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Final Report on

“Understanding the impact
of climate change
on poor and vulnerable Char people”



Final Report on
**UNDERSTANDING THE IMPACT OF CLIMATE CHANGE
ON POOR AND VULNERABLE CHAR PEOPLE**

JANUARY 2021

STUDY CONDUCTED BY



SUBMITTED TO



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Acknowledgement

The research team of DM WATCH is grateful to Concern Worldwide, Bangladesh, for providing the opportunity to conduct this study. The team also acknowledges the extensive support provided by RDRS in the field operations. Tireless effort of the Research Associates and Research Assistants in conducting field activities and data preparation helped accomplishing the study in the limited amount of time. The team extends its appreciation to the local Government representatives from Kurigram Sadar and Ulipur Upazila, along with other national and local stakeholders, for their cordial support during data collection. Last but not the least, DM WATCH study team is grateful to the respondents of the study for their valuable time and insights in adding value to the research.

Executive Summary

Often considered to be one of the most vulnerable countries to the climate change, Bangladesh faces threat to its natural resources, livelihood security and general wellbeing of the people owing to its topography and geographic position. Moreover, vulnerability increases because of the challenges the country faces in adapting to the changing climate and in mitigating the responsible climatic factors. Some regions of the country, such as Char, are more vulnerable to the changing climate than the other parts. Therefore, giving due attention to such areas becomes a mandate for the development partners working along with the governments.

To address the livelihood vulnerabilities of the extreme poor population of the Char areas in Kurigram district, Concern Worldwide implemented the project named “Empowering Women and Youth through Graduation and Financial Inclusion (EWYGFI)” in two Upazilas (sub-district)—Kurigram Sadar and Ulipur. The field operation was implemented by Rangpur Dinajpur Rural Service (RDRS), while Trickle Up supported the project to channelize the funding from MetLife Foundation with their technical assistance in implementation. While implementing, the project perceived the necessity to understand the climate change-induced impacts on program participants in the project implementation area. Consequently, this study titled “Understanding the impact of climate change on poor and vulnerable Char people” was commissioned to DM WATCH. The purpose of the study was to identify specific climate-induced impacts affecting poor and vulnerable people living in the Char regions of Bangladesh and make recommendation on how future programming could better help people mitigate or manage climate-induced risk.

Although the study analyzed the situation through a broader lens, the field study was conducted in two selected Char regions of Kurigram District—Bazra Union (under Ulipur Upazila) and Jatrapur Union (under Kurigram Sadar Upazila). These sites were selected based on their degrees of access to resources and exposure to climate-induced hazards. A combination of quantitative (from secondary sources) and qualitative methodological approaches (primary sources) (section-2) was employed to fulfil the study objectives. The study was guided by the Sustainable Livelihood Framework, by DFID, to identify how the vulnerability context combined with the present institutions and processes makes the Char communities vulnerable in terms of assets, capitals and resources. To assess vulnerability of people and their adaptation and coping strategies against each hazard, a bottom-up approach was employed to bring out relevant information from the target communities. Secondary quantitative data were provided by the Concern Worldwide. The data came from the baseline and the end-line household surveys conducted under the EWYGFI project (2018–2020). Different Participatory Rural Appraisal (PRA) tools such as community mapping, calendar exercise, vulnerability matrix, social network mapping, and community discussion sessions were used to collect the primary qualitative data. In addition, focused group discussions (FGDs) were conducted for extreme poor women, very poor women, and men in each of the communities. Key Informant Interviews (KIIs) were conducted with relevant stakeholders such as local government representatives, and experts in the field of climate change adaptation and Char livelihood.

The study findings are described in section 3, 4, 5 and 6. Section 3 specifically outlines the major findings of the study in terms of vulnerability of different livelihood components and their socio-economic impacts, whereas section 4 portrays the local knowledge, resources and adaptation strategies of the community. The main hazards identified by the participants were flood, drought, river erosion, extreme temperatures and storm (Nor’wester or Seasonal *Kaalboishakhi*, hailstorm and thunderstorm collectively). Excessive rainfall was also categorized as a hazard, which worsens other events such as flood and river erosion.

In section 4, the account of the assessment of Coping and Adaptation Strategies is provided. The participants helped in listing the different hazards that they faced in the recent past, and the specific impacts of the hazards on assets, resources and activities. We also mapped how they adapted to the hazards and coped with the disaster events. Each of these adaptation and coping strategies were assessed by the study team against the efficiency and sustainability of the measures. The team also identified the frequency and level of perceived impact of each hazard on the community. Finally, a vulnerability matrix was developed. The study found that the community in Kurigram is mostly affected by the flood every year, thus, being highly vulnerable to this hazard because of the lack of effective and sustainable adaptation measures against it. Because of the same reasons, river erosion poses the second highest risk. However, the local communities have devised efficient coping strategies against the other hazards listed in the hazard list.

Secondary literature reveals that people of the Char regions are generally poor, have limited access to services and low asset base compared to the mainland regions in the country. National attention and business investments are also considered low in the Char areas, which limits the income-generating activities. The Char people depend mostly on natural resources for their livelihood, as majority of them subsists on agricultural farming. Although the number of agricultural farmers increased over the last three years, it was found that people took up diversified livelihood approaches and temporarily shifted to off-farm practices. However, the alternative livelihood options were taken up in addition to existing agricultural practices and not necessarily as an adaptation measure during the climate-induced hazard events.

The Char communities adopted plenty of coping strategies based on its local knowledge and external support from the Government and Non-Government organizations. However, in case of flood and river erosion, these coping strategies were assessed to be ineffective and unsustainable. People with more assets and access to institutions through social networks and support programs were considered less vulnerable. Women were also found to be more adaptive because they tend to be accepting and highly involved in livelihood improvement programs. Seasonal adaptation practices were identified in the study, as most of the agricultural crops were found to be harvested before the flood season. Moreover, the impacts of flood on soil and water resources remain a threat to the livelihood and wellbeing of the Char inhabitants.

The study also analyzed government policies, strategies, plans and different state-led and non-state-led programs regarding livelihood improvement. Also, linkage between financial inclusion and climatic risk reduction was investigated. The issues are described in the section 5 and 6. The study found no national policy addressing specifically the climate-adaptive livelihood improvement programmes in Char region. Rather, several policy documents identified separately the major components crucial to be addressed in future planning. Most of the livelihood improvement programmes followed fragmented approaches, which were either non-inclusive or lacking in appropriate coverage. In turn, recipients' dependency on donors sustains. No direct linkages between financial inclusion and climatic risk reduction could be confirmed in the study. For instance, although the financial inclusion or saving habit among community could help them attain regular necessities, but during or after any disaster, coping mechanism remains challenging.

The assessment of the EWYGF programme is described in the section 7. The study identified that although the involvement of the community in multiple livelihood sectors (mostly agriculture, livestock, construction, and retail) increased because of the programme interventions, high dependency on on-farm livelihood still makes people vulnerable during and after any disaster. The programme excluded any infrastructural interventions, rather focused mostly in the capacity-building and financial inclusion.

Although the nature of the interventions of the programme strengthened the human capital of the community, it does not help much during floods. Financial literacy and the creation of saving habit of women could not insure sufficiently against the hazards, as the participants of the programme taking outstanding loans from microfinance institutions remained high. Notably, the purpose of taking the loan with high interest rate was to cope with the aftershock of disasters such as flood. It was also observed that although social capital is strong at the community level, lack of appropriate policies, institutions and processes hinders the community people from using these resources efficiently.

The study resulted in recommendations in terms of planning and policy interventions, livelihood improvement, financial inclusion and long-term approach for climatic risk management and mitigations (section 9). The study recommends the formulation of a collaborative platform composed of all actors for devising a true coherent action plan, which would help reaching a wider spectrum of beneficiaries. Activating the local government institutions and strengthening their capacity would pave the way to a better institutional coordination at the grassroot level. Moreover, coordination among government representative departments and relevant development partners is imperative to the successful implementation of livelihood programme in the areas prone to climatic hazards and disasters. The study also suggests context-specific long-term planning and environment and ecology-sensitive interventions for sustainable livelihood, financial inclusion and climatic risk reduction measures. The study team encourages more and more evidence-based context-specific research works from the academics.

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1 Introduction

1.1 Background

Bangladesh, a constituent of the largest Gangetic Delta in the world, consists of riverine and deltaic deposits. Three enormously dynamic rivers enter into the country namely; the Ganges, Brahmaputra and Meghna. River Chars (Island in Bangla) or River Shoals are islands that are formed in major river systems particularly in the flat deltaic plains. Chars are temporary tracts of part-land, part-water, low-lying sandy masses, formed through silt deposition within the riverbeds. Apart from being unstable due to the dynamics of the river systems, the Char regions of Bangladesh are highly prone to natural hazards such as flooding, and riverbank erosion.

According to Intergovernmental Panel on Climate Change- IPCC (2012), there has been a significant rise in the severity and frequency of disasters, and its link to climate change is gradually being identified. Such a rise in climate-induced disasters pose a great risk for the inhabitants of the Char regions.

In Bangladesh, Chars are home to 6.5 million people (EGIS, 2000), who are generally poor, have limited access to services, and are more vulnerable to natural hazards compared to its mainland rural population. Char households usually have low belongings or asset base e.g., own land, house, livestock etc. compared to mainland regions. The situation only worsens for those in remote Char areas, where many families do not own any productive assets which supports them with continuous cash flow. Concern Char Contextual Analysis (2016) states that the adverse effects of climate change mostly impact poor and low-income groups in the Char areas.

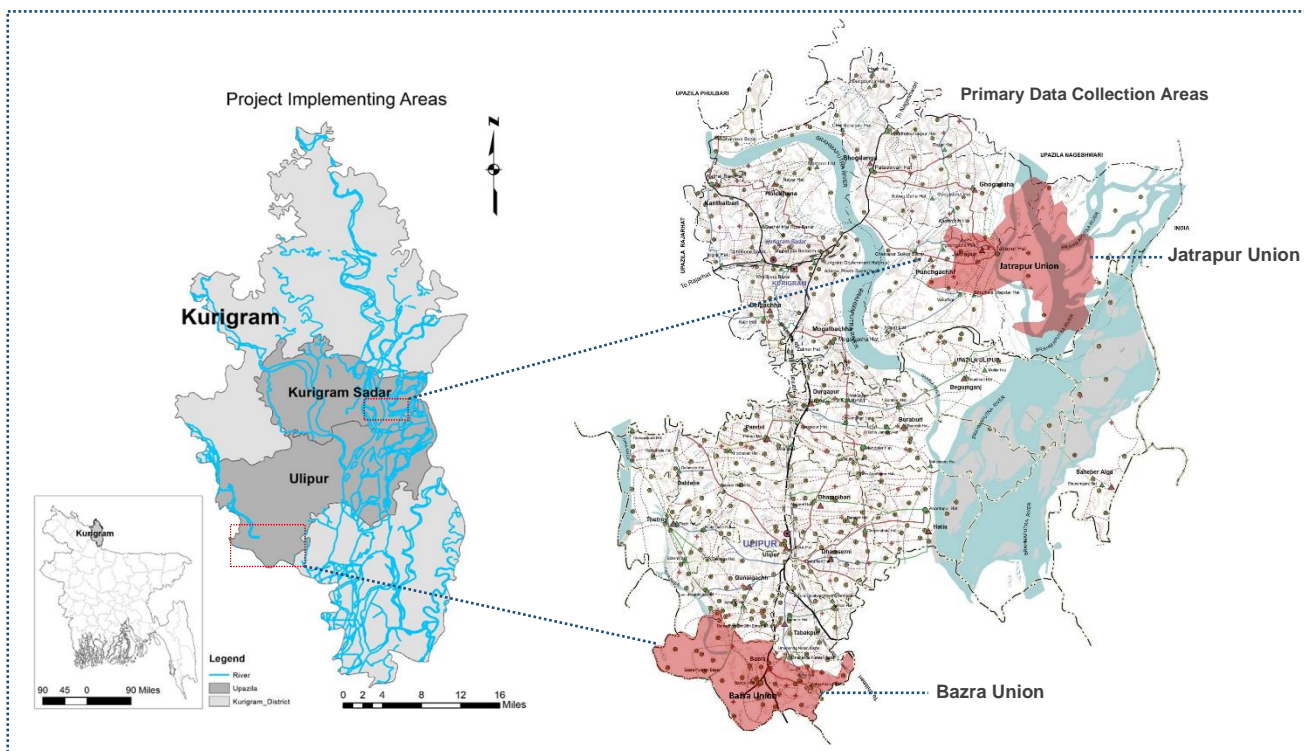


Figure 1: Map of Study Area

This study focuses on Kurigram district, under the Rangpur division, which is located in the north-western part of Bangladesh. Numerous rivers flow through this district - the major rivers being Brahmaputra, Dharla, and Teesta and the smaller ones are Dudhkumar, Phulkumar, Gangadhar, Jinjiram and many more. The Char district of Kurigram has one of the highest poverty rates in Bangladesh, with 44% of the population living in extreme poverty compared to a national mean value of 17.6%. (World Bank, 2016). Most of these Char dwellers are wage workers in tight economic conditions with almost no savings. These people become increasingly vulnerable as natural calamities constantly damage their homes, assets, and income sources. To reduce the social, economic, and environmental vulnerability of the Char people, adoption of diversified livelihood opportunities with off-farm activities and climate-resilient on-farm activities require active focus.

To address the livelihood vulnerabilities of the extreme poor population of the Char areas in Kurigram district, Concern Worldwide implemented the project named “Empowering Women and Youth through Graduation and Financial Inclusion (EWYGFI)” in two Upazilas (sub-district)—Kurigram Sadar and Ulipur. The field operation was implemented by Rangpur Dinajpur Rural Service (RDRS), while Trickle Up supported the project to channelize the funding from MetLife Foundation with their technical assistance in implementation.

While implementing, the project perceived the necessity to understand the climate change-induced impacts on program participants in the project implementation area. Therefore, the current study titled “Understanding the impact of climate change on poor and vulnerable Char people” was commissioned to Disaster Management Watch (DM WATCH). The study team collected primary data from two Unions—*Jatrapur* and *Bazra*—each under two project-implementing Upazilas, Kurigram Sadar and Ulipur, respectively (Figure 1).

1.2 Empowering Women and Youth through Graduation and Financial Inclusion (EWYGFI) Project

A contextual analysis of the Char region conducted by Concern Worldwide in 2016 found existing inequality between men and women in the households. For example, female-headed households are more likely to be poorer than those of male-headed. The mobility of women is very limited in the Chars because of poor transportation networks and gender norms. The women are generally engaged in the household chores, thereby, less involved in the income-generating activities. Hence, the project addressed the issues of financial exclusion, low assets (and productive assets), inequality, and the risks and vulnerabilities experienced by poor and extreme poor women and youth living in the Char areas. The project aimed to strengthen the social and economic resilience of 600 ultra-poor women through an adapted graduation approach and increase access of 12,400 women to financial inclusion services. It was done through livelihood diversification, engagement and enhancement in on and off farm production, continued market access, increase incomes, technical and vocational education and training, employment generation, financial inclusion, linkages with available government and private services.

In addition to the factors such as social and financial exclusion, vulnerabilities to natural disasters worsens the situation for women. Therefore, development initiatives such as financial inclusion and income-generation activities often result in poor lasting impacts. To address the issue, the project also provided coaching and handholding, disaster risk reduction and climate change adaptation support activities/service that increase household’s resilience to recurrent shocks. Although the project

considered the issue of hazard and disasters in its intervention activities, the breadth of impacts of climate-induced risks in the success or failure of livelihood programming are not yet well understood. The understanding of the vulnerabilities because of climate-induced risk is thus necessary. This necessity prompted Concern Worldwide undertake the current study.

The study explored the impacts of climate change on poor and vulnerable Char people. It focused specifically on the climate-induced impacts affecting the programme participants residing in the Char regions under the district of Kurigram of Bangladesh. The study aimed at recommending on how future livelihood programmes could better help people mitigate or manage climate-induced risks.

1.3 Study objectives

The purpose of the study was to reappraise the implications of climate change on livelihoods of the most vulnerable people in Kurigram Sadar and Ulipur Upazila of Kurigram District in Bangladesh.

The specific objectives of the study were to:

- I. Understand the specific hazards participants are exposed to
- II. Understand their levels of exposure and the conditions that make people more vulnerable to these hazards
- III. Understand specific socio-economic impacts of climate-induced risks (considering different livelihood pathways – on-farm and off-farm)
- IV. Understand what knowledge and resources participant have to mitigate the identified risks
- V. Assess the effectiveness of programme actions, designed to reduce hazards, exposure or vulnerability, and
- VI. Make recommendations on how future livelihood programming could better help people mitigate or manage climate-induced risks.

2 Methodology

This section provides an overview of how the study was conducted. The study was designed in analyzing two broad thematic areas:

- I. profiling climate-induced hazards, and assessing vulnerability and socio-economic impacts of these hazards on the livelihood of Char people
- II. reviewing and assessing livelihood programmes and policies to recommend future programme design for incorporating climate-induced risks mitigation and management measures

2.1 Process and conceptual framework

To address the objectives, the study followed the subsequent process (Figure 2).

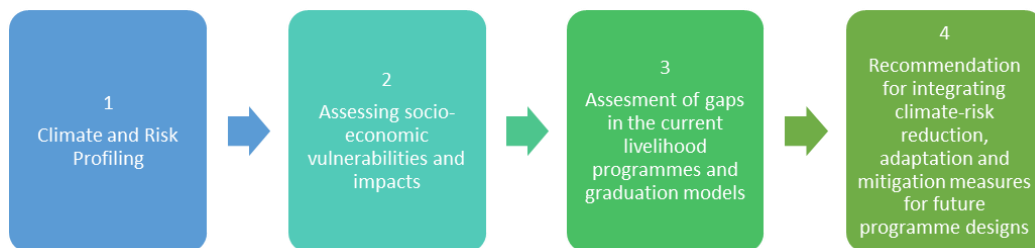


Figure 2: Simplified study process used to achieve the objectives

There are several relevant frameworks to assess the vulnerability of the community to the impacts of climate change. CARE's Climate Vulnerability and Capacity Analysis (CVCA) focuses on community-based adaptation, disaster risk reduction, and food and nutrition security, among other issues to increase climate resilience. The Participatory Vulnerability Analysis (PVA) framework by Action Aid, is a systematic process that involves communities and other stakeholders in an in-depth examination of their vulnerability, and identifies how to empower the community to take appropriate actions. This framework tracks systems and factors that determine the vulnerability and analyses capacities and their impacts on reducing vulnerability. The overall aim of PVA is to link disaster preparedness and response to long-term development. Although these frameworks assess the situation from multiple perspectives, this study focuses specifically on the livelihood aspects of Char people.

Hence, this study used the Sustainable Livelihood Framework (Figure 3) from the Foreign Commonwealth and Development Office's (former DFID) to identify the climate-induced hazard and assessing the socio-economic impacts and vulnerabilities of climate change.

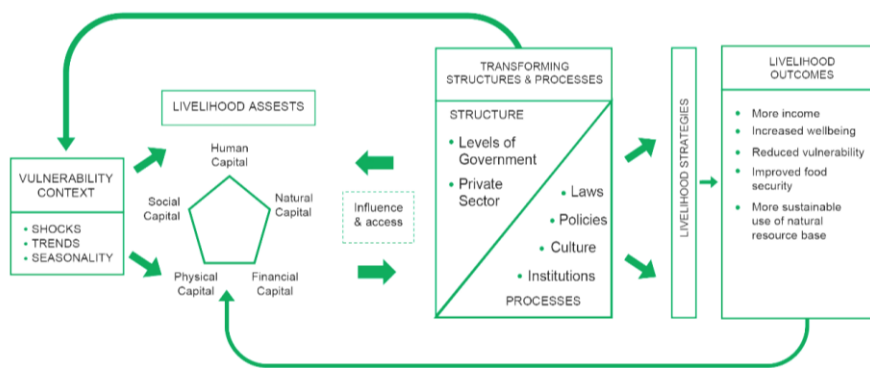


Figure 3 : The Sustainable Livelihood Framework - SLF (DFID, 2000)

According to Kollmair et al., 2002, the framework depicts stakeholders as operating in a context of vulnerability, within which they have access to certain livelihood assets. Assets gain value through policies, institutions and processes. This context then shapes the livelihood strategies that enables people in pursuit of beneficial livelihood outcomes.

The DFID framework can be used to conceptualize the vulnerability context (variation and trend of climatic factors and related economic shocks). The study was guided by the Sustainable Livelihood Framework to identify how the vulnerability context combined with the present institutions and processes makes the Char communities vulnerable in terms of assets, capitals and resources. The assessment of the vulnerability of the Char community was based on the different livelihood assets as depicted in the framework-Natural, Physical, Financial, Human and Social capitals (Figure 3). This framework looks into at the processes, institutions and policies that influences the livelihood strategies as well as the vulnerability context. The expected livelihood outcomes based on the community’s needs were assessed, and the gap in current livelihood programmes were identified to make recommendations on how to integrate climate adaptation, mitigation and risk reduction measures for future implementation.

2.2 Data collection methods

For this study the qualitative data was collected from the field and the quantitative data was provided by Concern Worldwide, along with secondary literature sources. Household survey data from baseline (2018) 2019, and end line (2020) evaluation of the EWYGF programme by Concern Worldwide were used.

2.2.1 Qualitative Methods

An in-depth review was conducted on available secondary literature and project-related documents to gain an understanding of the topic. At the field level the study team conducted key informant interview (KII), focus group discussion (FGD) and participatory rural appraisal (PRA) sessions. A bottom-up approach was employed to bring out relevant information from the target communities. Different PRA tools were used (Table 1) along with active community discussion sessions in the form of FGDs. Separate group sessions were conducted for extreme poor women, very poor women, and men (combined) in each of the communities. A total of 6 PRA and FGD sessions were conducted in the two char regions of Ulipur and Kurigram Sadar Upazila.

