this will initiate employment opportunities in the Charfesson area. Further, RCC Boat Stand and Retaining Wall Construction was considered as one of the solutions to reduce vulnerability of the locals. During the construction of such infrastructure, workless women were given priority in order to develop employment opportunities for the underprivileged communities.

To summarise, the project proposals manifest that salinity intrusion, loss of livelihood, loss of crops, poor communication during climatic events, unsafe dwelling house and community shelter, accessibility to health and education centres, and unsafe drinking water are major vulnerabilities induced by climatic events. To reduce these vulnerabilities, the common response is building infrastructure: mainly roads and school buildings. In some projects, drainage and sanitation issues are also taken care of. Some projects try to address multiple vulnerabilities. However, it is evident that the projects are poorly connected to the vulnerabilities and there is lack of deliberate effort to reduce salinity and improve livelihood of the vulnerable people. Some of the projects claim that their initiatives create employment

opportunities for locals. But these opportunities are temporary and end with the completion of the projects. Overall, it is also found that most of the projects do not conduct any vulnerability assessment before the project being initiated or any impact assessment after completion of the projects. Although some projects consult local stakeholders, the methodology is not clearly mentioned.