Table 1: PRA Tools applied for qualitative data collection

Tools	Purpose	Outcome
1. Calendar Exercise		
Seasonal hazard calendar	To create a seasonal hazard profile and its consequences	Using the Bengali months, chart multiple components such as <ul style="list-style-type: none"> List of Hazard for the last 1.5 years Occurrence, Intensity (low, medium, high) at different months of the year Crop Production Cycle List of livelihood activities Period of activity, Risk period, Productive period, Problems faced due to these hazards
Agriculture/Crop Calendar	To understand the on-farm practices and alternatives	
Livelihood Calendar	To get an overview of the livelihood pathways and how they vary with seasons	

Tools	Purpose	Outcome
2. Mapping Exercise		
Community mapping	To understand the spatial distribution of community assets, and resources	A map showing <ul style="list-style-type: none"> • Households • Institutions • Natural features • Infrastructures • Livelihood activities • Livelihood resources • Risk-prone areas • Dynamic areas
Livelihood Resource Mapping	To identify and categorize local livelihood pathways	
Climatic hazard mapping	To understand the relationship between spatial location and exposure	
3. Vulnerability Factor		
Coping and Adaptation Strategies Assessment	To identify and assess the effectiveness of the current coping mechanisms practiced by communities to secure and improve their livelihoods in the context of climate change.	<ul style="list-style-type: none"> • A comprehensive matrix, ranking the vulnerability of assets and activities based on • Level of Impact • Frequency of occurrence • Effectiveness and sustainability of their coping and adaptation strategies
Vulnerability Matrix	To gain an overview and quantify climatic hazard risk and vulnerability of local communities	
4. Social Network Mapping		
	To investigate and participants' access to different social institutions in terms of ties such as relationships, interactions and services that connect them.	<ul style="list-style-type: none"> • A social web showing which participants are linked to one another as well as networked with other institutions

KIIs were conducted with relevant stakeholders, government representatives, and experts at local and national level. 22 KIIs were conducted including 20 local level (e.g., government officials, project implementing partners, community leaders) and 2 national level climate change adaptation expert interviews (detailed list in Annex-3). The detailed methodology (Annex-1,2) of the qualitative tools is attached at the end of this report.

For the Coping and Adaptation Strategies assessment (see Table 5), the participants of the PRA sessions helped the study team to list the Hazards that they have faced and their specific impacts on assets, resources and activities. In the next step, the participants explained how they adapted to the changes or coped with the events. Each of these adaptation and coping strategies were assessed by the study team on a scale of 1 to 4, depending on the efficiency and sustainability of the measures. The same scale was used to identify the frequency and level of impact of each hazard on the community, based on the perception of the participants. A vulnerability matrix (Table 6) was developed, where a vulnerability score was calculated to show which hazards pose a bigger threat to the study area. The summary of the scoring system is explained in the Table 2 below.

Table 2: Scoring scale for the Coping and Adaptation Strategies Assessment and the Vulnerability Matrix

Tools	Coping and Adaptation Strategies Assessment	Vulnerability Matrix	
Score	Assigned by the study team	Assigned by the PRA Participants	
	Adaptation Score	Level of Impact	Frequency of hazard
1	Low coping and adaptation effectiveness and sustainability	Low or no effect	every 10 years
2	Moderate coping and adaptation effectiveness and sustainability	Moderate effect	every 5 years
3	High coping and adaptation effectiveness and sustainability	Severe effect	every 2 years
4	Very High coping and adaptation effectiveness and sustainability	Very severe effect/total destruction	every year

A simplified risk score is a multiple of Level of Impact and Frequency (Ni et al., 2010). The formula to calculate vulnerability score was simplified from Pandey and Jha (2012) which showed the vulnerability index to be in the relationship of

$$(\text{Level of Impact-Adaptive Capacity})/\text{Frequency}$$

2.2.2 Quantitative Methods

A descriptive analysis of available quantitative data acquired through project related documents was conducted. A set of data was provided to the study team by Concern Worldwide Bangladesh, which includes the data from household surveys conducted under the EWYGF. Baseline survey, 2018 (number of respondents =973), household survey, 2019 (number of respondents =969) and end line evaluation 2020 (number of respondents =980). The report was backed by relevant Government datasets such as online database for meteorological information, Governments' district and upazila portal, census data 2011, household income and expenditure survey 2016.

2.3 Training of study team

An online 3-hour training session before field movement was held on 3rd December 2020. An in-house research team of 6 (including the core team, research associates and assistants) was trained on how to conduct FGD and PRAs efficiently by the project lead and the DRR expert. Daily debriefs were conducted after every PRA and FGD sessions at field to clarify any missing or important information.

2.4 Field work

For primary data collection, the study team visited two Unions in the selected two Upazilas. The unions were selected based upon their geographic location, accessibility to resources, and level exposure to hazards

- Char Jatrapur, Jatrapur Union, Kurigram Sadar Upazila (an Island Char, easily accessed from the Sadar area, and highly exposed to the River dynamics)
- Char Khudar More, and Sadua Damar Haat, Bazra Union, Ulipur Upazila (a mainland Char, remotely located)

The study not only focused on the EWGFI programme but included a broader perspective of the interventions required to include sustainable management of climate induced-risks for future development of livelihood programme.

A total of six researchers from DM WATCH conducted a 3-day extensive field visit (from 07–09 December, 2020), with the extensive support from RDRS -the project implementing partner, and Concern Worldwide, Bangladesh. The team altogether conducted 6 PRA Sessions including 6 FGDs, and 20 KIIs (2 national level expert interview were conducted in Dhaka). 3 PRA and FGD sessions were conducted in Char Jatrapur, under Jatrapur union, Kurigram Sadar Upazila and the other 3 were conducted in Char *khudar more*, and *Sadua Damar haat* under Bazra union, Ulipur Upazila.

2.5 Data Management and Analysis

For analytical convenience, KII and FGDs were conducted following semi-structured questionnaires. Detailed transcriptions were done based on the field notes and recorded data. The responses from interviews were analyzed thematically following the Sustainable Livelihoods Framework (figure 3), which was used as a guide in order to assess the vulnerability and the socio-economic impacts of climate change on the Char people and their livelihood. The five capitals (Natural, Physical, Financial, Human and Social) mentioned in the framework were used to analyze different aspects of the community and their livelihood. The findings from the PRA tools such as Social Mapping, Seasonal Hazard Calendar, Agriculture Calendar, and the Vulnerability Matrix were analyzed to explain different dimensions of vulnerability and the socio-economic impacts of the climate-induced hazards on these capitals.

The quantitative datasets provided by Concern Worldwide Bangladesh was schemed through to identify the relevant data required for the analysis of the study and were compiled using Microsoft Excel 2016. The data ID (Assigned by Concern Worldwide Bangladesh) were compiled for all three years, to analyze the trend and identify significant changes over the years. Based on the nature of data, descriptive statistics were used to illustrate the results and variation using Microsoft Excel. Apart from the project data, demographic and meteorological data was taken from Government sources (Online portals, databases and surveys) for Kurigram Upazila. The quantitative analysis provided a basis to report the study findings, triangulated with findings from qualitative data and secondary review of documents.

Finally, based on the qualitative and quantitative analysis, the study provided recommendations based on the primary and secondary data analysis including project policy, climate-adaptive livelihood strategies, and community needs and priorities.

2.6 Limitations

The quantitative data provided by Concern Worldwide were collected for the EWYGFII programme evaluation purpose. As the requirements and objectives of their data collection were different than those of ours, certain data gaps were found while analyzing the data. For the primary data collection, only qualitative method was applied.

Because of COVID-19, the team could not spend a longer period of time at the field. During PRA and FGD sessions, certain safety protocols were maintained. Some intended KII respondents (e.g., government officials) could not be reached because of their unavailability.

3 Study Findings

3.1 Demographic and Socio-Economic Profile

Kurigram district has a total population of 2,069,000, where the number of male population is 10,10,000 (48.82%) and the female population of 10,59,000 (51.18%) (census, 2011). According to the Population and Housing Census of 2011, Kurigram has a total of 505,627 households, of which 89.1% are headed by the male, and the others (10.9%) headed by the female.

The Bangladesh National Government Portal (<http://www.kurigram.gov.bd/>) states currently the literacy rate of Kurigram district is 56%, which is well below the national literacy rate of 73%. The literacy rate in Kurigram district is higher for males compared to their female counterparts.

The Char district of Kurigram has one of the highest poverty rates in Bangladesh, with 44% of the population living in extreme poverty compared to a national mean value of 17.6%. (World Bank, 2016).

According to the National Encyclopedia of Bangladesh, 2016, agriculture (crop production, fishing, livestock and poultry rearing) is the main income source of livelihood in Kurigram which is around (70.4%), followed by commerce (9.45%) and service sectors (4.98%).

3.2 Geographic and Climatic Profile

3.2.1 Current climate

Kurigram has a monsoon-type climate with three seasons. First, hot, humid summer (March-October) with average temperatures of 24.25–31.87°C and relatively little rainfall and often drought. Then the rainy season (June -September) comes with heavy annual rainfall (334.825mm) frequently resulting in flooding in up to two-thirds of the districts. Finally, the winter season (November- February) with average temperatures of 14.5–25.5°C.

Table 3: Seasonal variances of Kurigram in terms of meteorological data

Types of season	Month	Avg. Maximum Temperature (°C)	Avg. Minimum Temperature (°C)	Annual Rainfall (mm)
Summer	Mar-Oct	31.9	24.3	220.5
Rainy	June -Sep	32.3	26.5	334.8
Winter	Nov- Feb	25.5	14.5	8.9

(Source: Bangladesh Meteorological Department)

3.2.2 Climate variability

Long-term data shows an increasing trend (although not statistically) in the mean temperature and in total rainfall for Kurigram district (See Figure 4) since the year 1991 till 2016. The north-western region in Bangladesh typically has the lowest amount of monsoon rainfall compared to other hydrological regions of the country. However, both the monsoon rainfall and annual total rainfall shows an increasing trend for

Kurigram and most of the north-western districts. The amount of rainfall, paired with soil quality and permeability, hinders the groundwater recharge process as well (Mojid et al., 2019).

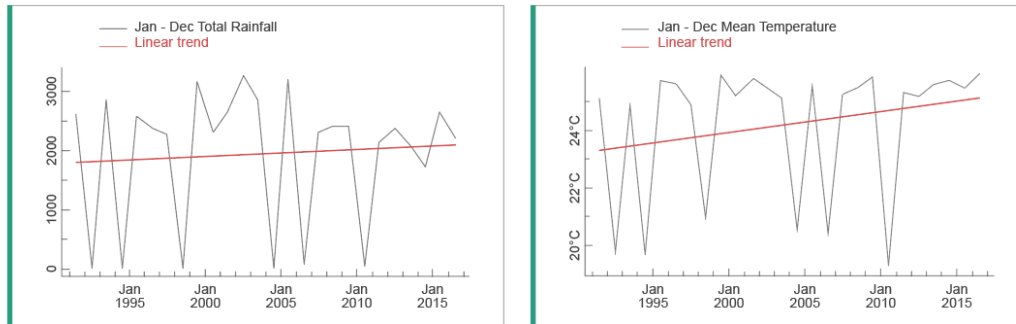


Figure 4: Trend of mean annual temperature and total annual rainfall in Kurigram (year 1991–2016)
(Source: Bangladesh Meteorological Department)

A report by CARE France and UNU-EHS (2012) stated that 96% of the survey respondents in Kurigram reported an increase in dry spells and drought conditions. The same study reported that 90% of the respondents can only identify (a recall period of 30 years) 4 seasons right now where there used to be six. In Rangpur division, as a whole, the rise in pre-monsoon temperature has intensified the incidence of heat waves, drought conditions and thunderstorms.

From the FGD sessions (conducted in December, 2020) it was found that the respondents experience temporal offset of seasons as well as excessive rain, and extreme temperature.

3.3 Hazard Profile

The riverine islands in Bangladesh are regularly subjected to floods, erosion, siltation and occasional drought. Consequently, people living in these Char areas suffer from multiple and very ‘particular forms of vulnerability rooted in the threat of seasonal flooding and erosion’ (Brocklesby & Hobley, 2003: 897). A District-wise multi-hazard zoning of Bangladesh conducted by Barua et al. (2016) stated that Kurigram is mostly exposed to floods, droughts and riverbank erosion.

According to the National Disaster Response Coordination Center (NDRCC) situation report (2016), Kurigram has been identified as one of the most flood-affected districts (beside Nilphamari, Jamalpur and Lalmonirhat) with major damage to housing, agricultural lands, harvest and thereby disruptions to regular livelihood patterns.

Kurigram district is prone to river erosion. All the three major rivers (Brahmaputra, Dharla and Teesta) flowing through the district had significant alteration in the flow patterns, causing sedimentation and accretion of landmass. The land loss causes displacement, posing livelihood insecurity, whereas the accretion of new land creates conflict in ownership.

Kurigram (in combination with Lalmonirhat, Nawabgong, Pabna, Rajshahi and Rangpur) has slight agricultural drought risk covering highest 35.7% of the total area (Murad and Saiful, 2011). There are cases where the district has been hit hard by drought, especially after the flood water receded (Bebu, 2019). With a falling trend in the ground water table and rainfall variation, Kurigram is prone to agricultural drought, as the main sources of irrigation water continues to be depleted (Mojid et al., 2019).

During the end line survey (2020) conducted by Concern Worldwide, the EWYGF project participants were asked about the natural disasters they experienced in the past 12 months. It was found that 71% of the respondents identified flood as the most common natural disaster (Figure 5). Although from the literature review it was found that there is a significant risk of drought and river erosion, the survey respondents also identified storm (strong winds, Nor 'wester, severe thunder storm) as the second most (16%) usual phenomena, followed by drought (8%) and river erosion (3%). Whereas, from the FGD and PRA sessions (conducted in 2020), the respondents mostly identified flood as the recurrent phenomena followed by river erosion and drought. The cumulative hazard, crop and livelihood calendar (Table 4) portrays the detailed hazard profile identified by the community during the PRA session.

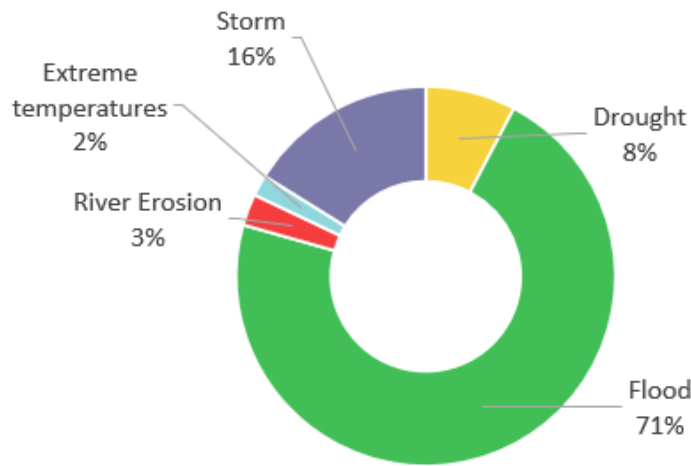


Figure 5: Types of natural disasters perceived by the EWYGF project participants in the past 12 months (Data Source: Concern Worldwide Bangladesh, 2020)

3.4 Vulnerabilities and Socio-Economic Impacts of Climate Change

IPCC (2014) defines vulnerability as the *propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.*

The components of vulnerability vary from one community to another. Food intake, physical and mental health, finances, self-reliability, adaptability, resilience, mobility – all play a role in understanding how climatic hazards can impact a community and what actions are necessary to reduce the socio-economic impacts on the people. The hazard itself must be identified correctly to offer social protection and preparedness that can be strengthened with institutionalized support. It is predicted that climatic events will continue to increase. To develop effective solutions to deal with the changes, it is crucial to understand how the scenarios will evolve in the future. Shocks, stresses and uncertainties can severely impair livelihoods and limit development progress (CCRP, 2019). For Bangladesh, to develop efficient implementation practices for mitigating and adapting to climate change, it is critical to assess how climate risks are affecting the community and how they can be addressed through a combination of local rooted knowledge, while being informed through evidence based (scientific) knowledge.

The Vulnerability Context frames the external environment and surroundings within which the community exist and is influenced by its impacts on their livelihood asset (Devereux, 2001). Vulnerability context comprises of trends, shocks and seasonality, which is outside the community’s control.

The livelihood assets as depicted in the SLF framework (Figure 3) are fundamental to achieve the livelihood objectives of the community. Within the framework a close relationship exists between the capitals and the vulnerability context. Livelihood activities are closely connected with all the assets (Natural, Physical, Financial, Human and Social Capital) and can be easily influenced by climate-induced hazards (Thakur and Bajagain, 2019). The five capitals explained below forms a collective livelihood system as no single capital is adequate to achieve the desired outcomes on its own.

The five capitals, as defined by Kollmair and Gamper (2002), are stated below:

Natural Capital is the natural resource stocks from which resource flows and ecosystem services for livelihoods are derived.

Physical Capital comprises the basic infrastructure and producer goods needed to support the livelihoods.

Financial Capital denotes the availability of stocks and regular flow of money that enables people to adopt different livelihood strategies.

Human Capital represents the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives.

Social Capital are the social resources upon which people seek their livelihood outcomes through people’s trust and ability to cooperate as well as their systems of rules, norms and sanctions.

In the context of Kurigram it was observed that the climate-induced hazards and natural disasters have impacted all the five capitals of the community. As depicted in figure 6, the EWYGF programme participants in Kurigram identified the after-effects of the disasters in the past 12 months (during the end line survey, 2020). 98.3% of the respondents said that they face problems with the water quality. 91.2% faced food insecurity and 89.6% mentioned prevalence of livestock diseases. Financial implications due to natural disaster remained common for 87.6% of the respondents, although only 38.5% experienced loss of assets. Only 0.9% of the respondents raised the issue of conflict due to natural disasters.

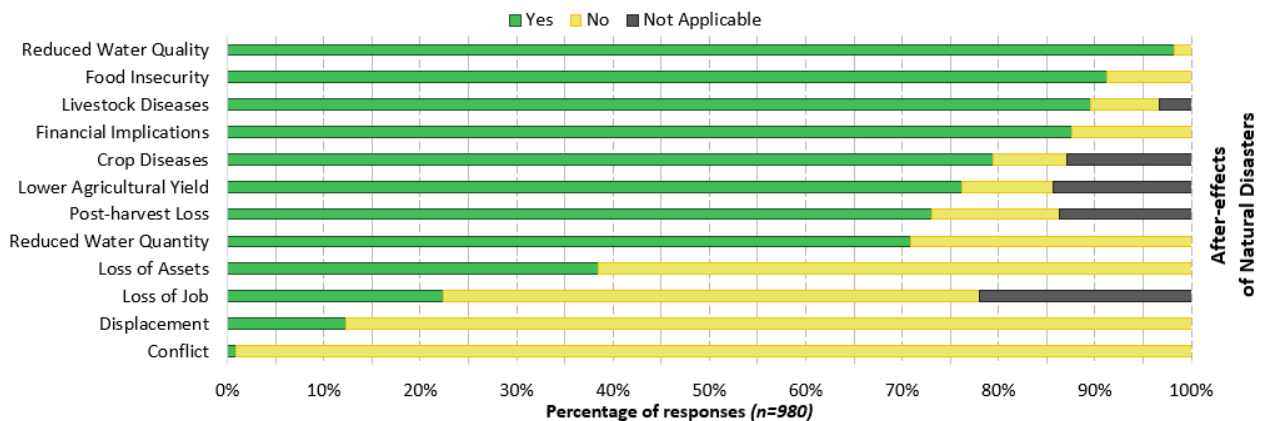


Figure 6: After-effects of natural disaster faced by the EWYGF project participants in Kurigram from the year 2019-2020
(Data Source: Concern Worldwide Bangladesh)

The following sub sections of the report states the vulnerabilities of the five capitals (as livelihood assets) and the associated socio-economic impacts of climate-induced hazards on the char communities. In the following sub sections, the interdependent relationship between vulnerability and the negative impacts are described.

3.4.1 Vulnerabilities of Natural Capital and Socio-Economic Impacts

Natural capital refers to the stocks of natural resources from which further resources and services can be developed that supports the livelihoods (Elizondo, 2017). From the mapping exercise with the community (PRA, 2020) the identified natural capitals include rivers, pond, farmland, woodland, and other natural productive assets. Natural capital is of special importance for communities whose livelihood are dependent on natural resources as many of the hazards are natural phenomena that adversely impact the capital.

Riverine communities are more exposed to frequent floods, which have a negative impact on the natural capitals which in turn impacts their livelihood activities. Livestock and poultry are affected due to lack of feed availability (during and after flood from June-September). Crop production is hampered due to inundation of the farmlands. Though floods are appearing to be disastrous, they are also vital to the livelihood of Char communities since without the annual inundation and siltation, the fertility of the farmlands is further reduced resulting in lower crop yield (Cannon, 2002). Access to safe drinking water and the availability of reliable water sources are also adversely impacted by floods in terms of both water quality and quantity. Collectively, all these impacts create livelihood insecurity.

Most poor riverine communities face land degradation due to natural disasters such as river bank erosion, which can be intensified by flooding (Azam et al., 2019). Climatic hazards such as riverbank erosion that is highly incident in Char regions also leave short-term and long-term changes in the environment of the area affecting the flora and fauna. Plantation area is reduced due to land loss, while newly sedimented areas take up a long time to develop sufficient soil quality for vegetation. The fisheries sector is affected as the river depth varies due to the erosion dynamic, altering the flow pattern of the fish spawning area (Bhuiyan et al., 2017). Although land loss due to river erosion occurs gradually, the impacts are long-term and irreversible as it causes loss of agricultural land resulting in food insecurity and poverty (Bhuiyan et al., 2017). Additionally, increased events of dry period, drought, thunderstorm, cold spell, and foggy weather affects crop production contributing to livelihood insecurity as well.

From the field observations, it was found that out of all the Chars in Kurigram, the island Chars are more vulnerable compared to the mainland ones. The respondents of FGD identified that agricultural fields, paddy seedbeds, Jute, vegetable garden, fish stocks, poultry (duck, chicken) and livestock are most at risk due to flooding. According to one of the key informants, women lose their poultry and livestock assets during flood.

According to primary data and also as depicted in Figure 7, the Char dwellers in Kurigram rely on agriculture-based livelihood. This makes them vulnerable since agricultural practices are seasonal and sensitive to climatic changes. The poor households have limited resources to invest in climate-adaptive technology in addition to the lack of productive farmlands. A seasonal food insecurity during lean period still remains a chronic problem in Kurigram. According to one of the key informants:

“Those who have no land at all or very less land for farming is the most vulnerable. Most char people here either live on khas land or on the bank of the rivers that make them more exposed to the hazards.

On-farm activities are shrinking due to climate induced hazards like flood and riverbank erosion. agricultural farmlands, farmers and agriculture related day laborers are at greater risk due to increased disasters.” (KII, 2020)

The study team conducted a calendar exercise during the PRA session with the EWYGF project participants in Kurigram. The following compiled calendar (Table 4) portrays the outcome in the form of a hazard, crop/agriculture and livelihood calendar, from the six PRA sessions conducted with the communities.

From the hazard calendar exercise, it was identified that the Monsoon and Autumn seasons from mid-June to mid-October, are highly problematic in terms of hazard events like excessive rainfall, flood, hail storm and thunder storms. The region is flooded for about 4 months (June-October), with the intensity decreasing with time. Due to the flooding, the soil is destabilized, inducing river erosion before, during and after the flood (May- November). During this period human diseases increase due to water borne illnesses and lack of hygiene. Storms (Nor’wester, Hail and thunder storm) are prevalent in the months from April to mid-August. While in Summer (April-June) there is a dry period with heat waves resulting in drought. During this period water scarcity poses another challenge. Livestock disease increase during December-mid April along with crop diseases and infestation.

The crops produced in these regions are in sync with the hazard events, as they can only resume farming or home-growing activities after the flood water recedes. The crops reflected in Table 4 are harvested before flood risk period, except for Jute. The rice varieties (*IRRI,Boro*) are sown after the flood and harvested in the months of April-May next year, although *Aman* is harvested during November-December. Winter harvest include vegetable, wheat, onion, nuts, lentils and many more. Seasonal food insecurity intensifies when the flood water recedes in the months of September to mid-November. This is due to the depletion of available food stock and reduced livelihood activities.

Table 4: Compiled Hazard, Agricultural and Livelihood calendar with the EWYGFII Project Participants in Kurigram

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
	<i>Boishak</i>	<i>Joishtho</i>	<i>Ashar</i>	<i>Srabon</i>	<i>Bhadro</i>	<i>Ashwin</i>	<i>Kartik</i>	<i>Ogrohayon</i>	<i>Poush</i>	<i>Magh</i>	<i>Falgun</i>	<i>Choitro</i>	
	<i>Grishyo</i> (Summer)		<i>Borsha</i> (Monsoon)		<i>Shorot</i> (Autumn)		<i>Hemonto</i> (Late Autumn)		<i>Sheet</i> (Winter)		<i>Boshonto</i> (Spring)		
Hazards													
Flood													
Drought													
River Erosion													
Heat Waves													
Cold Waves													
Nor'wester (<i>Kaal Boishakhi</i>)													
Thunderstorm													
Hail Storm													
Excessive Rainfall													
Seasonal Food Insecurity													
Other Significant Periods													
Water Scarcity													
Livestock/Poultry Diseases													
Human Diseases													
Crop Diseases and Infestation													
Lean Period													
Best Income Period													
Crop Calendar													
Spinach													
Nuts													
Wheat													
Onion													
Rice													
IRRI													
Boro													
Aman													
Maize													
Lentils													
Thakri kalai													
Mash kalai													
Mushur													
Sesame/Mustard/Black Cumin													
Summer Fruits*													
Jute													
Garlic													
Guava*													
Olives*													
Summer Vegetables*													
Winter Vegetables*													
Other Livelihood Activities													
Fish													
Livestock													
Poultry													



*continuous process of sowing and harvesting

(Source: PRA Session, 2020)

Livelihood pathways both on-farm and off-farm are affected due to the vulnerability of natural capital to hazards like flood. During flood the off-farm activities are disrupted as the char areas remain inundated throughout the duration of flood. Although fishermen and boatmen still remain active during flood times, other livelihood activities remain discontinued.

In terms of alternative livelihood pathways, there are certain seasonal livelihood activities that are taken up by the communities, for example, many people migrate to urban areas as a day laborer, mason, rickshaw puller (mostly to Dhaka, in the months of Ashwin, Kartik), during the harvesting season many leave for other areas to work as agriculture laborer in other farmlands. The participants also mentioned about other off-farm activities such as working at shops, in garment factories, as tailors or auto-rickshaw drivers. However, these opportunities are taken up by them all year-round and not necessarily only because of hazards but also to earn more and for an improved living standard.

The following figure 7 shows how the livelihood patterns changed among the EWYGF participants from 2018 to 2020. An increasing trend can be seen in all activities for 2019 and 2020, as compared to 2018. Contrary to the notion that more people will shift to off-farm activities due to the impact of climate-induced hazard on on-farm activities, the data shows no such trend. Agriculture as a livelihood choice remained dominant, with an increase in 2020 compared to the year 2018. Choice of livestock as a livelihood increased significantly over the years, especially from 2018 to 2019. The reason for this increase could be due to the project interventions that are training and enabling the beneficiaries (mostly women) to adopt poultry and livestock rearing practices.

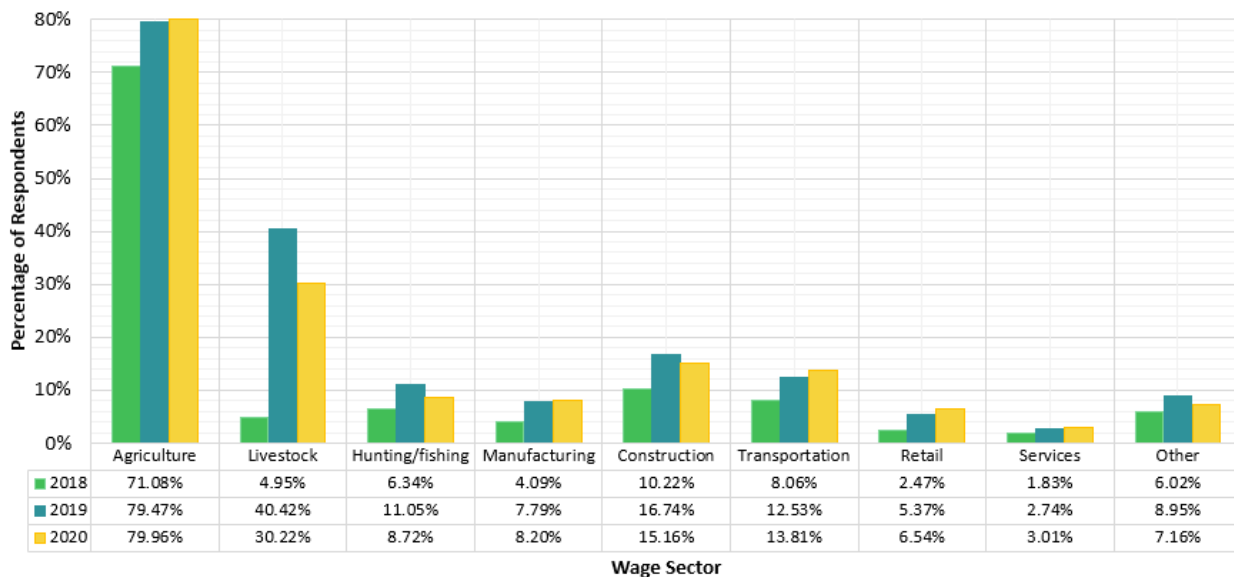


Figure 7: Changes in livelihood in Kurigram over the years (2018-2020). The number of respondents (n) varied in each year: n2018 = 930; n2019 = 960; n2020 = 963.

(Data Source: Concern Worldwide Bangladesh)

3.4.2 Vulnerabilities of Physical Capital and Socio-Economic Impacts

Physical capital comprises the basic infrastructure and producer goods that are required to support livelihood activities (Elizondo, 2017). Physical resources of a community play a very important role to decrease sensitivity and exposure to hazards. From the mapping exercise with the community (PRA, 2020) the identified physical capitals include roads, embankments, culverts and bridges, as well as schools,

community clinic, mosques, residential and service infrastructures (community mapping attached in Annex 4).

Not only is the presence of infrastructures necessary in protecting the community, but the loss of infrastructures due to climatic hazards can also put huge stress on the local economy, education, culture and social development. Local offices, roads and embankments can be damaged due to climate hazards such river erosion, while flooding can limit the access to necessary resources. Impacts on marketplaces affect the lives and livelihoods of the farmers and vendors, in return, impacting their households. Education is also a crucial opportunity that the communities of Char regions miss out since there are not sufficient infrastructures and facilities for proper education as compared to mainland schools who can get opportunities to use computers, internet and multimedia (Bhuiyan et al., 2017). From the KII with the school headmaster, it was found that Char Jatrapur has only one primary school nearby. There are secondary schools and some colleges located distantly. Not only the quality of education is low, but there are only a few who travels that far for education.

Communities that can use government infrastructures such as schools for a secondary purpose such as disaster shelter stations are considered less vulnerable. In Char Jatrapur, Kurigram Sadar Upazila, it has been found during the KII session with the school headmaster, in the recent flood the only primary school in the area has been used as the flood shelter for around 2 months, as there is no dedicated shelter in the Char area. Building infrastructures on higher elevations also give some protection from flood. In the other Char area as well, people mostly take shelter in the embankment during flooding, as the embankment road is the only high land area which did not inundate in the recent floods.

In all the FGD sessions it was identified that the household structures were totally submerged during flooding. As per the FGD respondents, during the last flooding of 2020, there were recurrence of flood water coming and receding 4-5 times, and people had to take shelter, either in the school, the embankment area or to a relatives' house on a higher ground. Most of their belongings were damaged. Major roads were submerged and the only way of movement remained boat or banana rafts.

Incidences such as drowning of children occurred during flood. Elderly persons, persons with disability, and pregnant women struggled with mobility issues due to lack of physical capital in the Char areas. As per one of the informants,

“The lack of sanitation and toilet facilities, poses a big threat to women, especially 10-15 years old girls. The dams are also infrastructurally weak and keeps breaking off, causing more flood, so it is necessary that they build proper dams and roads that will not break off every year during flood.” (KII, 2020)

The mapping activities during the PRA session revealed that men and women members irrespective of their economic stature (extreme poor/very poor) were able to identify all their available natural (farmlands, river's location) and physical resources (settlements, roads, embankments, major educational, and financial institutions, religious institutions etc.). They also managed to identify where the problems of the infrastructures were, e.g., in Bazra, Ulipur- they showed due to the damaged embankment, the flood water is entering the locality. It has been more than three years, but they are facing the issue. Even during the FGD in Char Jatrapur similar issues of damaged embankment, roads were identified. During the FGD sessions participants expressed their opinions on the following aspects:

“It is better if the embankments are repaired, the Rivers need to be dredged, if it takes long, the houses should be built on higher ground or elevated plinth, and flood shelters are needed during the times of disasters.” (FGD, Char Jatrapur, 2020).

From the KII's it was evident that mobility during flood and even other times remains an issue in the Char area. As per KII with the local government representative, LGED is working on the project 'Climate Resilient Infrastructure Mainstreaming' (CRIM) under this project they are working on the baseline survey namely 'Establishment of Climate Resilient Local Infrastructure Centre' and they are planning to build new roads in the area.

3.4.3 Vulnerabilities of Financial Capital and Socio-Economic Impacts

Financial capital refers to the financial resources that people need to sustain their livelihood activities, which includes stocks and flows as well as consumption and production process (Elizondo, 2017). The financial capital of a community is highly dependent on livelihood and income-generating activities, as well as the landholding capacity of the households. In the char areas loss of land resulting from river erosion is mostly responsible for damaging the financial capital. Similarly, communities relying on agriculture-based income, which in turn is highly affected by the changing climate, are more vulnerable to climate-induced disasters. The frequent changes of land types severely affect local economic conditions. Original stable land is of high value as it is suitable for multiple uses. On the contrary, newly accreted land has a low economic value due to low fertility and limited use (Bhuiyan et al., 2017). This also denotes that the income-generating potential of such communities are low, and that in turn contributes to the overall vulnerability.

Due to the instability of the landmass, there is also a huge gap in development and industrial investments in Char regions, which also leaves the people with limited livelihood options (Bhuiyan et al., 2017). Absence of or lack of access to financial institutions limit the abilities of households to avail of services such as saving, credit, and insurance, which all can help mitigate the impact of shocks and stresses throughout the year. Richer households can become marginalized or landless due to climatic hazards, especially in cases of river erosion, causing them to take alternative off-farm pathways through migration (Bhuiyan et al., 2017). In the study by Azam et al. (2019), it has been identified that households that include at least one member working outside in urban areas or abroad have less financial stress and are considered less vulnerable, whereas households with members who do not have an opportunity to work outside are more likely to be impacted, especially if they have debt that they are not able to pay back.

According to the data collected by Concern Worldwide Bangladesh (2020), it was found that 84.5% of the respondents have outstanding loans and this makes them more vulnerable to both climatic and economic shocks, as they do not have the financial capability to deal with the after-effects of the disasters. Although the loans helped the community to withstand post-disaster shocks, they often lack the capacity for repayment. The following graph shows the number of EWYGF program participants who have access to financial services (Figure 8).

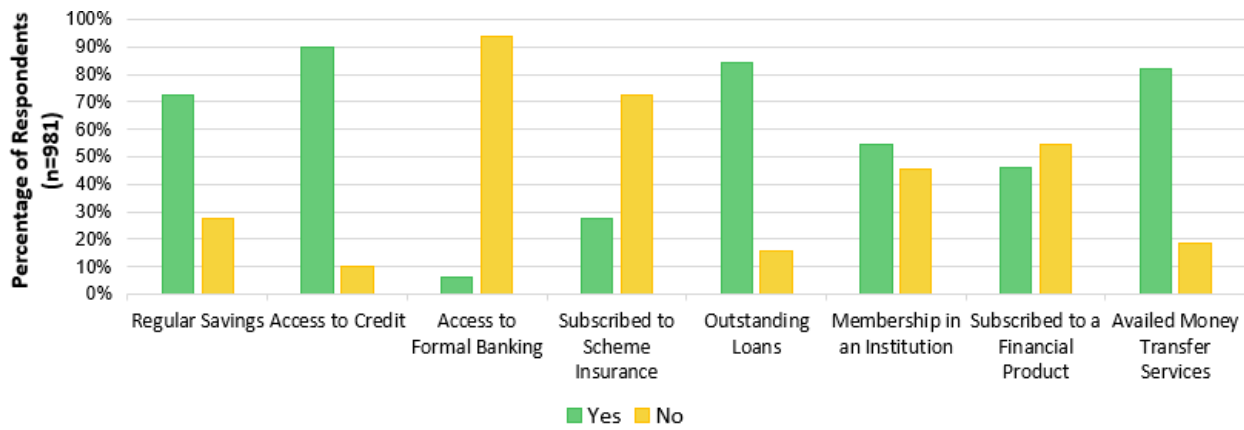


Figure 8: Summary of the status of financial inclusion of EWYGF participants in year 2020. (Source: Concern Worldwide Bangladesh)

In the char lands one in five inhabited mauzas has a market (*haat*), and there is a market day at least once a week (Samsuzzaman, 2018). The markets are mostly in the mainland chars whereas some secondary markets have developed in the island chars. The inhabitants are not well aware of the market structures and value chains, hence with their little produces they do not function according to consumer demand and seasonality.

It has been found from most of the KIIs at local level, that there are very few income generating activities. People cannot save much, in times of hazard, they become more vulnerable. Mostly Char people lack financial capital, as per the one of the key informants working in the Agriculture department:

“Ensuring market access and establishing linkages with enterprises such as PRAN and Aarong in the region will increase employment options, along with encouraging cow rearing and handicraft production” (KII, 2020)

According to the FGD participants, due to the COVID-19 pandemic starting in the year 2020, loss of jobs and reduction in profit was faced by the community people. This has caused them to be financially unstable as they couldn’t go to work, due to limited mobility. The flood event of 2020 during the times of COVID, with added health and financial risk made the people most vulnerable.

3.4.4 Vulnerabilities of Human Capital and Socio-Economic Impacts

The human capital of a community can be determined through health, food, knowledge and skills of the community members. This denotes the factors that add value to the community members apart from their physical labor (Azam et al., 2019). Even though with limited formal education, the study participants displayed skills and informed knowledge in the livelihood activities.

Overall good community health and presence of health care facilities can reduce vulnerability against climatic hazards. Azam et al. (2019) conducted a study on Climate Change and Natural Hazards Vulnerability of Char Land communities of Bangladesh, using the livelihood vulnerability index. The study states that provisions for an appointed doctor in Char areas are usually mandatory nevertheless their presence in reality still remains undetermined in some cases. However, for advanced health care, it could be necessary that the people might have to travel to Upazila health facilities, where access (both physical and financial) plays a crucial role. The study also states that high life expectancy and low rates of

communicable disease, with good sanitation facilities, can indicate good community health that reduces their vulnerability.

From the field study presence of community clinic was found in both the char areas, however, the respondents mentioned they have to travel to the towns for better health care facilities. From the FGD sessions it was found that women suffer the most during the flood and in the flood shelters due to lack of proper sanitation facilities. Many of the female respondents mentioned that they had to take a long route with the rafts to find a place with privacy. According to one of the key informants:

“Youth groups take advantage of such disastrous situations and can sexually harass girls in the flood shelters. In addition to that, lack of sanitation and toilet facilities, poses a big threat to women, especially adolescent girls” (KII, 2020)

Food, being one of the basic human needs, plays a major role in the vulnerability factor of the community. As one of the local Government officials from Agriculture Department mentioned that:

“What is making people more vulnerable are lack of proper nutrition and safe food.” (KII, 2020)

As already mentioned, food and nutrition insecurity remain a major challenge for the majority of the Char population. The EWYGF baseline survey found that the acceptable food consumption level of the selected participants was 49.7% in the year 2018, whereas during the year (2019, 2020) it was increased to above 90%. From the PRA, FGD session and KIIs it was found that people are adopting cultivation of new varieties of rice and receiving different training (e.g., climate-adaptive solutions, organic farming, homestead gardening, vermi compost and pest management) and adaptation strategies provide by the government departments. As per one of the local government representatives:

“The farmers are advised to harvest the paddy as soon as it is 80% ripe as a measure to reduce flood risk. Production of ‘Malshira’ and ‘Ganjia’ rice varieties in the char region are treated as one of the best adaptation practices. They cultivate pumpkin in the sandy area as well.” (KII, 2020)

Community knowledge and skills play a huge role in reducing their vulnerability and hence, reducing the adverse socio-economic impacts of climate change. Many governmental and non-governmental institutions offer training and programs on capacity building of vulnerable communities, but it has been found that many members do not take part in training programs related to disaster management and climate change adaptation but rather depend upon indigenous knowledge to cope up with these types of natural disasters (Azam et al., 2019). From the FGD and KII it was also found that people are using their local knowledge and skills to adapt to the climatic hazards. Few of the local knowledge found from the field includes: upward movement of black ants denotes flooding in that year, meteor shower, usually occurring at the end of May, denotes flood in a week. Although the community people are used to changing lands and homes, they also usually have banana plantation along with homestead vegetation practices, banana tree is used for building rafts in emergency flood situations.

Demographic factors also play a role in determining vulnerability of individuals in the society. Findings from the KIIs show that educated people migrate more often for better job opportunities, since the Char regions do not offer them the opportunities for employment or better quality of life they seek. Education is also directly linked with adaptation capacity as educated people are more likely to be technologically skilled.

As described by one of the Key Informant:

“People from the Char areas migrating to urban areas for better income. Migration is not necessarily always due to Climate change. Many people are taking up the job as a readymade garment worker or day laborers. They are also moving to the city looking for better opportunities especially when they are educated. During harvest season, they usually move to other districts for better job and payment.”
(KII, 2020)

Technology based forecast, adaptive measures and resources are better used by the literate people. Unfortunately, the literacy rate in the Kurigram district is lower compared to the national rate of literacy. This results in a big portion of the population being unable to use the technology.

Education, as usual, plays an important role in eradicating social stigmas. In the FGD sessions it was discussed that educated people are more likely to speak up against child marriage and dowry issues, and are also against child labor as they understand the value of education. However, at the same time there were respondents in the char area who did not receive formal Secondary education but was well informed about the impacts of natural disasters and adaptation strategies, as he was involved in some of the internal donor funded project (as a volunteer) and travelled abroad to receive trainings on agriculture and climate resilience. It was also found that the well-informed respondents are helping their community through disseminating knowledge and experiences and making people aware about positive coping mechanisms.

Women are often times more vulnerable to the impacts of climatic hazards compared to their male counterparts (Canon, 2002). Moreover, Canon states that women have poor nutritional intake and chronic energy deficiency that reduces their coping capacity. Their domestic roles and increased hardship make them more exposed to the impacts, such as increasing their chances of contracting diseases, limiting their access to water and livelihood resources.

From the FGD sessions with both extreme and very poor women it was found that, lack of sanitation facility for women during floods makes them vulnerable, they face mental pressure, sometimes afraid of water currents, they work for longer period of time drenched in water, they manage all household items taking to safer places. Some of them also mentioned that sometimes during sudden disasters (e.g., increased level of flood water), men are away from the house and women instantly had to take all the responsibilities. This put an added pressure on women. During flood, men usually go out to seek reliefs or any support provided by government or NGOs while women take responsibility for the household. This interim responsibility as the head of the household enables women empowerment as they are making key decisions for their families during that period (Chowdhury and Masud, 2020). One of the key informants also mentioned that women are more accepting of and adaptable to the services, trainings and capacity building measures offered by NGOs. They are also the main beneficiaries for most of these projects. Climate adaptive solutions such as homestead gardening, poultry and livestock rearing are all conducted by women.

3.4.5 Vulnerabilities of Social Capital and Socio-Economic Impacts

Social capital is defined by the OECD as networks together with shared norms, values and understandings that facilitate co-operation within or among groups. In case of climatic hazards, a community can become less vulnerable if they are able to muster up enough social capital where there are strong inter-communal bonds among each other and also with organizations and institutions (Cannon, 2017). Lack of social capital

increases the vulnerability of a community. Social capital provides an opportunity for collective action, giving rise to the adaptation against odds (Adger, 2003). Interacting with other capital assets and appropriate institutions will let a community formulate adaptive livelihood strategies against climatic hazards and disasters (Bebbington, 1999; Adger, 2003). Moreover, community members without any strong ties with the local government also seek little help from them. The case is also similar with the local NGOs (Azam et al., 2019). From the FGD sessions strong social cohesion was observed among the community.

Social cohesion in the communities of the study area were found to be strong. From FGDs it was observed that the savings group created through the lottery system of the EWYGF program participants, had increased social connection among the women in the project area. The cohesion gets even stronger during the events of any disaster.

According to a local government official,

“The local cooperative societies and local community cooperate with each other during the disaster period. Bangladesh is a role model in disaster management for this reason. The government and NGOs initiatives are very negligible compared to the demand of the disaster victims. But this cultural cooperation, fellow feelings, volunteerism, fraternity among the victims are the elements of creating a disaster resilient society.” (KII, 2020)

During the FGD sessions it was found that the cooperation increases among the members of the family in the event of any disaster. It was discussed how the participants distribute their household responsibilities. As per a female respondent in an FGD:

“During the flood we all work together. My husband usually hires boats and go out to get reliefs. He also looks after the domestic animals. Whereas I take care of household chores- food preparation, look after children and the elderly.” (FGD, 2020)

Another participant from the FGD session mentioned that:

“This year (2020), during flood I have stayed with one of my relative for long 51 days as the flood water did not recede. Many of my neighbors took shelter either on the embankment roads or they’ve moved to live with other who live on an elevated area.” (FGD, 2020)

From literature review it was found that geographic dynamics of the Char areas have been impacting their social capitals negatively. Displacement because of the instability of the land make people switching from one land to another, which, in turn, gives rise to conflicts for establishing control or ownership of any newly formed parcel of land (Alam et al., 2018). From field observation and Concern Worldwide data sources it was found that the level of conflict in the study areas is low.

In Kurigram, disaster-induced poverty and hardship act as the push factor for the seasonal migration. The data from Concern Worldwide Bangladesh (2020) stated that about 47.3% of the respondents migrate (permanently and temporarily) for livelihood options. Member of the households go to nearby areas for off-farm activities such as day labor or rickshaw pulling in order to earn for their families (Chowdhury and Masud, 2020). From the FGDs it was found that men mostly migrate to Dhaka, Narayanganj, and Sylhet to work as a rickshaw puller, as the nearby big cities like Rangpur does not provide a better pay for such a

job. Temporary migration as an agriculture labor also occurs to the cities of Bogura, Munshiganj, Feni and Sylhet.

Reflecting on the sustainable livelihood framework, the major shocks that the community are exposed to include frequent flooding, excessive rainfall, drought, river erosion and an extreme variation in temperature in summer and winter. The trends suggest that these shocks are becoming more frequent and intense with an offset in seasonality.

The majority of the population are dependent on agriculture-farming, fisheries, livestock, and poultry rearing, which make them dependent on natural capitals. The natural capitals being vulnerable to shocks create livelihood insecurity of the community. Access to physical capitals e.g., shelter, health care facility, educational institutions, proper roads and similar infrastructures can help to reduce the vulnerability of the Char community. However, these capitals are subject to damage during natural disasters. The shocks are impacting the livelihood activities. Lack of employment opportunities, and market linkages resulting in low financial capital, leaving people vulnerable during and after disaster. Human health is impacted due to natural disasters as the shocks adversely affect the food production. However, knowledge, skills, technology and adaptation measures are strengthening the human capital of the community to withstand the shocks. Despite all the challenges there is a strong social cohesion among the community which helps them to be more resilient in the face of natural disasters.

4 Knowledge and Resources for Adaptation and Risk Reduction

Bangladesh's national climate adaptation policy framework gives emphasis on producing and disseminating 'scientific-quality' knowledge as a standard basis for adaptation. In 2005, the National Adaptation Programme of Action (NAPA) highlighted 15 priority actions, with two of these promoting knowledge dissemination and three others promoting climate adaptation research. In 2009, a revised list of adaptation research priorities came with the revised NAPA (Islam et al., 2013). At the same time, the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) explicitly deals with 'Research and Knowledge Management' as one of its thematic pillars (MoEF, 2009), that promotes the creation of a center for climate knowledge management and training, along with building modelling capacity, and monitoring on-going climate impacts.

The Department of Agricultural Extension (DAE) started various research efforts such as to identify, validate, compile and share indigenous adaptive knowledge, options and technologies with farmers (DAE, 2012). From the KIIs with the Agriculture officers from the two Upazilas it was found that, measures for flood forecasting are taken. Therefore, Agro-Meteorological Information System has been developed by the department of Agriculture Extension, along with the support from other government departments. The officers also mentioned that new technologies are introduced to the community, diversified crops and seeds are distributed, pesticide-free farming techniques are provided and also, they are planning to support to create market scope for such products. However, during the FGD sessions few of the male participants mentioned about these interventions.

In addition to the national level policies, local knowledge and adaptation strategies play a crucial role in reducing climate vulnerability. The two key components of the adaptation process are perception and strategies (Maddison, 2007). There are farmers who face difficulties in implementing climate change adaptation (CCA) practices due to their traditional aspects and lack of knowledge, and need to learn about the CCA measures (Haque, et.al, 2019). The farmers mitigating their vulnerability can enhance the overall resilience of the Agro-ecological system (Bryan et al., 2009). Farmers who can address the potential adverse impacts of climate change are more likely to support policies and programs that aim to address it (Niles et al., 2013).

The capacity of a household to adapt to the impacts of climate change, depends on the socio-economic conditions that can affect their resources and resilience (Wood et al., 2014). Therefore, adaptation strategies are crucial to help the local communities to cope with extremities of weather and associated climatic variations (Niles et al., 2015). These strategies are context specific and change over time, from area to area and even within particular societies (Malone, 2009). However, it is important to note that successful adaptive processes to mitigate the adverse effects of climate change depend largely on access to and the judicious use of the capital assets.

To identify and assess the effectiveness of the current coping mechanisms practiced by the EWYGF project participants to secure and improve their livelihoods, the tool "Coping and Adaptation Strategies Assessment" was used during the PRA session. The participants listed out the detailed impacts and adaptation strategies that they undertake to deal with the impacts of each hazard events. Based on the coping and adaptation strategies, an adaptation score was assigned to the strategies based on the sustainability and effectiveness. The total adaptation score was calculated based on the average of all the strategies for each hazard as shown in Table 5. It can be seen that they are the least adaptable to flooding

events since the range of impacts during flood events are wider, and their coping and adaptation strategies are not effective or sustainable. Whereas, during heat and cold waves, they are much better prepared to deal with the events effectively.

Table 5: Coping and Adaptation Strategies Assessment (1-Low, 2- Moderate, 3-High, 4-Very high coping and adaptation effectiveness and sustainability)

Hazard	Impacts	Coping and Adaptation Strategies	Sustainability and Effectiveness	Adaptation Score
Flood	Houses submerged and damaged	Arrange dry food, fuel and money	2	2.77
		Seek shelter in elevated areas	2	
		Go live with other relatives	2	
		Build Houses on Elevated Platforms	4	
		Plant Banana tree at homestead and create rafts for floatation	2	
		Make or rent boats	2	
	Furniture and belongings submerged and damaged	Create elevated storage options	4	
		Carry precious or necessary items to shelter	2	
	Low crop yield	Plant flood-resistant varieties	4	
		Arrange dry food	2	
		Search for relief	1	
		Homestead gardening (on sacks)	3	
	Livestock and Poultry drowned/washed away	Take them to an elevated safe area	3	
		Sell them at low price	2	
	Livestock and Poultry diseases	Home remedy for common diseases	4	
		Consult doctors for new and advanced diseases	4	
	Fishery pond water overflow	Net the boundaries of the pond	4	
Agricultural land submerged	Plant flood-resistant varieties	4		
Sedimentation reducing soil quality and fertility of agricultural lands	Use Vermicomposting	3		
Submerged Roads	Create rafts for floatation	2		

Hazard	Impacts	Coping and Adaptation Strategies	Sustainability and Effectiveness	Adaptation Score
		Make or rent boats	2	
	Bad latrine systems	Travel to elevated areas	2	
	Diseases due to unhygienic and extreme conditions	Natural remediation	4	
	Drowning of children, elderly and persons with disability	Keep children under constant observation	4	
		High chairs for elderly and disabled so that they don't fall off	3	
	Snake and insect attacks	Carry knives/machetes	3	
		Keep sliced soaps as repellent	3	
	No business and income generating Activities	Ask for relief	2	
		Exhaust savings	2	
		Take loans	2	
Drought	Low crop yield	Plant drought-resistant varieties	4	2.86
		Arrange dry food	2	
		Search for relief	1	
	Water Shortage for drinking	Use tube-wells from other households or institutions (mosque)	3	
		Consume boiled river water	3	
	Water Shortage for irrigation	Use AWD Pipes and water extraction machines	4	
Rent water extraction machines		3		
River erosion	Loss of home or land	Use sacks and bamboo to prevent erosion	3	3
		Rent/lease new land	3	
		Migrate	3	
	Washed away livestock and poultry	Rent shed	3	
Heat Wave	Sickness	Stay in shade	4	4
		Shower multiple times	4	
		Pour water on the floor of the house for cooling effect	4	
	Load shedding	-	0	
Cold wave	Low crop yield	Use of fertilizers and pesticides	3	3.75

Hazard	Impacts	Coping and Adaptation Strategies	Sustainability and Effectiveness	Adaptation Score
	Sickness	Light fire for heat	4	
		Stay in the sun	4	
		Dress warm	4	
Storm*	Houses, Shed carried away by wind	Use bamboo, ropes and wires to repair damage	3	3.6
	Low yield	Put pillars and shed around the cultivation area	3	
	High mortality of humans and animals	Stay indoors	4	
		Turn off electronics (TV, Mobile)	4	
	Trees uprooted	Afforestation, hardy tree species, bamboo etc.	4	

*Storm includes Nor'wester (Kaalboishakhi), Hail storm and Thunder storm. Excessive rainfall was also mentioned as a hazard, but it was perceived that it only exacerbates other hazards such as flood and river erosion.

(Source: based on PRA Session, 2020)

Considering the risk factors and adaptation strategies, a vulnerability matrix was developed based on the responses during the PRA Session. A Vulnerability score for each hazard is calculated by using the community's perception of level of impacts and frequency on a scale of 4 (4 being the highest), in addition to the adaptation score from the coping and adaptation strategies assessment. A vulnerability matrix (Table 6) was developed, where a vulnerability score was calculated to show which hazards pose a bigger threat to the study area. A simplified risk score is a multiple of Level of Impact and Frequency (Ni et al., 2010). The formula to calculate vulnerability score was simplified from Pandey and Jha (2012) which showed the vulnerability index to be in the relationship of

$$(\text{Level of Impact-Adaptive Capacity})/\text{Frequency}$$

Table 6: Vulnerability Matrix showing the risk, adaptation and vulnerability scores of the participants for each Hazard

Hazard	Level of Impact (on a scale of 4)	Frequency (on a scale of 4)	Risk Score (on a scale of 16)	Adaptation Score (on a scale of 4)	Vulnerability Score
Flood	4	4	16	2.77	0.31
Drought	3	3	9	2.86	0.05
River erosion	4	4	16	3.00	0.25
Heat Wave	3	4	12	3.00	0.00
Cold wave	3	3	9	3.75	-0.25
Storm*	3	4	12	3.60	-0.15

*Storm includes Nor'wester (Kaalboishakhi), Hail storm and Thunder storm.

(Source: based on PRA Session, 2020)

Based on the community perception, it was calculated that the community in Kurigram is most impacted by flood every year, and they are highly vulnerable to this hazard due to lack of effective and sustainable adaptation measures. The effective and sustainable adaptation strategies as listed in the table against the flood include build houses and storages on elevated platforms and plant flood resilient crop and tree species. Whereas searching for reliefs, depending on dry foods is also an adaptive measure for flood which does not have any long-term benefit. After assessing all the adaptation strategies, the average adaptation score assigned by the study team was 2.77 against flood. With the community identifying the level of impact and frequency of floods to be the highest in scale, a risk score of 16 was calculated. With a high-risk score and the lowest adaptation score, the vulnerability score of flood is the highest among all the disasters. Whereas with the highest adaptation score of 3.75 and lowest risk score of 9, community adaptation strategies were assessed most effective against cold wave.

Scholars have argued that local level adaptation knowledge is a key to promoting the resilience of such climate vulnerable communities (Hiwasaki et al., 2014). Understanding the scale of the impact on livelihood capital will enable policymakers to identify appropriate intervention strategies and thus assist households to build up their livelihood assets and become more resilient (Alam, et. al, 2017). Understanding of local/indigenous knowledge and adaptation strategies will be of immense importance if it is supported by relevant government and non-government organizations (NGOs), and if relevant research is placed in the national context.

5 Policy Considerations

To achieve long term results from the interventions at the local level, it is necessary to have the national policies enabling the process. A policy review was conducted to identify the presence of policies regarding climate-adaptative livelihood improvement programs in the Char areas. However, no specific policy about climate-adaptive solutions for livelihood improvement in the Char regions were found. Even though a few national policies, strategies and plans address at least one or more of these components as depicted in table 7.

Table 7: Checklist for the thematic areas covered in relevant National Documents (based on keyword search)

National Policy/Strategy/Plan	Char Region	Livelihood Improvement	Climate Change
National Rural Development Policy (2001)	✓		
National Agriculture Policy (2018)	✓	✓	
National Sustainable Development Strategy (2010-2021)	✓	✓	✓
National Strategy on the Management of Disaster and Climate Induced Internal Displacement (2015)			✓
Bangladesh Climate Change Strategy and Action Plan (2009)		✓	✓
Bangladesh Delta Plan 2100 (2017)	✓	✓	✓
The National Plan for Disaster Management (2016-2020)	✓		✓
National Adaptation Programme of Action (2009)		✓	✓

5.1 National Policies

National Rural Development Policy (2001) has programs for Development of Rural Housing where they call out for necessary layout designs prior to new settlement in village areas, with specific focus to islands and Char areas. This gave a mandate for the Char Livelihoods Program (CLP) by giving priority to special development programmes for disadvantaged and vulnerable regions such as the Char areas. The National Agriculture Policy (2018) focuses specifically on ways to improve agricultural practices on Char areas, considering its geological Characteristics and fertility. The main aim of this policy appears to encourage more farmers to take up agricultural activities in Char-lands by providing support and creating market linkages.

5.2 National Strategies

National Sustainable Development Strategy (2010-2021) addresses the success of disaster management in Bangladesh, but also at the same time, identifies the challenges to scale up and enable social and

economic development of the country, regardless of the changing climate. Out of many strategic elements mentioned, coastal Char land afforestation, tolerant crop varieties and emerging land constraints from illegal occupation of Char land were a few to address the neglected areas. For the Livestock sector, Char lands are identified as a key zone to grow livestock fodder to meet the shortage apart from enabling the Char population to rear sheep and buffalos. Adequate shelters for livestock at flood and cyclone vulnerable areas are also identified in the strategy. National Strategy on the Management of Disaster and Climate Induced Internal Displacement, NSMDCIID (2015) states the necessity to mobilize adequate resources and strengthen institutional capacity of forest officials for afforestation of Char lands to mitigate the impacts of climate change.

5.3 National Plans

Bangladesh Climate Change Strategy and Action Plan, BCCSAP (2009) does not provide any Char-specific plans. However, in general, this plan focuses on high river flow and increased flooding events and calls for inventions such as improving flood forecasting, upgrade flood protection, flood-proof areas and infrastructures as well as improve the agricultural system. Bangladesh Delta Plan 2100 aims to implement the National inland islands project (Jamuna Pearls) by developing flood-safe areas with elevated areas and agricultural and ecological hotspots and tame the Jamuna River. Similarly, National Flood Resistant Infrastructure Project aims to construct a national flood-resistant infrastructure network connecting the economic hubs so that economic shocks can be reduced due to extreme floods. The BDP 2100 also addresses the morphological dynamics of Meghna estuary for sustainable Char development and general management of newly form Char areas (stabilization to reclamation). The Flood and Riverbank Erosion Risk Management Investment Program (FRERMIP) has provided an outline of river stabilization programme for the Jamuna and the Padma. To develop future policies, identification of Hard-to-Reach Areas (HRAs) that suffer from extreme poverty to due lack of network is necessary. Livelihood protection in ecologically fragile areas with comprehensive and participatory planning and investment for climate resilience against erosion in income, employment and human health in coastal, Char, hilly and wetland regions has also been identified as the way forward. Climate Financing for Sustainable development budget report (2019) mentioned 3 project investments specific to Char regions: Phase 4 of Char Development and Settlement Project-4, Project for improvement of water supply and sanitation facilities in Char area and Enhancement of Agricultural Productivity towards Food Security in Char Lands. The National Plan for Disaster Management (2016 2020) identified the need for more shelter in Char areas in particular. In the National Adaptation Programme of Action, NAPA (2009), Char lands have been identified as critical vulnerable area to climate and related element of flooding. Although flood protection and adaptation measures are mentioned in details in this report, it is still in a generic sense and does not identify Char-specific problems and future policy and strategy designs must include climate adaptive practices incorporated with the current livelihood models which should not be generic but should be designed on each sector of livelihood based on their ecological zones (i.e., Char-specific agriculture, as it is not the same as coastal agricultural practices.)

Based on the brief policy review it was found that, char regions are addressed in many of the policy documents. Most have identified the need to develop char regions in terms of sustainable livelihood and climate adaptability. However, there were gaps in Char focused policy direction and planned interventions.

6 Assessment of Livelihood Programme

There are multiple programs led by government and non-government organizations, which focus on the Char areas and there are components of livelihood improvement, financial inclusion, climatic and disaster risk reduction measures. This section portrays the analysis and synthesis of the selected state and non-state led programs focusing on the mentioned aspects, along with the identified gaps. At the end of the section a table (Table 8) summarizes the thematic areas covered, and the identified gaps in the program interventions of both the state and non-state led livelihood programs.

6.1 Livelihood improvement measures

According to Harizi and Yan (2017), most Graduation models emphasize fragile and insecure sources of income, but the focus can be on any subset of contributing factors such as: barriers to entering the market economy; low earning capacity of extremely poor families; intergenerational transmission of poverty; obstacles to accessing financial services; and health related problems that causes increased expenses on household resources. Consultative Group to Assist the Poor (CGAP) and the Ford Foundation conducted randomized control trials and have proven that the original graduation model developed by BRAC in Bangladesh is adaptable and replicable in a diversity of contexts Positive effects were consistent one year after programme completion but diminishing with time, which reflects the lack of sustainability in such projects. Asset transfer and self-employment alone are not enough to offer a long-term solution to chronic poverty. Harizi and Yan (2017) also states that in certain situations, alternative strategies such as building the skills and ushering the employability of extremely poor people might be a better choice than self-employment

According to one of the climate change adaptation and resilience experts:

“Most of the graduation approaches are top-down model, no ownership of beneficiaries, they are not given any political agency, a desk-based planning is done and there is lack of an integration of long-term National vision into these types of programs. The projects are consultancy dependent with no clear exit strategy or long-term sustainability. From the government side, there are lack of skilled manpower for efficient project implementation as well.” (KII, 2020)

As the livelihood graduation programme can generate important macro-level effects, simply scaling up a model that is successful at the micro level may backfire (Samson, 2015). Similarly, new self-employment activities can be particularly vulnerable to diseases, floods, cyclones and other shocks and hazards (Harizi and Yan, 2017). There are some examples of the creation of new organizational capacities, such as, the local elite committee of the Targeting the Ultra poor (TUP) program, and the savings and loan associations of the Char livelihood Programme (CLP). Nevertheless, as per another study by Rahman and Choudhury (2012), field assessments show such initiatives have not been endured beyond the programme cycle.

The Power and Participation Research Centre (PPRC) Study has brought out the complexity of the graduation path in which success has been relatively easier in reducing the intensity of poverty compared to graduating out of it. Such complexity underscores the importance of promotional components i.e., graduation platforms and ladders, that ensure sustainable change beyond the project cycle (Rahman and Choudhury, 2012). As Awal mentions that there is a need for adaptive social protection (ASP) model through better integration among the three domains: social safety net (SSN), disaster risk management (DRM) and climate change adaptation (Awal et al., 2013).

According to one of the Char livelihood Project specialists:

“Sector-based interventions – how climate factors will change and impact each sector as not all sectors will be equally influenced. Infrastructure and education are mainly crucial to reduce the vulnerability of the local community.” (KII, 2020)

The experts (the key informant interviewees) also mentioned about the use of scientific data and projections to develop future plans for sector-specific climate-risk interventions. They emphasized on context-specific, nature-based solutions, environment and ecology sensitive development interventions.

6.2 Climate change adaptation measures

There are many channels and ways to finance climate change related programme and projects in Bangladesh. Most of these programmes have been operating without adequate transparency, accountability and appropriate participation of people. As a result, the lack of understanding of specific types of climate change investments and their risk profiles means that banks often find it difficult to develop and structure appropriate financial products designed to tackle the issues

During disaster, the decisions on safety net services (vulnerable group feeding VGF and TR goods, for example) are to be passed through a long channel from concerned department to union council through district and sub-district offices that causes time loss. Since the associated institutions belong to the different ministries, ultimate success on disaster response is limited due to lack of coordination which ultimately fails to address the problems of the victims (Awal et. al., 2013).

Eventually most Social Safety Net (SSN) programmes are implemented through local government like union council or LGED. So, unwanted intervention at the various institutions especially at sub-district level may appear as another constraint for ensuring better safety net services to the climate vulnerable poor people. Involvement of multi-institutions in the safety net delivery system is the main institutional constraint to getting ministries to coordinate on SSNs in the context of climate change in Bangladesh (Awal et. al., 2013).

The Bangladesh Climate Change Trust Fund (BCCTF) is a block budgetary allocation ‘of US\$ 100 million each year for three years (2009-2012, totaling up to US\$ 300 million), in the form of an endowment. The BCCTF was used to finance public sector and non-government projects that are mainly related to agricultural research, mitigation, adaptation and disaster risk reduction, and knowledge generation (Awal et. al., 2013). Adaptive Social Protection (ASP) is another series of measures taken simultaneously. It has been developed combining components of SSN, DRM and CCA in policies and programs/projects that will simultaneously help to address unsafe living conditions, counter the root causes of vulnerability, and promote people ‘s ability to adapt to a changing climate (Davies et al., 2011).

The following table (Table 8) summarizes the thematic areas in terms of livelihood improvement, financial inclusion and climatic risk reduction of both the state and non-state led livelihood programs. Identified gaps in the program interventions are listed as well.

Table 8: Thematic areas covered and identified gaps in selected livelihood programs (based on literature review)

Program/Project	Livelihood Improvement	Financial Inclusion and Disaster Risk Reduction	Gaps
State-led Programs			
Char Livelihood Program (CLP)	<ul style="list-style-type: none"> - works with extreme poor households living on island Chars in north western Bangladesh, their access to clean water and sanitary latrine - various livelihoods training and inputs - improving social norms 	<ul style="list-style-type: none"> - stipend payments for 18 months to selected beneficiaries - Enabling market - access to a village savings and loans group - Access to a social development groups, vouchers to access the CLPs health services etc. - reducing vulnerability to floods and shocks 	<ul style="list-style-type: none"> - International donor funded program with limited time period
Social Safety Net Programs (SSNPs)	<ul style="list-style-type: none"> - The SSN program aims to provide residents with financial support - access to school - improvement of medical treatment facilities - helping persons with physical or psychological disabilities - Supporting the elderly and those living in situations at risk. 	<ul style="list-style-type: none"> - programmes to cope with natural disasters and other shocks; - Employment generation and incentives for education and health 	<ul style="list-style-type: none"> - Inconsistent Beneficiary selection - Inadequate allowance system - One beneficiary is getting multiple incentives whereas many remain excluded
Ashrayon Prokolpo	<ul style="list-style-type: none"> - A fully subsidized 'integrated poverty eradication program' through the provisioning of shelter targeting the internally displaced and homeless communities. 	<ul style="list-style-type: none"> -small credit transfer to selected beneficiaries 	<ul style="list-style-type: none"> - top-down approach - ambiguous ownership status of land and household

Program/Project	Livelihood Improvement	Financial Inclusion and Disaster Risk Reduction	Gaps
'Guchhogram' Climate Victims Rehabilitation Project (CVRP)	<ul style="list-style-type: none"> - To create a dynamic village named 'Guchhogram' and stimulate socio-economic development of the rehabilitated families. - Provides IGA training along with micro credit 	<ul style="list-style-type: none"> - To provide credit fund for each rehabilitated family through BRDB 	<ul style="list-style-type: none"> - Credit & Training fund is not enough for rehabilitated Settlers - Improper project monitoring activities
Non-State-led Programs			
BRAC-Ultra Poor Graduation Model	<ul style="list-style-type: none"> - livelihoods asset transfer - training and social integration 	<ul style="list-style-type: none"> - support long term capital generation goals through a high-value asset transfer - access to financial services 	new self-employment activities can be particularly vulnerable to diseases, floods, cyclones and other shocks and hazards
Forecast-based Financing- WFP	<ul style="list-style-type: none"> - Mobile money transfers - Cash distributed to the most vulnerable, including families headed by persons with disability, the elderly and single women. - The assistance helps people pay for basic needs such as food and other urgently needed goods and services 	<ul style="list-style-type: none"> - Uses weather forecasts to trigger early actions, such as cash transfers, that can help reduce the impact of natural disasters in conjunction with existing disaster relief interventions. 	-constrained within selected beneficiaries

The comparison in the table reveals that most of the state and non-state led programs were limited within the selected beneficiaries, the selection process of which is ambiguous sometimes. It has been observed that in the same area some of the community members are getting multiple incentives from different programs whereas many of them are not getting enough support. Although the government's safety net programs have helped the most marginalized communities coming out of extreme poverty, but selection process with limitations, long-term political commitments, efficient monitoring activities may have disrupted program interventions.

In terms of non-state-led programs can be characterized by some limitations such as the short-term donor funded approaches, lateral coordination among government relevant departments, donor-beneficiary relationship, the programmes are effective only within selected beneficiary. The following sections

describes more in-depth reflection of different components of the livelihood programmes. Based on our assessment using a gap analysis framework (Figure 9), the graduation programmes have a fragmentary approach and do not take all members of the community into account. The donor-recipient relationship creates long term dependency. It is more desirable to adopt a sustainable and integrated approach in programme design which would create ownership and long-term improvement, even after the programme finishes.

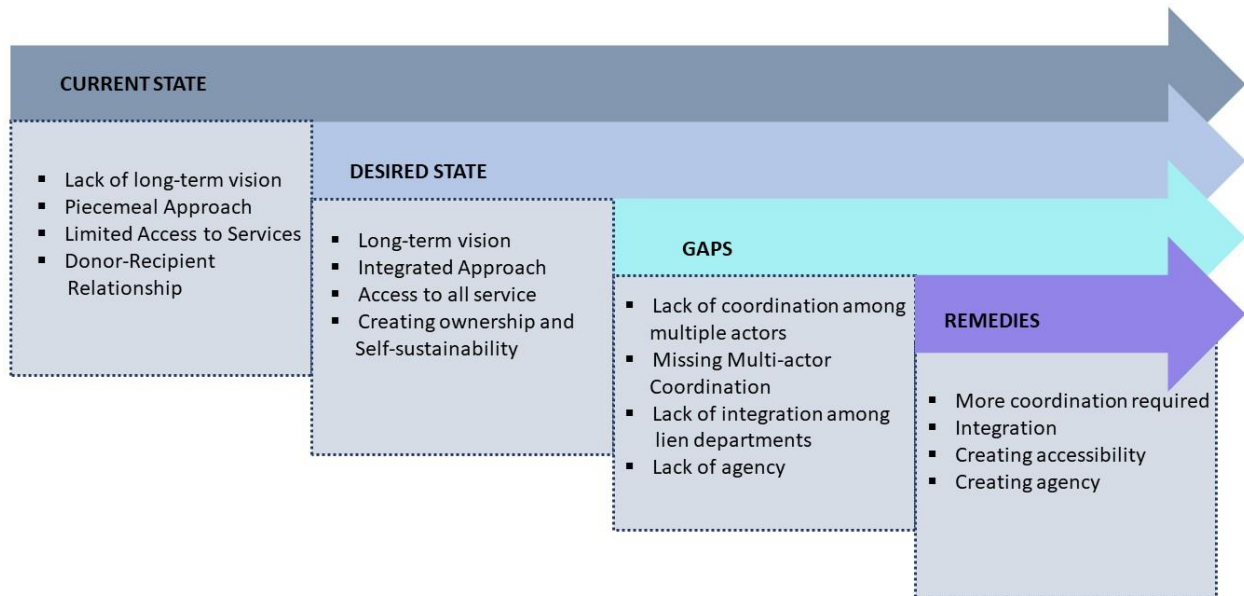


Figure 9: Gap Analysis of the Current project components and the remedies to bridge the gaps

7 Assessment of EWYGFI Programme Effectiveness

This section consists of an assessment of the EWYGFI programme effectiveness based on the Concern Bangladesh's Sustainable Graduation Pathway. Based on Concern Worldwide project related documents and from field observations (FGD, PRA, KIIs), the team assessed the different components of the programme interventions.

Concern Bangladesh's Sustainable Graduation Pathway adopted from the Trickle Up's five stage graduation model follows the mentioned steps:

- I. **Targeting** - the programme beneficiaries consisted of 600 extreme poor women (who are enrolled in the Government's Vulnerable Group Development-VGD Programme), and 12,400 very poor women. Regardless of the budget constraints, the FGD respondents mentioned about an inclusive approach so that more beneficiaries can be part of this programme.
- II. **Link to social safety nets as consumption support**- Only the extreme poor women are part of the Government's safety net programmes, whereas the very poor women are informed about the available Government supports. During the FGD sessions it was found that although fulfilling the selection criteria of the safety net programs, many of the respondents did not receive the government support. The selection criteria from the relevant local government departments remain biased and this should be taken into account in future beneficiary selection.
- III. **Formation of Self-help Groups (SHGs) and Savings** - Concern has successfully used the SHG model to empower women, build social capital, confidence and security to gain broader community acceptance. This approach also aimed to remove the entry barriers to markets and formal financial mechanisms. They developed a rotating savings and business initiative (ROSBI) model among the SHGs to accumulate savings for starting an income generation activity. The women contributed a fixed amount (selected unanimously) into a central savings fund, and in each meeting a name is selected in turns to receive the collective amount.
This model has created a savings habit, social bonding, and increased financial literacy of the SHGs. Although there is a provision for emergency support, identifying the member most in need for emergency assistance remains a challenge during times of disaster. The amount and duration of the rotational savings and withdrawal mechanism needs further improvement. The waiting time to withdraw money can be up to 40 weeks for a group of 20 members (having two monthly deposit/withdraw session). But the members have to continuously put in money which can be difficult given their financial status.
- IV. **Business planning and Skills training**- Skills training (e.g., tailoring, homestead vegetation, poultry and livestock rearing, leadership development, awareness programmes, financial literacy, disaster risk reduction) were provided to women based on their needs, capacity, and priorities. These trainings helped the beneficiaries to take up diversified livelihood options however, these activities are not continued during times of disasters especially during floods. This might not be an effective strategy for coping with disasters. They are trained on how to develop business plans, linked with relevant local government departments (Department of Agricultural Extension,

Department of Livestock, Department of Social Welfare, Veterinary Services), and understand market networks, but these are practiced at a smaller scale.

- V. Assets transfer to increase income / support for re-investment and business diversification-** Women were supported to develop and diversify their businesses through one-time seed fund (different amount for extreme and very poor women, based upon the trainings they received) provided by Concern Worldwide. Although this developed their entrepreneurship and ownership capacity, this still remains a challenge from a business perspective due to loss of assets and discontinuation of business activities during disaster.
- VI. Linking to Microfinance institutions/financial services-** Even though multiple channels were explored to increase access to financial services of the project participants, access to formal banking remained low for most of them (as per Concern Worldwide end line data, 2020). Most participants mentioned either they do not have enough money to save or they lack access to formal banking services. In terms of other financial services (e.g., local group cooperatives, local microfinance institutions), there were a greater number of participants who had better access to these savings, credit, and money transfer services.

The following sub sections elaborate on the assessment of programmatic interventions.

7.1 Impacts on livelihood

The EWYGF programme enabled the livelihood practices of the selected beneficiaries through multiple interventions e.g., skills training, cash transfer, and livelihood diversification. According to the project personnel (KII, 2020), based on the vulnerability analysis the project implementing areas, Concern Worldwide influenced the beneficiaries to take up different livelihood pathways:

- Encouraging non-farm activities (e.g., small business) in the high-risk areas
- Recommending poultry farming, livestock rearing in the mid-risk areas
- Promoting on-farm activities in the low-risk areas

Skills trainings and seed money provided for livelihood diversification, strengthened the human capital of the community. From the FGD sessions one women participant mentioned:

“Now I am doing tailoring, and homestead gardening along with household works without going outside for earning money.” (FGD, 2020)

As already mentioned in figure 7, that the involvement of the community in multiple livelihood sectors (mostly agriculture, livestock, construction, retail and many more) increased due to programme interventions. However, as the on-farm livelihood dependency still remains the highest and hence rendering the community vulnerable during and after disaster times. For instance, the diversified options or skills does not help much during floods.

7.2 Impacts of financial inclusion

The programme helped to create financial literacy and long-term savings habit of the women, however the end line survey data by Concern Worldwide (2020) shows that the number of project participants taking outstanding loans remained as high as 84.49%. The purpose for taking loans at a high interest rate was found (from FGD) to be to cope with the aftershocks of a disaster like flood. Data from Concern World wide’s end line (2020) survey, it was found that food, health, house repair and livelihood activities were

major reasons for taking a loan. These loans were mostly taken from companies or microfinance institutions (87.32%), whereas only a minimal percentage (0.85%) of people took loan from a bank.

Bangladesh Bank has adopted various initiatives to accelerate the pace of financial inclusion, establishing a Financial Inclusion Department with a National Financial Inclusion Strategy (NFIS) in development. Whilst many districts of Bangladesh saw significant progress in financial inclusion between 2008 and 2014, the exceptions are the remote areas of Kurigram (Hasan & Islam, 2016). Exacerbating these factors that contribute to the overall level of extreme poverty and financial exclusion in the Chars is the increased vulnerability of the area to natural disaster that makes it difficult to sustain development interventions. According to one of the Char livelihood Project specialists:

“Compared to Haor and coastal areas, investment in Char areas are limited and hence, it hinders their development. It is because of receiving less attention as Haor areas contribute mainly to national agriculture.” (KII, 2020)

7.3 Actions to reduce exposure and vulnerability to hazards

The EWYGF programme mostly intervene in the aspects of livelihood improvement, and financial inclusion however, their programme components do not include infrastructural interventions. One disaster shatters their homestead or whatever livelihood option they have. As per many of the FGD participants:

“We need Flood shelters; we want permanent riverside embankments to control flood and river erosion. We need elevated latrines and tube wells, small business for long term income generation” (FGD, 2020)

With the livelihood diversification measures, even if one livelihood is disrupted during disaster there remains options to take up other income generating activities.

7.4 Connection between financial inclusion and climatic risk reduction

As per the project documents of Concern Worldwide, all project participants of EWYGF were supported to integrate disaster risk coping strategies in their business plans for their IGAs. All women had access to savings if incomes are disrupted, mitigating the risk of negative coping mechanisms. The project incorporated sharing of disaster risk reduction information so that women can take mitigation measures before the disaster strikes to protect their livelihoods. Targeted women were guided to develop Disaster Risk Coping Strategies as part of their business plans to mitigate against their vulnerability to natural disasters.

The circular credit deposit, withdrawal, and savings mechanism as part of the program helped the participants to have a regular savings, which supports them for small-scale investment, meet regular necessities, and a year-round support. However, the FGD discussions revealed that the rotational model of deposit and withdrawal is group-based activity and one participant need to wait longer to be able to get the next withdrawal of money. In the long run the participants manage to save but this financial inclusion does not necessarily support them during times of climate induced shocks. The program needs more emergency funds, as per the KII from the project personnel. The project personnel also mentioned that government should also include more emergency funds. During disaster, Government or any such Programs does not provide financial support, although UN organizations like the World Food Programme (WFP) cash support (forecast-based financing support) is there. As per one of the programme participants from FGD,

“WFP Provides cash support just before flooding, but this is only to selected 900 families out of 6000 families in Char Jatrapur” (FGD, 2020)

Although long term financial sustainability enables participants to cope better with the climatic risks, overall, the study found no direct implication of financial inclusion in climatic risk reduction as this is a more complex process. To reduce climate vulnerability, and create sustainable livelihood, human development is a crucial factor, which is well addressed in the EWYGFI programme through skills development, and training. Poverty reduction programmes increase climate resilience at the community level, however, this is a long-term process. EWYGFI is working well to reduce poverty in the selected areas, a long-term comprehensive development of the community will lead them become more resilient in the face of climatic hazards.

7.5 Barriers to effective implementation

In the EWYGFI project proposal (2017) it was stated that the formal financial institutes and quasi-formal NGO-MFIs are reluctant to provide loans to extreme poor and very poor Char dwellers as they have limited capacity to repay loans, and the cost of extending services to poor households in remote locations is deemed too high. On the other hand, flexibility, ease of availability, and other attractive characteristics of informal credit make it popular even though informal credit is costlier than other sources of credit.

According to Awal et. al. (2013), from the demand side, lack of awareness, low income/assets, social exclusion, and stigma associated with extreme poverty status, and illiteracy act as barriers to accessing financial services. Financial inclusion does not only mean providing financial services (Subbaro, 2013) but includes “financial literacy” such as financial awareness, knowledge about bank and banking channels and conditions, facilities provided by banks, advantages of using banking routes. Therefore, financial literacy is also needed for getting access to financial capital and utilizing it.

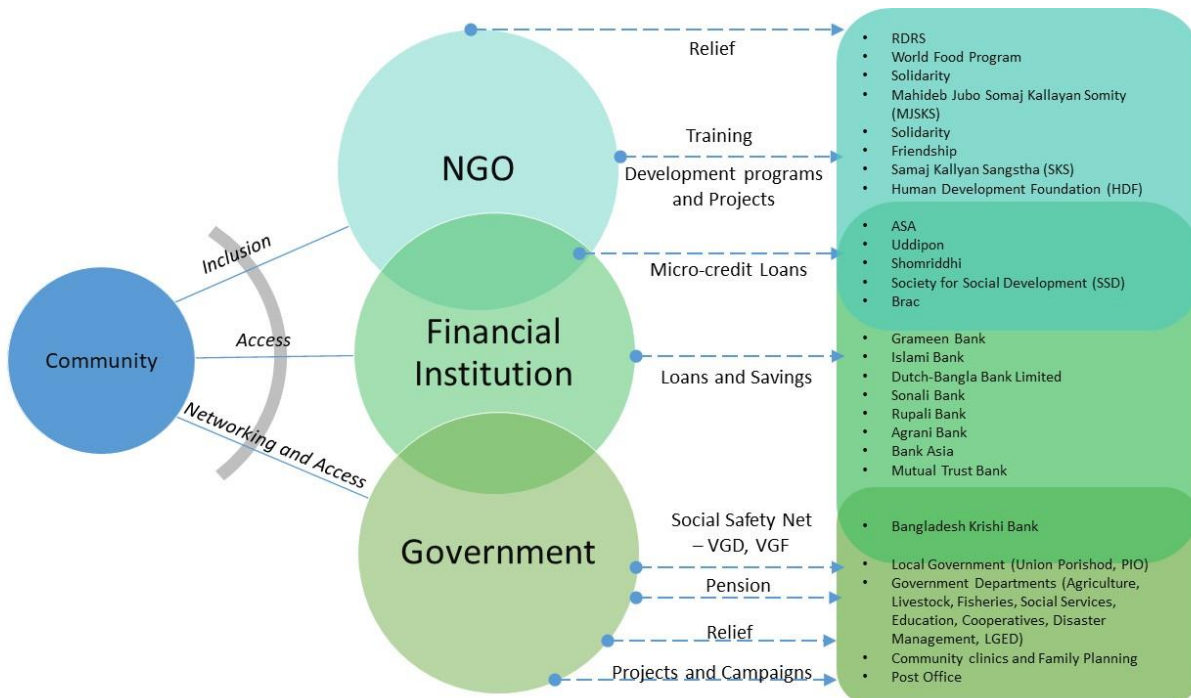


Figure 10: Social Network Mapping showing community relationships between different service holders in the study area (Source: based on PRA Session, 2020)

Represented in the Figure 10, the institutions listed on the left side are providing them services such as relief, loans, trainings and other financial schemes. However, not every member of the community benefit from these. NGOs and INGOs have limited number of projects and beneficiaries, which include a certain percentage of community members as beneficiaries. Most community member do not have access to financial institutions, especially to formal banking. Additionally, to receive Government support, many have identified lack of access and weak networking to be a barrier. From the FGD discussion it was found that, they also face corruption, nepotism, favoritism in case of getting relief and assistance during disaster. As per FGD discussion:

“There are some formal or informal networks in the community that help people provide support during flood. However, those who have good affiliation with chairmen and local representatives gets the most benefit. Not everyone get relief from Government and NGOs, only a few beneficiaries of the projects.”
(FGD, 2020)

Even though the social capital is strong at the community level, lack of appropriate policies, institutions and processes hinders them from using these resources efficiently. According to one of the key informants:

“The community doesn’t even understand that the resources the government is providing is within their rights. They don’t know how to utilize the resources that are available to them.” (KI, 2020)

The institutions and processes not only can strengthen the livelihood assets (the five capitals) but also can employ strategies to bring out positive livelihood outcomes. On a larger scale, proper policies can influence the vulnerability context and reduce the climatic shocks.

8 Revisiting the Research Objectives

This section summarizes the key methods applied and the findings under each study objective.

Objective-1: To understand the specific hazards participants are exposed to, the study team conducted secondary literature review and collected primary data from the field through PRA sessions. Key findings include the climatic trend derived from long-term data which shows that the mean temperature and annual rainfall is increasing. Hazard Calendar generated through PRA exercise revealed that the community are exposed to frequent flooding, excessive rainfall, drought, river erosion and an extreme variation in temperature in summer and winter.

Objective 2 and 3: To Understand their levels of exposure and the conditions that make people more vulnerable to these hazards, and the specific socio-economic impacts of climate-induced risks; the study conducted secondary literature review along with the PRA sessions (using tools like Seasonal hazard calendar, Agriculture calendar, Livelihood Calendar, Community mapping, Livelihood Resource Mapping, Climatic hazard mapping, and Vulnerability matrix). From these tools the study team assessed the availability of the resources, and the community's dependence and access to them. Based on these the study has assessed the socio-economic impacts as well.

The natural capitals are highly impacted by the climate-induced risks. Natural resources such as water, soil, and plantations are adversely affected. Since majority of the Char population is dependent on the agriculture and fisheries sector, this decreases their livelihood security in cases of a hazardous event. Even homestead vegetation, poultry and livestock are affected by these events.

Households, roads, water and sanitation facilities are inundated and damaged during heavy floods. The local communities have adapted to the annual floods. As per the community and local Gov. Officials, major infrastructures are mostly affected due to an increase in flood frequency.

Lack of long-term employment opportunities, business investment, and market linkage leads to limited income and savings. This puts a pressure on their financial capital when it comes to confront the disasters. FGD findings show that community people used to take loan with high interest rate after any disaster. However, they received financial support from WFP and few other organizations, along with government emergency relief support. The EWYGF program also capacitated them to have a savings habit.

Lack of proper sanitation facilities negatively impact the health of the community people; women especially suffer a lot during the flood. Agriculture being the major source of food, the climate induced impacts on crop production also reduces the food security. Women are considered to be more vulnerable to climate-induced risks due to lack of security during disasters. On the contrary, it was found that they are also more adaptable due to access to skills and trainings from NGOs. Formal and informal education plays a role in decreasing the vulnerability of people. Educated and well-informed people have an influence in improving social issues (e.g., stopping child marriage, and child labour, knowledge transfer etc.). For livelihood diversification, skills development training (e.g., training on agriculture, livestock and poultry rearing) are given by NGOs to selected participants. However, mass training and needs-specific capacity building initiatives are required for long-term growth of the community.

Although not everyone has access to service providers (projects from NGO or Gov.), the social cohesion among the community people is strong. From the FGD sessions it has been found that they have a very positive attitude about helping each other during difficult times.

Objective 4: To understand what knowledge and resources participants have to mitigate the identified risks, the study used primary qualitative data from the PRA session (with tools such as coping and Adaptation Strategies Assessment, Vulnerability Matrix and Social Network Mapping). An assessment was done on the efficiency and sustainability of their coping strategies and it was concluded that they are mostly vulnerable to flood, river erosion and drought, respectively. Their access to services provided by the government and NGOs remain limited because of limited networking and inclusion. However, they have many positive community adaptation strategies such as homestead gardening, and making rafts for flotation. For other hazards such as storms and extreme temperatures, they have high adaptive capacity which makes them less vulnerable to such events.

Objective 5: To assess the effectiveness of programme actions, designed to reduce hazards, exposure or vulnerability, the study found that, the program increased social cohesion, savings support, literacy on financial inclusion especially among women. Trainings for livelihood support (based on high, mid, and low risk areas) were strong components of the program. It is more desirable to adopt a sustainable and integrated approach for the program which would create ownership and long-term improvement, even after the programme has ended. The increased financial and technical capacity of the participants enables them to adapt to the consequences of climate-induced hazards but no direct link was found between financial inclusion and risk reduction.

Objective 6: To make recommendations on how future livelihood programming could better help people mitigate or manage climate-induced risks, with the assessment of program actions conducted previously, community feedbacks from gained through primary data collection, and feedbacks from relevant key informants, a set of recommendations have been developed.

9 Recommendations

River Chars are dynamic landscapes, with the changing climate and human-induced unregulated interventions posing serious challenges to the lives and livelihoods of the marginalized communities. Climate change being a global developmental and environmental challenge, requires a coordinated effort from all government and non-government organizations. As it is a cross-cutting issue, a coordinated, integrated and participatory approach is required for long term sustainable development.

Based on the research findings, participatory consultation with the local community and the key stakeholders, the study suggests the following recommendations. The recommendations are area specific, although all relevant stakeholders should be included in different processes and intervention phases from planning, policy making, funding, implementation, technological support, research and knowledge dissemination aspects.

9.1 Planning and Policy Interventions

There are no specific national policies addressing climate-adaptive livelihood improvement programmes in Char region, but several policy documents identify at least one or a combination of the major components crucial to be addressed in future planning. Char-specific policy, especially for the north-western Chars of Bangladesh, needs to be formulated.

A central collaboration and a platform for all project implementers is required for better planning and reaching a wider spectrum of beneficiaries. The different components e.g., for livelihood improvement (Ministry of local government and rural development cooperative, Agriculture, Fisheries and livestock, Social Welfare, Women and Children Affairs etc.) for financial inclusion (Ministry of Finance, Labor and Employment Ministry etc.), and disaster risk reduction (Ministry of Disaster Management and Relief) should be addressed by relevant government ministries at national, and local level.

Strengthening of local government's capacity is a key area of improvement. Moreover, institutional coordination among government representative departments and relevant partner NGO or development organizations is imperative for successful implementation of any such projects.

A bottom-up inclusive program planning approach is required, giving social and political agency to the key beneficiaries.

9.2 Livelihood Improvement

Identification of the existing and potential skills and capacity of the community is imperative for an effective livelihood programming. It is necessary to develop those specific skill sets that the beneficiaries have a knack for in order for the changes to be sustainable. Development organizations or NGOs should collaborate with relevant government organizations (departments under the relevant Ministries) for skills development programs.

Long-term employment options round the year are necessary for a sustainable livelihood and savings option for the community. Char context specific employment opportunities and market linkages is necessary. Government departments along with development partners can play a vital role in setting up context-specific employment activities.

Inclusive skill training on the professions such as agriculture, small cottage industry, and entrepreneurs can improve the capacity of the Char inhabitants and reduce long-term donor or government program dependency. Hence a close-looped economic model can be used.

9.3 Financial Inclusion

Financial literacy of the Char inhabitants is required. Long-term savings group, to continue the savings habit of the Char community, especially women can be of true merit in terms disasters. Community-based climatic risk fund can be useful during disaster.

Programs like the Forecast based financing can be more widespread covering all the inhabitants of the Char areas. Rather than providing reliefs, the beneficiaries can be incentivized for positive coping mechanism or climatic risk mitigation. Government and development organizations should increase provision for more emergency funds to support the most vulnerable Char people. However, for long term economic sustenance and coping with the risks, an inclusive livelihood approach is deemed most important.

9.4 Infrastructural intervention

As hazards affect the physical capital of the community to certain extent, focused intervention is required involving relevant stakeholders. A clear vision for the landscape and contextual, sustainable infrastructural intervention is required. Hard core engineered intervention might not work, due to the unique and dynamic Char landscape, and only providing embankments or roads will not be an ecologically sensitive solution, rather it might hamper the landscape, the biodiversity and overall pose a threat on the livelihood of the community. Small-scale interventions, based on community-needs and backed by environmental and scientific research could be imperative, though long-term planning should be streamlined. Few of the infrastructural interventions might include:

- Community/cluster-based plinth mound raising can be done by the development programs from relevant government department or donor organization, and implemented by the local NGOs and local government bodies
- Context specific stilt house design (maintaining flood level, Prefabricated, modular, dismantlable household units can be designed) can be done by the development programs from relevant government department or donor organization, and implemented by the local NGOs and local government bodies. This measure can be applied to mitigate the risks of livestock, and poultry losses
- Ecological/bio-engineering measures, which are cost-effective, and can be done through community mobilization should be promoted by relevant government departments (e.g., local government engineering department), backed by evidence from scientific community. Nature-based alternative solutions to embankments can help manage flood risks.
- To mitigate the risks of soil and river bank erosion, a riparian buffer can be created along the river bank. Bamboo or other native species (as evident from local adaptation strategy) can be promoted for soil stabilization in the river erosion prone zones. Local government departments (e.g., department of environment, department of forest, Bangladesh Climate Change trust fund), and backed by evidence from scientific community.
- For improved water quality, reduced river erosion, and to avoid ground water depletion constructed wetland, and community-based water retention ponds can be built, with the support from local NGOs and local government departments.

- For safe drinking water and sanitation measures throughout the year and especially during flood, installation of tube well, and sanitary latrines on higher ground, or raised plinth can be done. The Public health Engineering department can play a major role on this regard along with the support from relevant local NGOs working in this sector
- Establishment of flood shelters in the remote island and mainland chars (as highlighted from the community feedback) is required. The shelters should have provision for gender-based health and safety measures during disaster. A combination of model-based highly advanced warning system and community-based volunteers prepared well ahead of any climatic shock to mobilize in the event of disasters is required. The district and local level disaster management committees with the support from the Ministry of Disaster Management and Relief are responsible for such initiatives.

9.5 Integrated Programme Planning for Climatic Risk Reduction

Planning and designing of future livelihood improvement programs should be based upon scientific and social research, with actual projection for future. Relevant academic institutions, research-based organizations, academicians, expert and practitioners can play major roles in taking timely research and action-based investigations. Similar to the current study, studies with specific objectives can also be deployed as part of development programmes by development partners for better understanding of the scenario. To develop a sustainable livelihood project, an understanding on the impacts of climate change on each sector of livelihood (e.g., agriculture, fisheries, livestock, transportation, retail) needs to be developed and included in the programme design.

Promotion of climate-resilient agricultural practices (climate resilient crop varieties), Agro-ecological measures should be given priority with the support from the Agriculture Extension department.

Technology-based market linkages can be promoted in the remote Char areas for increased market accessibility and value chain. New initiatives to link the marginalized community with the profitable chains can create employment opportunities and improve the local economy.

Lateral coordination among government and non-government stakeholders is mandatory. Selection of beneficiaries should be done in a collective manner so there is no overlapping of services for one single beneficiary and as a result a wider range of beneficiaries can be served.

Rather than providing reliefs, the beneficiaries can be incentivized for positive coping mechanism or climatic risk mitigation. Government and development organizations should increase provision for more emergency funds to support the most vulnerable Char people.

A community-based radio forecasting platform (as the successful one like 'Radio Chilmari', operating at *Chilmari* Upazila, Kurigram, implemented by RDRS) establishment can be fruitful for efficient dissemination of weather forecast and early warning.

Overall, for future livelihood programming, to better cope with the climatic risks, a comprehensive approach incorporating the mentioned is required.

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11 Annexes

11.1 Annex-1: Agreed Inception Report

INCEPTION REPORT ON

UNDERSTANDING THE IMPACT OF CLIMATE CHANGE ON POOR AND VULNERABLE CHAR PEOPLE

Submitted on: 23 November 2020

Prepared by



Submitted to



1. Introduction

1.1 Background and Understanding of the ToR

Bangladesh is the largest delta in the world sitting at the confluence of the three major river systems of Ganges, Brahmaputra, and Jamuna river basins. It continues to be formed by sedimentation and accretion of these rivers as they flow from the Himalayas to the Bay of Bengal. The chars, including mainland chars, are riverine islands within Bangladesh's major river systems that are unstable and subject to both accretion and erosion. Chars are home to six million people who are generally poor, have limited access to services and are more vulnerable to natural hazards than the rest of the rural population. Char households usually have a low asset base compared to mainland regions and the situation is worse in remote char areas, where many families do not own any productive assets. According to the Concern Char Contextual Analysis, 2016, the adverse effects of climate change, mostly impact poor and low-income groups in the Char areas.

The Char regions of Bangladesh are highly prone to natural hazards such as flooding and river bank erosion. The char district of Kurigram has one of the highest poverty rates in Bangladesh, with 44% of the population living in extreme poverty compared to a national mean value of 17.6%¹. Since gender inequality is usually linked to financial capacities, the increase in disasters and extreme climate events due to climate change is likely to affect women more than men², unless poverty is reduced. Hence, the Empowering Women and Youth through Graduation and Financial Inclusion (EWYGF) project of Concern Worldwide Bangladesh will ensure extreme poor women are provided with consumption support by government social safety nets (SSNs) and will provide an asset transfer for investment in IGAs. As a result, of the project, the targeted extreme poor women will be able to cope with social and economic shocks. Additionally, they will be able to manage lean periods through diversified livelihoods with a number of different income source, without having to adopt negative coping mechanisms. At the same time, the targeted women from the very poor group will benefit from the Self-help Group (SHG) model and IGA skills training. Both groups of women - the extreme poor and very poor, will be trained on financial literacy to improve their knowledge, attitudes and skills on using different financial products.

As part of the EWYGF project, this research will explore the impacts of climate change on poor and vulnerable char people. It will focus specifically on the socio-economic impacts affecting the programme participants from two selected Upazilas of Kurigram district in Bangladesh to give recommendations on how future livelihood programmes could better help people mitigate or manage climate-induced risks. The purpose of the study is to reappraise the

¹ World Bank Interactive Poverty Maps, Bangladesh (2016) Available at: <http://www.worldbank.org/en/data/interactive/2016/11/10/bangladesh-poverty-maps>

² Cannon.T. (2002) Gender and climate hazards in Bangladesh, *Gender & Development*, 10:2, 45-50, DOI: 10.1080/13552070215906

implications of climate change on livelihoods of the most vulnerable people in Kurigram Sadar and Ulipur Upazila of Kurigram District in Bangladesh.

1.2 Objectives of the Study

The specific objectives of the study are to:

- Understand the specific hazards participants are exposed to
- Understand their levels of exposure and the conditions that make people more vulnerable to these hazards
- Understand specific socio-economic impacts of climate-induced risks (considering different livelihood pathways – on-farm and off-farm)
- Understand what knowledge and resources participant have to mitigate the identified risks
- Assess the effectiveness of programme actions, designed to reduce hazards, exposure or vulnerability, and
- Make recommendations on how future livelihood programming could better help people mitigate or manage climate-induced risks.

1.3 Study Area

Kurigram district, under Rangpur division, is located at the northern part of Bangladesh. Numerous rivers flow over this district - the major rivers being Brahmaputra, Dharla and Tista and the smaller ones are Dudhkumar, Phulkumar, Gangadhar, Jinjiram etc. Average height of this district is 13 meters from the mean sea level. Tempered climate is seen in the district all the year round, where the temperature ranges between 32.3°C to 11.2°C annually. The total Annual rainfall is 2931 mm³. This study will be conducted in Kurigram Sadar and Ulipur Upazila of Kurigram District (Figure 1). For this study, the team plans to visit two unions in the two Upazilas.

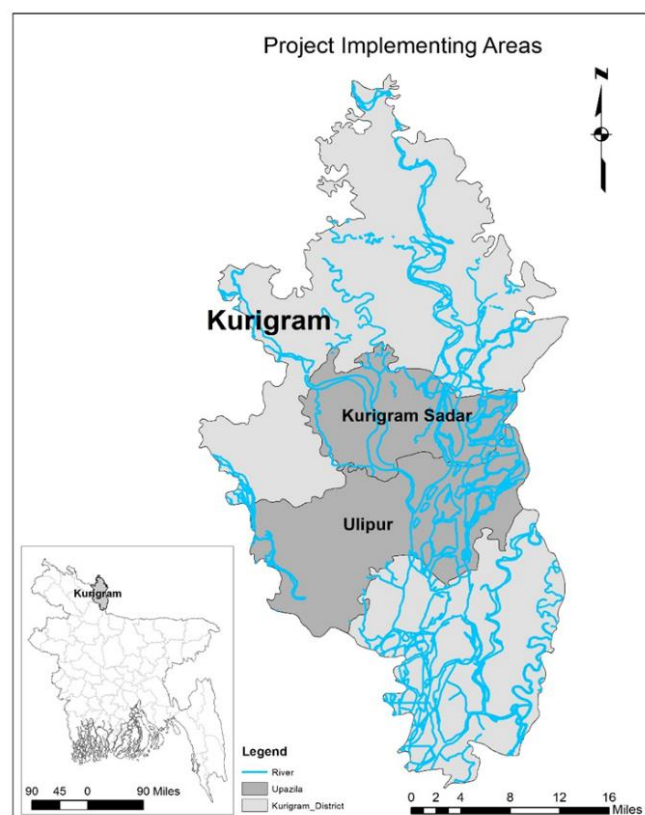


Figure1: Map of Study Area

³ National Encyclopedia of Bangladesh, 2007

Table 1: Selection of study sites

Upazila	Union	Selection Criteria
Ulipur	Bazra	Remote location, lack of access to resources
Kurigam Sadar	Jatrapur	High level of flooding and river bank erosion

1.4 Scope of Work

This study will carry out the following activities:

1. Secondary desk review including review of existing literature and project relevant data sources.
2. Preparation of data collection tools, including KII and FGD, along with other participatory tools (See Table 3) in consultation with Concern team
3. Field visits and data collection
4. Data analysis
5. Drafting of research report
6. Sharing the draft report with Concern Worldwide
7. Disseminate the findings through a presentation
8. Finalizing the report incorporating feedback from Concern Worldwide Bangladesh

1.5 Deliverables

DM WATCH will submit the following deliverables:

- ✓ Inception document with proposed methodology and schedule plan
- ✓ Draft report with annexes for feedback
- ✓ Final report with annexes

2. Methodology of the Study

2.1 Approach for the Study

The study will be conducted following the conceptual framework.

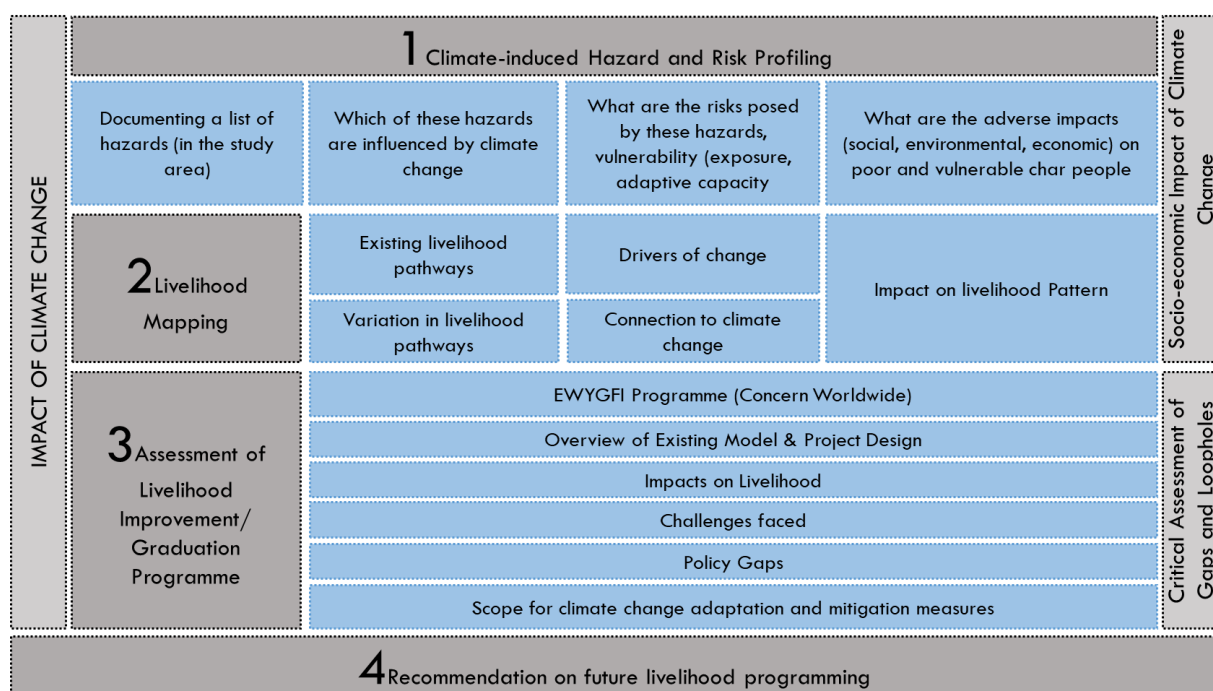


Figure 2: Conceptual Framework for the study

2.2 Approach and Methodological Framework

A combination of quantitative (Concern Worldwide project related data, other relevant data sources) and qualitative approach will be used for the study to capture the evidences at the local level. A major component of the work will be desk-based where the consultant will focus on literature review and secondary data analysis from a variety of secondary data sources (See Table 6). Additionally, the study will use participatory rural appraisal tools including FGDs and KII for some primary data collection with the key stakeholders at the field level. The study matrix below shows the proposed relevant tools and indicators to attain the objectives.

Table 2: Objective and Indicator wise Methodological framework

Objectives	Indicators/Issues	Tools/Source	Stakeholders for Primary Data
Objective 1 Understand the specific hazards participants are exposed to	<ul style="list-style-type: none"> List of Hazards (Profile) Variation of environmental and meteorological factors 	<ul style="list-style-type: none"> ✓ Secondary review (Project relevant data, Baseline data, household survey data, scientific journal articles) ✓ PRA <ul style="list-style-type: none"> - Seasonal hazard calendar - Climatic hazard mapping 	Community people (Women, men from Extreme-poor, and very poor group, and youth)
Objective 2 Understand their levels of exposure and the conditions that make people more	<ul style="list-style-type: none"> Economic and resources (livelihood activities) Physical Resources (infrastructure) Social capital 	<ul style="list-style-type: none"> ✓ Secondary review (Project relevant data, household survey data) ✓ PRA <ul style="list-style-type: none"> - Seasonal hazard calendar - Agriculture calendar 	<ul style="list-style-type: none"> - Community people - Local government representatives - Government officials

Objectives	Indicators/Issues	Tools/Source	Stakeholders for Primary Data
vulnerable to these hazards	<ul style="list-style-type: none"> - Degree of exposure to hazards (spatial) - Access to natural resources 	<ul style="list-style-type: none"> - Climatic hazard mapping - Livelihood Calendar - Community mapping - Vulnerability matrix <p>✓ KII</p>	<ul style="list-style-type: none"> - Climate change expert
<p>Objective 3</p> <p>Understand specific socio-economic impacts of climate-induced risks (considering different livelihood pathways – on-farm and off-farm)</p>	<ul style="list-style-type: none"> - Income and asset distribution - Degree of loss/damage on on-farm/off-farm activities due to drought/flood/other hazards - Variation in livelihood patterns due to climate-induced risk - Migration pattern - Loans (reason, repayment) 	<ul style="list-style-type: none"> ✓ Secondary review (project related data, household survey data, D-form) ✓ KII ✓ PRA - Seasonal hazard calendar - Livelihood Calendar - Agriculture calendar - Livelihood Resource Mapping - Vulnerability Matrix <p>✓ FGD</p>	<ul style="list-style-type: none"> - Community people - Community leaders - Local government representatives - Government officials - Local NGO representatives
<p>Objective 4</p> <p>Understand what knowledge and resources participants have to mitigate the identified risks</p>	<ul style="list-style-type: none"> - Natural capital, livelihood resources and assets - Perception on climate change/climate-induced risks - Hazard awareness - social capital - PIPs (Policies, Institutions, Processes) strategies and institutional assistance - Economic resources and financial mechanism for risk mitigation strategies 	<ul style="list-style-type: none"> ✓ Secondary review (project related data, household survey data) ✓ PRA - Coping and Adaptation - Strategies Assessment - Livelihood Resource Mapping - Vulnerability Matrix - Social Network Mapping <p>✓ KII</p>	<ul style="list-style-type: none"> - Local government agencies - Local NGOs - Community people
<p>Objective 5</p> <p>Assess the effectiveness of programme actions, designed to reduce hazards, exposure or vulnerability</p>	<ul style="list-style-type: none"> - Program activities - shortcomings of existing programs - Cumulative changes based on program outcomes - Community Expectations 	<ul style="list-style-type: none"> ✓ Secondary review (program documents, project related data, household survey data) ✓ FGD ✓ KII 	<ul style="list-style-type: none"> - Local government agencies - Concern, RDRS representatives - Community people

Objectives	Indicators/Issues	Tools/Source	Stakeholders for Primary Data
Objective 6 Make recommendations on how future livelihood programming could better help people mitigate or manage climate-induced risks	Based on study findings	<ul style="list-style-type: none"> ✓ Secondary review ✓ KII ✓ FGD 	<ul style="list-style-type: none"> - Local government representatives - Local NGOs - Community people - Community leaders

Table 3: Purpose of each tool and relevant stakeholders

Tools	Purpose	Outcome	Relevant Stakeholder
5. Calendar Exercise			
Seasonal hazard calendar	To create a seasonal hazard profile and its consequences	Using the Bengali months, chart multiple components such as <ul style="list-style-type: none"> • List of Hazard for the last 1.5 years • Occurrence, Intensity (low, medium, high) at different months of the year • Offset in their occurrence • Problems faced due to these hazards • List of on-farm and off-farm activities • Crop Production Cycle • Period of activity, Risk period, Productive period 	Community people (Women, men from ultra-poor, and very poor group including youth)
Agriculture Calendar	To understand the on-farm practices and alternatives		
Livelihood Calendar	To get an overview of the livelihood pathways and how they vary with seasons		
6. Mapping Exercise			
Community mapping	To understand the spatial distribution of community assets, and resources	A map showing <ul style="list-style-type: none"> • Households • Institutions • Natural features • Infrastructures • Livelihood activities • Livelihood resources • Risk-prone areas • Dynamic areas 	8 Participants per session * 6 Sessions
Livelihood Resource Mapping	To identify and categorise local livelihood pathways		
Climatic hazard mapping	To understand the relationship between spatial location and exposure		
7. Vulnerability Factor			

Coping and Adaptation Strategies Assessment	To identify and assess the effectiveness of the current coping mechanisms practiced by communities to secure and improve their livelihoods in the context of climate change.	<ul style="list-style-type: none"> • A comprehensive matrix, ranking the vulnerability of assets and activities based on • Level of Impact • Frequency of occurrence • Effectiveness and sustainability of their coping and adaptation strategies 	
Vulnerability Matrix	To gain an overview and quantify climatic hazard risk and vulnerability of local communities		
8. Social Network Mapping			
	To investigate and participants' access to different social institutions in terms of ties such as relationships, interactions and services that connect them.	<ul style="list-style-type: none"> • A social web showing which participants are linked to one another as well as networked with other institutions 	
9. FGD			
	To get In-depth community perception	Get a community perspective on the impacts, project outcomes and expectations	
10. KII			
	To gain deeper understanding from relevant stakeholders	Get perspective of relevant stakeholders and experts on service delivery and project implementation on the community level	<ul style="list-style-type: none"> -Local government representatives -Government officials -Local NGOs -Concern and RDRS representative

2.3 Qualitative Sample Design

For qualitative sample collection, community discussion through various participatory tools will be applied in selected parts of the study areas, with special focus on the beneficiaries of the EWYGF I programme. The following table shows the summary of the qualitative sample distribution.

Table 4: Qualitative sample distribution

Stakeholder	Tools	Area		Total
		Kurigram Sadar	Ulipur	
Women group (including youth)	FGD	2 (one group with ultra-poor, another with very poor women)	2 (one group with ultra-poor, another with very poor women)	4
Men group		1	1	2

(including youth)		(mixed group with ultra-poor, very poor male group)	(mixed group with ultra-poor, very poor male group)	
FGD				6
Community Leader (religious leader/school teacher)	KII	1	1	2
UNO		1	1	2
PIO		1	1	2
Upazila Chairman/ CCA Committee		1	1	2
Upazila Agriculture Officer		1	1	2
Engineer-LGED		1	1	2
Upazila Social Services Officer		1	1	2
Department of Cooperatives: District Officer		1		1
Upazila Secondary Education Officer		2		2
DRRO		1		1
Project officials (Concern, RDRs)		2		2
CCA and DRR expert		2		2
Women Affairs Upazila officer		1	1	2
Development partners/Local NGOs		2		2
KII				26
Total				30

*Since the quantitative data has already been collected by Concern Worldwide Bangladesh, this section does not include the sample design and approach for quantitative sample distribution.

2.4 Data Collection

2.4.1 Primary Data Collection

Initially, the study team will identify the relevant stakeholders aligned with the project objectives for primary data collection. The tools that would be used for qualitative data collection will mainly include

KII and FGD, but other participatory tools as summarized in Table 3. On identifying the key stakeholders, a field mobilization plan has been developed (table 5). Prior appointment might be required for stakeholders such as local government representatives, Government officials, and NGO representatives. If some of the key informant cannot be reached during the given time frame, the interviews will be conducted via telephone. Specific to each stakeholder group, a checklist for KII and FGD has been developed to obtain the information and knowledge required to analyse the indicators. The data collection and other steps of the study will strictly follow health measures provided by WHO and the National authority considering the COVID-19 pandemic. During physical data collection, and other activities the study team will strictly follow the social distancing measures with the participants and will provide the required safety equipment (face mask etc.) to avoid any type of mishaps. The detailed work plan with a timeline is provided below:

Table 5: Secondary documents to be reviewed

Date	Day	Time	Travel From	Travel To	Night Stay
06 Dec	Sunday	Morning	Dhaka	Kurigram Sadar Upazila	
07 Dec	Monday	Work at Kurigram Sadar Upazila			Kurigram Sadar Upazila
08 Dec	Tuesday	Work at Bazra Union, Ulipur Upazila			
09 Dec	Wednesday	Work at Jatrapur Union, Kurigram Sadar Upazila			
10 Dec	Thursday	Travel back to Dhaka			

2.4.2 Secondary Data Collection

A thorough and detailed review of secondary documents including government policies, project documents, plans, strategies, will be carried out to achieve the objectives.

Table 6: Secondary documents to be reviewed

Category	Reports/ documents
Policies, laws, actions, plans and strategies	<ul style="list-style-type: none"> ▪ Bangladesh Climate Change Strategy and Action Plan (2009) ▪ National Adaptation Programme of Action (NAPA, 2009) ▪ Nationally Determined Contributions (NDCs) ▪ Third National Communication Of Bangladesh To The United Nations Framework Convention On Climate Change (2018) ▪ Climate Financing for Sustainable Development: Budget Report 2019-20 ▪ Bangladesh Disaster Report (2013), Upazila D-form ▪ National Plan for Disaster Management (2016-2020) ▪ Bangladesh 8th Five-year Plan (draft)
Concern Worldwide	<ul style="list-style-type: none"> ▪ Final Report on Market Assessment and Value Chain Analysis of Empowering Women and Youth through Graduation and Financial Inclusion project

	<ul style="list-style-type: none"> ▪ Baseline Survey of “Empowering Women and Youth through Graduation and Financial Inclusion” Project, Char Programme ▪ End evaluation of Nodi o Jibon project ▪ Project Proposal “Empowering Women and Youth through Graduation and Financial Inclusion” ▪ Char Contextual Analysis (2016)
Relevant Reports	<ul style="list-style-type: none"> ▪ From CLP, BRAC, Government SSNPs, VGD, IFRC and others
Articles	<ul style="list-style-type: none"> ▪ Relevant scholarly articles
Data Sources	<ul style="list-style-type: none"> ▪ BBS ▪ Climatic and Meteorological data from the websites of respective ministries if needed

2.5 Data Analysis

Quantitative data acquired through project related documents will be analyzed through appropriate tools. Statistical analysis will be based on available data (acquired from Concern Worldwide, relevant sources). For quantitative data analysis, the study will try to find correlations between vulnerability and different socio-economic aspects of the community by using statistical tests such as ANOVA and correlation (depending on the availability and the nature of the quantitative data). Comparison between very poor and ultra-poor women can also highlight key factors and conditions contributing to the vulnerability of the community, and hence aid in assessing the effectiveness of the program.

For analytical convenience, KII and FGDs will be conducted following semi-structured questionnaires. Intelligent Verbatim transcription will be done, and will be written soon after the completion of an interview by using field notes and recorded data. The results acquired from PRA tools will be analyzed through spatial analysis and assessing the vulnerability index

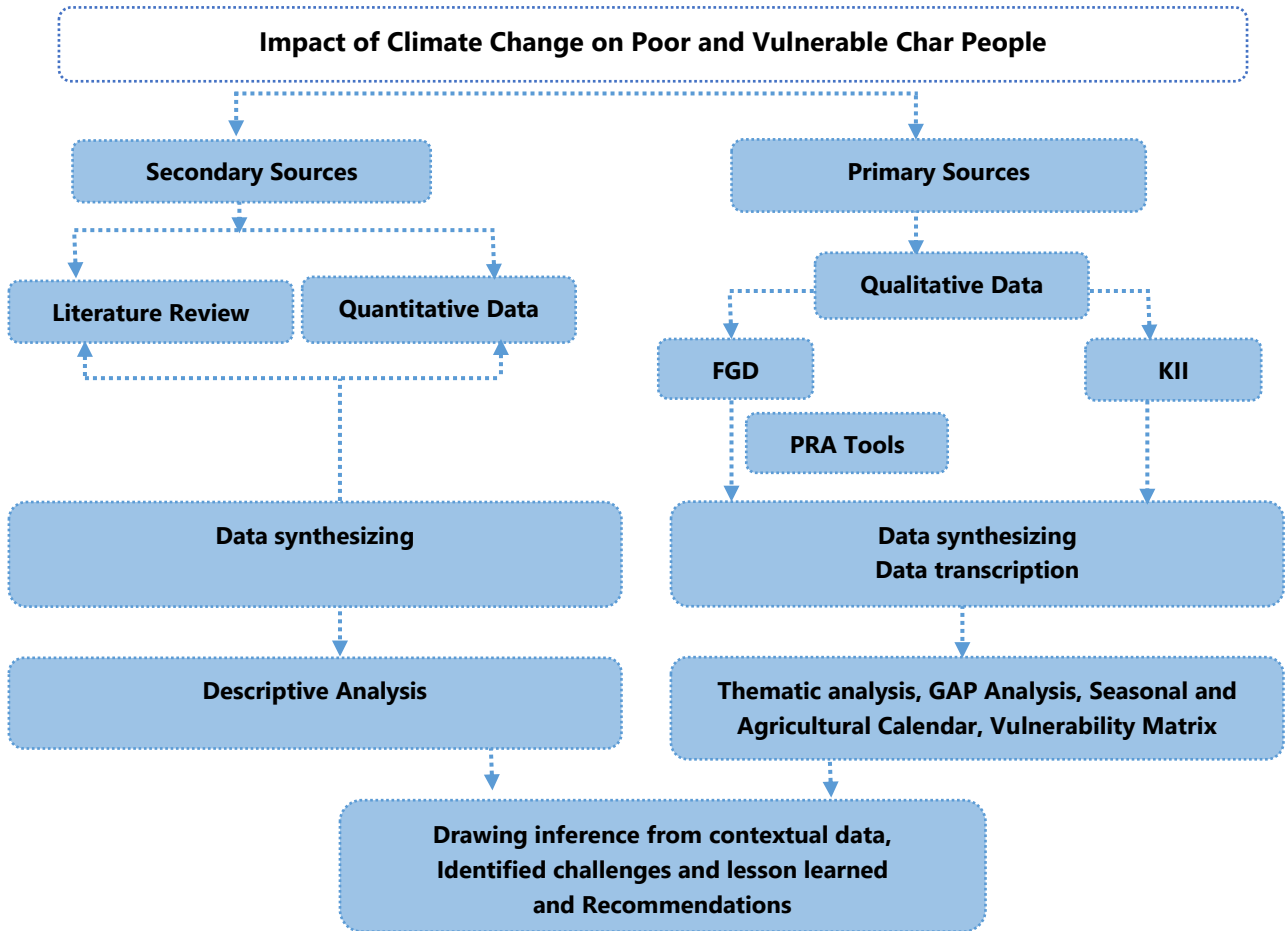


Figure 3: Data Analysis Plan

The data analysis will be conducted based on the Sustainable Livelihoods Framework, SLF (DFID, 2002), which will be used as a guide in order to assess the vulnerability and the socio-economic impacts of climate change on the char people and their livelihood. The findings from the PRA tool such as Social Mapping, Seasonal Hazard Calendar, Agriculture Calendar, and the Vulnerability Matrix will be broken down explain the different dimensions of vulnerability. Quantitative analysis will be used to establish relationships (through statistical tools) between different components. The five capitals (Natural, Physical, Financial, Human and Social) mentioned in the framework will be used to analyze different aspects of the community and their livelihood. The study will provide recommendations based on the primary and secondary data analysis including project policy, climate-adaptive livelihood strategies, needs and priorities.

2.6 Ethical Guideline

DM WATCH possesses its own mechanism to obtain/secure ethical clearance from the respective authority.

- Informed consent: All participants will provide and will be informed to consent following standard and pre-agreed upon consent protocols.
- Integrity/honesty: Research team will display honesty and integrity in their own behavior, and attempt to ensure the honesty and integrity of the entire study process.
- Respect for people: Research team will respect the security, dignity and self-worth of respondents, program participants, clients, and other study stakeholders. The team will obtain the informed consent of participants to ensure that they can decide in a conscious, deliberate way whether they want to participate.
- Respondents will not receive any monetary benefits. Facilitation process will be monitored and equal participation from the respondents will be ensured.
- Confidentiality of the data will be maintained throughout the project period

3. Detailed Work Plan

Table 7: Detailed Work Plan on the study

Task	Start Date	End Date	Working Days	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9
Document review, Draft Inception Report and Tools Preparation	08 Nov	11 Nov	4		■ ■ ■ ■							
Submission of Draft Inception Report and Tools	12 Nov	12 Nov	1			■						
Secondary Document Review	01 Nov	12 Nov	10	■ ■ ■ ■ ■ ■ ■ ■ ■ ■								
Review of Inception Report by Concern Worldwide	15 Nov	16 Nov	2			■ ■						
Secondary Data Analysis and Synthesis	15 Nov	25 Nov	9			■ ■ ■ ■ ■ ■ ■ ■ ■						
Feedback Incorporation and Submission of Final Inception Report and Tools	23 Nov	23 Nov	1				■					
Draft Report preparation based on Secondary data, Quantitative data analysis, and synthesis. Translation of Tools, Filed material preparation of PRA tool templates	24 Nov	02 Dec	7				■ ■ ■ ■ ■ ■ ■					

Task	Start Date	End Date	Working Days	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9
Training of Internal Research Team	03 Dec	03 Dec	1									
Field Work	06 Dec	10 Dec	5									
Analysis of the findings and Report Writing	13 Dec	20 Dec	5									
Draft report sharing	21 Dec	21 Dec	1									
Review and feedback on Draft Report from Concern Worldwide	21 Dec	24 Dec	3									
Presentation on Research Findings	23 Dec	23 Dec	1									
Feedback incorporation	24 Dec	29 Dec	4									
Final report submission	30 Dec	30 Dec	1									

*Updated Dates:

Updated Draft Report Submission: 29 Dec, 2020

Presentation: 04 Jan, 2021

Final Report Submission: 10 Jan, 2021

11.2 Annex-2: Final Qualitative Data Collection Tools

Annex 2: Qualitative Data Collection Tools

PRA/FGD CHECKLIST

For Community people

'Consent of the respondent'

My name is _____ and I am working with DM WATCH. We are currently conducting a study on the climate-induced impacts affecting EWYGF I programme participants residing in Kurigram District in the Chars region of Bangladesh in the 2 (two) Upazilas (Kurigram Sadar, and Ulipur) under Concern Worldwide and RDRS. I invite you to participate in the discussion. Taking part in this study is voluntary. You may skip any questions that you do not want to answer. If you decide not to take part, or to skip some of the questions, it will not affect your current or future relationship with us. If you decide to take part, you are free to withdraw at any time. The study is conducted by DM WATCH. Please ask any questions you have now.

Statement of Consent: I understand the aforementioned information and I have received answers to any questions I asked. I consent to take part in the study.

Union/ward name:

Upazila name:

District name:

Date_____

S/L no	Name	Occupation	Mobile no	Signature

Table 1: A compiled list and methods of the PRA tools to be used for qualitative data collection

Tool	Objective	Task	Outcome	
Calendar Exercise	Seasonal Hazard Calendar	<p>To create a seasonal hazard profile and its consequences</p>	<p>Use a piece of flipchart paper for charting and label the Bengali months of the year on the horizontal axis</p> <p>Explain to the participants that you would like to develop a calendar to show key events and activities that occur during the year.</p> <p>Ask the participants to list the following:</p> <ul style="list-style-type: none"> • Seasons (rainy and dry seasons, hot or cold seasons) • Timing of climate events such as storms, floods, droughts and heat waves • Periods of scarcity of resources, such as food, water, fish or pasture • When common seasonal illnesses occur for people • Lack of work and income • Times of migration • Best Period for income (which livelihood activities happen when and why) 	<p>A calendar with:</p> <ul style="list-style-type: none"> • List of Hazard for the last 1.5 years • At what time of the year they are occurring • Intensity (low, medium, high) • Is there an offset in their occurrence? • What are the problems faced due to these hazards? (list and months of occurrence)
	Agriculture Calendar	<p>To understand the on-farm practices and alternatives</p>	<p>Using the same flipchart as above, explain to the participants that you would like to develop a calendar in order to get an overview of their agricultural activities</p> <p>Ask the participants to list the following:</p> <ul style="list-style-type: none"> • List of Farming Activities (Agriculture, fish, livestock) <p>In case of off-farm activities, additional list of livelihood activities</p> <ul style="list-style-type: none"> • Production cycle (land preparation, plantation, maturity, harvest, sales) • Risk period (labor shortage due to illness, livestock diseases, pest infestation, yield, flooding, rainfall too much/too little) • Alternative livelihood options in cases of no-activity periods • When is the best time to sell? Do you sell earlier, why? 	<p>The same calendar showing:</p> <ul style="list-style-type: none"> • List of Farming Activities • Crop Production Cycle • Risk period • Productive period
	Livelihood Calendar	<p>To get an overview of the livelihood pathways and</p>	<p>Using the same flipchart as above, explain to the participants that you would like to develop a calendar in order to get an overview of their agricultural activities</p>	<p>The same calendar showing:</p> <ul style="list-style-type: none"> • List of on-farm and off-farm activities

Tool		Objective	Task	Outcome
		how they vary with seasons	Ask the participants to list the following activities: <ul style="list-style-type: none"> List of livelihood activities Risk period (lower sales, infrastructure damage) Alternative livelihood options in cases of no-activity periods 	<ul style="list-style-type: none"> Period of activity Alternative livelihood measures
Mapping Exercise	Community mapping	To understand the spatial distribution of community assets, and resources	On a large piece of thick paper participants outline the boundaries of the locality and ask the participants to help map the following features: <ul style="list-style-type: none"> Households Key community institutions: schools, hospitals, religious places, community spaces, financial institutions, local government agencies and offices Natural features: forest, rivers, fields Key infrastructures: Big roads, highway, bridges 	A map showing <ul style="list-style-type: none"> Households Institutions Natural features Infrastructures
	Livelihood Resource Mapping	To identify and categorize local livelihood pathways	On the same map, further ask the participants to identify: <ul style="list-style-type: none"> Livelihood zones (farmlands, fisheries) Livelihood related infrastructure (crop reserves, storage, shops) Livelihood resources (natural and physical capital) 	The same map showing <ul style="list-style-type: none"> Livelihood activities Livelihood resources
	Climatic Hazard Mapping	To understand the relationship between spatial location and exposure	On the same map, further ask the participants to identify: <ul style="list-style-type: none"> Hazard-prone features of the landscape (using different patterns to differentiate different types of danger and impacts) Recent changes to the landscape, due to political, socio-economic or environmental factors 	The same map identifying <ul style="list-style-type: none"> Risk-prone areas Dynamic areas
Vulnerability Factor	Coping and Adaptation Strategies Assessment	To identify and assess the effectiveness of the current coping mechanisms practiced by communities	Using one paper per hazard, explain to the participants that you would like to understand how they are impacted by it and what actions do they take to deal with the impact A list of their important assets and activities would be listed vertically Ask the participants to list the following:	A table showing: <ul style="list-style-type: none"> The hazards (Identified with the seasonal hazard calendar) List the impacts of these

Tool		Objective	Task	Outcome
		in the context of climate change	<ul style="list-style-type: none"> List the impacts the hazards have on their assets and resources Explain what they do to cope with the threats and impacts Who in the household is most impacted? Why? <p>Once off-field, a ranking score* will be assigned to each of the actions based on effectiveness and sustainability of their actions</p>	<p>hazards on their assets, activities and resources</p> <ul style="list-style-type: none"> Actions they take to cope with the situation Ranking based on effectiveness and sustainability of their actions
	Vulnerability Matrix	To gain an overview and quantify climatic hazard risk and vulnerability of local communities	<p>Using the same piece of paper as in the Coping and Adaptation Strategies Assessment tool, ask the participants to assign value to each hazard by:</p> <ul style="list-style-type: none"> Rate the impact of the hazard on a scale of 1-4 on the listed assets and activities (<i>1- Low or no effect, 2- Moderate effect, 3- Severe effect, 4- Very severe effect/total destruction</i>) Rate the frequency of a hazard on a scale of (<i>1- very low, 2-low, 3-moderate, 4-high</i>) 	<p>The same table showing</p> <ul style="list-style-type: none"> An impact score Estimated frequency of each hazard
	Social Network Mapping	To identify participants' access to different institutions by identifying relationships, interactions and services	A mapping of existing institutions such as Micro-enterprises, Financial Institution (Bank), Service Delivery Institution, etc. will be developed based on the feedback from the participants (from livelihood mapping). Through further discussion with the participants, a relationship network will be developed based on their interactions and accessibility with each other and the institutions.	A social web showing which participants are linked to one another as well as networked with other institutions
	FGD	To get an in-depth understanding of the community	Discussion based on the guideline/questionnaire provided below	Get a community perspective on the impacts, project outcomes and expectations

* Participatory Tools and Techniques for Assessing Climate Change Impacts and Exploring Adaptation Options: A Community Based Tool Kit for Practitioners (2010)

FGD Checklist

Socio-economic Impacts of climate-induced hazards

1. What are the most common hazards that you have experienced (witnessed, impacted by) in last 1.5 years? How do the climatic risks and changes affect the community? If a hazard occurs that destroys property in this community, how do people typically restore their property? In your house, to reduce losses when disaster occurs, what measures do you take? Does the community have access to external recovery services? If so, who is those?
2. Which members of the community are most affected by climate risks and changes? Why?
3. Do you think that women are particularly affected? How do you think gender plays a role in this case (Guide towards GBV and trauma)?
4. Are the children and youth also impacted by these hazards? Do you know of household cases where the children are put to work or married of as means to cope with the impacts?
5. How often do people turn to begging, petty crimes or illegal activities as a coping mechanism? Do you know of cases where this has occurred?

Knowledge and Adaptation Strategies

1. What actions do people in the community take to protect their homes, other types of property, productive assets, and valuables or work equipment from being damaged in the event of a disaster? These actions are things people could do now in advance of disaster, not right before the disaster occurs? Will they remain effective in relation to changing climatic risks? Are they sustainable for future?
2. How does your household work together when there is a big shock? Who does what?
3. What would you like to be able to do to prepare for a big shock?
4. What is stopping you from doing this now? Who or what could help you to be better prepared? Or to recover more quickly after a shock?
5. Are there formal or informal networks in the community that help people provide support to each in the event of a flood? What does your community do [BEFORE] [DURING] [AFTER] there is a big shock? How does this help to vulnerable (physically, socially or economically) people in the community?? What else should they be doing?
6. What other shocks, stresses and uncertainties may affect the community in the future? Who will be most impacted, why?

Program Effectiveness and Expectation

1. What kind of help do you receive from government [BEFORE] [DURING] [AFTER] any kind of disaster? Who gets the most benefit? How much it helped you to cope with the emergency crisis?
2. What kind of assistance do you receive from NGOs and other programs at the local level [BEFORE] [DURING] [AFTER] a big shock? Who gets the most benefit? (Focus/guide conversation on EWYGF)
3. How do you think these programs help you? (Guide in terms of vulnerability)
4. What kind of support would you like to receive to help you to cope with disasters?
5. What role can services provided by government or other actors play in enabling different people to better respond to climate risks, now and into the future?

Session Details:

Expected total duration: 2.5-3 hours (4 Exercises * 30 minutes = 2 hours; 1 FGD 30 minutes; 30 minutes extra for ice-breaking session, interim sessions and snacks break; lunch will be included if necessary)

Venue: To be announced in consultation with Concern Worldwide and RDRS

Participants: 8 people per session * 6 sessions (to be confirmed after consultation with Concern Worldwide and RDRS)

Materials Required:

- Chart paper
- Markers
- Pens
- Color pencils
- Masking tape
- Sticky notes
- Board
- Pins, etc.
- Face mask

KII Checklist

'Consent of the respondent'

My name is _____ and I am working with DM WATCH. We are currently conducting a study on the climate-induced impacts affecting EWYGF I programme participants residing in Kurigram District in the Chars region of Bangladesh in the 2 (two) Upazilas (Kurigram Sadar, and Ulipur) under Concern Worldwide and RDRS. I invite you to participate in the discussion. Taking part in this study is voluntary. You may skip any questions that you do not want to answer. If you decide not to take part, or to skip some of the questions, it will not affect your current or future relationship with us. If you decide to take part, you are free to withdraw at any time. The study is conducted by DM WATCH. Please ask any questions you have now.

Statement of Consent: I understand the aforementioned information and I have received answers to any questions I asked. I consent to take part in the study.

KII checklist for Local Government officials (UNO/PIO/UP Chairman)

1. What kind of natural hazards that the local char people are exposed to?
2. Climate change is now a key issue to be addressed at all policy levels. Which of these hazards do you think are climate change induced?
3. Do you think that the lack of economic resources (financial and institutional assistance) in char areas are making them more vulnerable to climatic hazards?
4. Are climate induced risks hampering the livelihood measures and income sources of people? How? Who is most affected? Why?
5. How do you think that the livelihood pattern of the community people changed in the last few years?
6. Are there many people migrating due to floods, river bank erosion, drought etc.? How is their life affected (in socio-economic terms) due to these hazards?
7. Are there preparedness and response programs arranged by your institution to make the community more adaptable to hazards?
8. Are there infrastructural facilities such as shelters, proper roads, etc. that help them during such events?
9. Do char people have access to common natural resources during hazards? What are those? If yes, what purpose do they have? If not, why?
10. Please tell us about the different projects that you have related to climate induced risks and hazards for the people? What are the challenges you face while implementing these projects/program?
11. Do you think there are enough Government projects that assist the vulnerable char people of Kurigram? (in the context of livelihood programs as well as climate adaptation and mitigation)
12. What are your UPZ/UP/Project's roles and responsibility to improve the livelihoods of the vulnerable community? Are there any barriers to fulfilling these roles and responsibility?
13. Similarly, how are the NGO/Development organizations assisting them to deal with their livelihood conditions that are impacted by hazards?
14. Do you think everyone have access to these services? Who can be included?
15. Are you working closely with the NGO/Development organization? Do you think this strengthen the projects at the community level?
16. What kind of financial mechanisms are taken by the local government for mitigation strategies to tackle the climate induced hazards?
17. Are there any Government strategies or policies regarding these livelihood improvement, climate adaptation and mitigation programs?
18. What is needed to manage climate-induced risks for this community? (assistance such as financial, staff training, technology, infrastructure construction and machine installation, maintenance, and monitoring)
19. Do you know anyone who struggled against the hazards and success to survive?

20. Do you think current policy is sufficient for risk reduction activities in the char areas? If yes, then please describe how can these gaps be minimized? What local (formal or informal) community organizations/structures focused on disaster management coordination?
21. Are local (formal or informal) community organizations/structures focused on disaster management coordination representative of both men and women and inclusive of all? Relevant vulnerable (physically, socially or economically vulnerable) groups in their planning/decision making? If yes, how
22. What do you recommend for upgrading the livelihood status of the climate vulnerable people based on their needs and priorities?

KII checklist for CCA and DRR expert

1. What are the impacts of climate change in Bangladesh? Especially in northern, north-western and char region?
2. What climate change induced hazards communities of Kurigram district are facing? How vulnerable are they in your expert opinion?
3. Do impacts differ in case of different social or financial status of the households?
4. How are these hazards affecting the livelihood activities of the char inhabitants?
5. What are the impacts of climate induced risks on the inhabitants of char areas?
6. What Climate Change Adaptation (CCA) measures need to be taken in Char areas to combat climate induced risks?
7. How crucial are natural capitals and infrastructural facilities such as shelters, proper roads, etc. that help them cope with such events?
8. What are the existing CCA/ DRR measures for improving the livelihood strategies of char inhabitants? Are they fruitful enough to make a long-term change?
9. What are the challenges of implementing CCA and DRR activities in Char areas? According to you, are these programs effective? (Please explain, why?)
10. What can be the best possible solutions to mitigate climate change vulnerability for poor women? Do you think gender plays a role in vulnerability?
11. How women/char people likely to adopt the CCA and DRR activities? Are these char people becoming climate refugees?
12. Do you know of any local adaptation strategies that the char communities use to combat climate change?
13. What other factors do you think plays a role in increasing climate adaptability (education, community relationships, etc.)?
14. Are there enough projects (both government and non-government) on CCA and DRR practices? Do you think the outcomes reflect the real scenario on the field based on the community needs and priorities?
15. What kind of mechanisms or institutions are needed for implementing CCA and DRR practices to tackle the climate induced hazards? (assistance such as financial, staff

training, technology, infrastructure construction and machine installation, maintenance, and monitoring)

16. What are the roles and responsibilities of different stakeholders to mitigate the climate change impact in these regions? What is the role your organization (or similar) is playing?
17. Are there local (formal or informal) community organizations/structures focused on disaster management coordination?
18. Are local (formal or informal) community organizations/structures focused on disaster management coordination representative of both men and women and inclusive of all? Relevant vulnerable (physically, socially or economically vulnerable) groups in their planning/decision making? If yes, how
19. What is your recommendation in terms of climate change adaptation and mitigation programs to sustain the livelihood of these communities?

KII checklist for Department of Women Affairs Representative

1. What are the hazards that the women of Kurigram are exposed to?
2. How are these hazards hampering the livelihood measures/income sources of women? Do you think that the ultra-poor and very poor women living in the chars are more impacted by this?
3. What other factors do you think plays a role in increasing climate vulnerability (education, community relationships, etc.)?
4. What is your opinion on more involvement of women in off-farm or on-farm activities?
5. Do you think the livelihood pattern has changed in recent years due to climatic hazards?
6. Would you say that the women have adequate and equal access to natural resources in their locality?
7. What are the obstacles and risks women are facing during floods, droughts, river erosion etc.?
8. Who are most effected during and post disaster? Are people migrating or being displaced due to these hazards? Who does it most?
9. According to you, has climatic hazards increased the chances of child marriage, dowry, violence towards women?
10. Do you think there are there enough Government projects that assist these vulnerable women in char areas in terms of livelihood development as well as climate change adaptation and mitigation?
11. How effective those projects are, you think to improve women livelihood?
12. How are the NGOs/Development organizations assisting women in empowering (e.g. through financial inclusion) them and reducing socio-economic impacts of climate-induced risks?

13. Are women centric and microcredit-based NGOs helping ultra and very poor women in improving their livelihood? Do you think the outcomes reflect the real scenario on the field?
14. Do women in the char area have a specific coping mechanism or adaptation strategy to face climate change? Are they dependent on specific resources?
15. What kind of mechanisms or institutions are needed to address gender issues in the face of climatic hazards? (assistance such as financial, staff training, technology, infrastructure construction and machine installation, maintenance, and monitoring)
16. What are the roles and responsibilities of different stakeholders to mitigate the climate change impact in these regions? What role is your department playing?
17. Are you aware of the needs and expectations of the community people?
18. What is your recommendation in terms of climate change adaptation and mitigation programs to sustain the livelihood and empower the women in these communities?

KII checklist for Local NGOs

1. For the changing climate and increasing natural disasters how are the char region and the communities being affected?
2. Do you work with community people who are being affected by the increased hazards due to climate change? What is the role of your organization in this community?
3. Do the local people have adequate access to the natural resources, especially the women?
4. Do you think lack of economic and natural resources in char areas are making people more vulnerable?
5. Do you think the hazards are hampering the livelihood measures/income sources of people? Are people shifting their livelihood patterns?
6. What Livelihood resources and assets are at greater risk due to increased disasters?
7. What are the local adaptation strategies to combat climate change in your community?
8. What other factors do you think plays a role in increasing climate adaptability (education, community relationships, etc.)?
9. How are the NGOs/Development organizations assisting to reduce the effects of climate change as well as improving livelihood of the char communities?
10. What are the roles and responsibilities of different stakeholders to mitigate the climate change impact in these regions?
11. Are the local cooperatives and local community working together during the disaster period?
12. What roles do the different stakeholders play in implementing such projects? Do you think this strengthening access and collaboration among different stakeholders is necessary?
13. According to you, are the various programs on risk reduction and livelihood improvement effective? If not, why?

14. Are there infrastructural facilities such as shelters, proper roads, etc. that help them during such events?
15. Are you aware of the needs and expectations of the community people? What measures do you think are needed for livelihood improvements? (assistance such as financial, staff training, technology, infrastructure construction and machine installation, maintenance, and monitoring)
16. What is your recommendation in terms of climate change adaptation and mitigation programs to sustain the livelihood and empower the women in these communities?

KII checklist for Project Officer (Concern Worldwide, RDRS)

1. For the changing climate and increasing natural disasters, how are the char region and the communities being affected?
2. Which part of the chars are more prone to hazards?
3. Do you have any key project activities designed to reduce vulnerability of people living in char areas, especially women?
4. Do the local people have adequate access to the natural resources? Are the women equally getting access to those resources?
5. What Livelihood resources and assets are at greater risk due to increased disasters?
6. Do you think the hazards are hampering the livelihood measures/income sources of people? Are people shifting their livelihood patterns?
7. What are the community coping mechanisms to climate change in this region?
8. Is your project fostering economic growth of the poor people by supporting their livelihood? What are the steps taken under your project to protect their livelihood measures?
9. Are you taking into account the needs and priorities of the community people?
10. Are the char people migrating or being displaced from their habitat? Does your project address these displacement issues?
11. Are there infrastructural facilities such as shelters, proper roads, etc. that help them during such events?
12. Did your project incorporate any local adaptation strategies to combat climate change in this community?
13. What other factors do you think plays a role in increasing climate adaptability (education, community relationships, etc.)?
14. Does your project support the local cooperatives and local community in all phases of climatic risk reduction?
15. Do you collaborate with other organizations (government and non-government)? What roles do the different stakeholders play?
16. What measures do you need to take for implementing your projects effectively? (assistance such as financial, staff training, technology, infrastructure construction and machine installation, maintenance, and monitoring)

17. Are you aware of the expectations of the community people? What do you recommend under the scope of your project to make the outcomes more effective and sustainable?

KII checklist for Upazila Agricultural officer

1. What are the existing climate change induced hazards the local char people are exposed to?
2. What time of the year do these hazards mostly occur?
3. How are these hazards affecting the on-farm activities of the char inhabitants? Is the crop calendar being affected by such risks?
4. Is there are disaster forecasting capabilities, are there mechanisms for the delivery of forecasting information at community level for cultivation, harvesting and livestock? If yes, what are those?
1. Do the local people have adequate access to natural and economic resources? Are the women getting equal access to those resources?
2. Do you think access to resources plays an important role on how vulnerable the community is?
3. What Livelihood resources and assets are at greater risk due to increased disasters?
4. Do you think, people are shifting their livelihood pattern from on-farm to off-farm activities due to climate induced risks?
5. Are the char people migrating or being displaced from their habitat due to less agricultural production/loss of land due to droughts, flood, river erosion etc.? Can you elaborate on this?
6. Are the farmers adapting to new agricultural practices/adapting new technologies, climate-smart agriculture etc. to sustain their livelihood practices? What are the best adaptation practices as per your understanding?
7. What other factors do you think plays a role in increasing climate adaptability (education, community relationships, etc.)?
8. Do you think those practices are enough to mitigate the hazard risk?
9. Are awareness programs related to risk reduction, crop diversification, agricultural adaptation, information dissemination etc. are arranged for the local char people?
10. Do you consider local adaptation strategies in ushering agricultural production to combat climate change in your concerned areas?
11. Are there many projects (Government and NGO) in the char region on improving agriculture-based livelihood practices? Do you think they address the needs and priorities of the community people?
12. What agriculture related project activities have been designed to reduce vulnerability of the char people? Are they effective in uplifting the vulnerable community?
13. Do you collaborate with other organizations (government and non-government)? What roles do the different stakeholders play?
14. What measures do you think is required for effective implementation of the projects regarding livelihood programs, climate adaptation and mitigation? (assistance such as

financial, staff training, technology, infrastructure construction and machine installation, maintenance, and monitoring)

KII checklist for Department of Cooperatives Representative

1. What are the existing climate change induced hazards the local char people are exposed to?
2. Do the local people have adequate access to natural and economic resources? Do you think this plays an important role on how vulnerable the community is?
3. What Livelihood resources and assets are at greater risk due to increased disasters?
4. Do you think, people are shifting their livelihood pattern from on-farm to off-farm activities due to climate induced risks?
5. Are the char people migrating or being displaced from their habitat due to less agricultural production/loss of land due to droughts, flood, river erosion etc.? Can you elaborate on this?
6. Are the farmers adapting to new agricultural practices/adapting new technologies, climate-smart agriculture etc. to sustain their livelihood practices? What are the best adaptation practices as per your understanding?
7. Are awareness programs related to risk reduction, crop diversification, agricultural adaptation, information dissemination etc. are arranged for the local char people?
8. Do you consider local adaptation strategies in ushering agricultural production to combat climate change in your concerned areas?
9. What other factors do you think plays a role in increasing climate adaptability (education, community relationships, etc.)?
10. Are there infrastructural facilities such as shelters, proper roads, etc. that help them during such events?
11. Do you think there are enough Government and non-governmental projects that assist the vulnerable char people of Kurigram? (in the context of livelihood programs as well as climate adaptation and mitigation) What roles do the different stakeholders play in implementing such projects?
12. Do you think everyone have access to these services and can benefit from these projects? Who can be included?
13. Are you working closely with other organizations to address livelihood improvement and climate change adaptation and mitigation? What role does your department play?
14. Are there any Government strategies or policies regarding these livelihood improvement, climate adaptation and mitigation programs?
15. What is needed to manage climate-induced risks for this community? (assistance such as financial, staff training, technology, infrastructure construction and machine installation, maintenance, and monitoring)

KII checklist for Department of Social Services Representative

1. How do the climatic risks and changes affect the community?

2. Which members of the community are most affected by climate risks and changes? Do you think that women and children are particularly affected?
3. What Livelihood resources and assets are at greater risk due to increased disasters?
4. Would you say that the women have adequate and equal access to natural resources in their locality?
5. How are these hazards hampering the livelihood measures/income sources of women?
6. Do you think that the ultra-poor and very poor women living in the chars are more impacted by this?
7. What is your opinion on more involvement of women in off-farm or on-farm activities? Do you think the livelihood pattern has changed in recent years due to climatic hazards?
8. Do you think household composition plays a big role in the vulnerability of the people (Female-headed, more number of children)?
9. What other factors do you think plays a role in increasing climate adaptability (education, community relationships, etc.)?
10. Are the children and youth also impacted by these hazards? Do you know of household cases where the children are put to work or married of as means to cope with the impacts?
11. How often do people turn to begging, petty crimes or illegal activities as a coping mechanism? Do you know of cases where this has occurred?
12. Do you think there are there enough projects (government/non-government) that assist these vulnerable communities in char areas in terms of livelihood development as well as climate change adaptation and mitigation?
13. Are women centric and microcredit-based NGOs helping ultra and very poor women in improving their livelihood? Do you think the outcomes reflect the real scenario on the field?
14. What are the roles and responsibilities of different stakeholders to mitigate the climate change impact in these regions? What is the role your organization is playing?
15. What kind of mechanisms is needed for effective implementation of livelihood improvement programs? (assistance such as financial, staff training, technology, infrastructure construction and machine installation, maintenance, and monitoring)
16. Are you aware of the needs and expectations of the community people?
17. What is your recommendation in terms of climate change adaptation and mitigation programs to sustain the livelihood and empower the women in these communities?

KII checklist for Department of Education Representative

1. How do the climatic risks and changes affect the community?
2. Which members of the community are most affected by climate risks and changes? Do you think that women and children are particularly affected?

3. What Livelihood resources and assets are at greater risk due to increased disasters?
4. Would you say that the women have adequate and equal access to natural resources in their locality?
5. What do you have to say about households where the children are put to work or married of as means to cope with the impacts? Is this a common occurrence?
6. Do hazards have any relationship with children dropping out of the school? What are the reasons behind these occurrences?
7. Do you have any specific data records on that issue?
8. Would you say that the level of education plays a role in vulnerability of a community?
9. Would you say better educated people are more adaptable to the changing climate and hazards?
10. What other factors do you think plays a role in increasing climate adaptability (education, community relationships, etc.)?
11. How often do people turn to begging, petty crimes or illegal activities as a coping mechanism? Do you know of cases where this has occurred?
12. Do you think there are there enough projects (government/non-government) that assist these vulnerable communities in char areas in terms of livelihood development as well as climate change adaptation and mitigation?
13. Are women centric and microcredit-based NGOs helping ultra and very poor women in improving their livelihood?
14. Do you think these short-term training programs can help them develop sustainable entrepreneurial skills and hence, sustainable economic ventures?
15. What are the roles and responsibilities of different stakeholders to mitigate the climate change impact in these regions? Is your organization playing a role in this regard?
16. What is your recommendation in terms of climate change adaptation and mitigation programs to sustain the livelihood and empower these communities?

KII checklist for District Relief and Rehabilitation Officer

1. What are the existing climate change induced hazards that the local char people are exposed to? Which particular hazard has made char people more vulnerable?
2. Do you think lack of access to natural resources plays a part in making char communities more vulnerable?
3. Would you say there is an increase climatic hazards in the recent years? How do you adapt to it in terms of post-disaster activities?
4. Do you have relief and recovery activities that supports sustainable livelihood practices of char people?
5. Do you think that the relief and recovery activities are enough to serve the char people during specific hazard?

6. What is your opinion on more involvement of people in off-farm activities, do you think the on-farm activities are shrinking due to climate induced hazards?
7. Are the char people migrating or being displaced from their habitat? How effective are the relief efforts after disasters in case of climate displacement?
8. Are climate change induced risk reduction and disaster preparedness awareness programs being arranged regularly for the char inhabitants?
9. Are there infrastructural facilities such as shelters, proper roads, etc. that help them during such events?
10. With their needs and priorities in mind, have the local adaptation strategies been included in the relief activities to combat climate change in this region?
11. What Livelihood resources and assets are at greater risk due to increased disasters?
12. Are the local cooperative societies and local people cooperate each other during the disaster period?
13. What are the different government and non-government projects assisting in livelihood development and improving climate vulnerability of the char people?
14. What kind of mechanisms is needed for effective implementation of such programs? (assistance such as financial, staff training, technology, infrastructure construction and machine installation, maintenance, and monitoring)
15. Do you think institutional collaborations strengthen these interventions?
16. What role does your organization play in making the community more adaptable to climatic hazard?
17. How can these relief activities be more effective for sustainable recovery of the disaster affected char inhabitants?

KII checklist for Community/Religious Leaders

1. What are the existing hazards that the local char people are exposed to?
2. What time of the year do these hazards mostly occur?
3. Do you see any seasonal variation in your village?
4. How do the climatic risks and changes affect the community? Who do you think is most vulnerable?
5. Can poverty and lack of access to resources making the char people more vulnerable?
6. Do the local people have equal and adequate access to the natural resources? Which resources are most threatened by climatic hazards?
7. What are the main sources of income of the char people in your area? Do you see changes in income-generating activities of the people?
8. What are the threatened livelihood pathways due to climate change? Do you think a lot of people are moving from on-farm to off-farm activities?
9. Are the char people migrating or being displaced due to these hazards?
10. Are there infrastructural facilities such as shelters, proper roads, etc. that help them during such events?

11. How often do people turn to begging, petty crimes or illegal activities as a coping mechanism? Do you know of cases where this has occurred?
12. Are the children and youth also impacted by these hazards? Do you know of household cases where the children are put to work or married off as means to cope with the impacts?
13. Do you think household composition plays a big role in the vulnerability of the people (Female-headed, more number of children)?
14. What other factors do you think plays a role in increasing climate adaptability (education, community relationships, etc.)?
15. Do you think there are enough Government and non-governmental projects that assist the vulnerable char people of Kurigram? (in the context of livelihood programs as well as climate adaptation and mitigation)
16. Do you think everyone have access to these services? Who can be included?
17. Are women centric and microcredit-based NGOs helping ultra and very poor women in improving their livelihood? Do you think the outcomes reflect the real scenario on the field?
18. What kind of mechanisms is needed for effective implementation of livelihood improvement programs? (assistance such as financial, staff training, technology, infrastructure construction and machine installation, maintenance, and monitoring)
19. What is your recommendation in terms of climate change adaptation and mitigation programs to sustain the livelihood and empower the women in these communities?

KII checklist for Local Government Engineering Department Representative

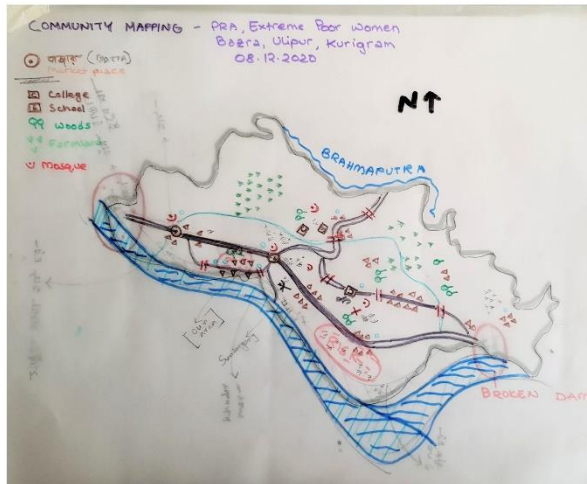
1. For the changing climate and increasing natural disasters, how are the char region and the communities being affected?
 2. Which part of the chars are more prone to hazards?
- It appears that you have a number of projects that supports social and livelihood development in Kurigram.
3. Do you have any key project activities designed to reduce vulnerability of people living in char areas?
 4. Do you take measures to ensure easy access to natural resources for the communities?
 5. What about the housing projects for landless (Construction of Housing for Landless and under privileged Muktijoddha Project)? Do you take into account displacement due to climatic hazards?
 6. What type of infrastructure are you taking into account under the Maintenance of Irrigation Infrastructure under IWRMU (O&M)? Are these infrastructures supporting climate-friendly agriculture (efficient water use, smart-technology, etc.)?
 7. LGED is also known to work in rehabilitation of flood and disaster damaged infrastructure. Would you say that the nature of the hazards have changed in the last few years (in terms of impact and frequency)?

8. Do you take disaster risk mitigation or adaptation measures when developing infrastructures such as roads, bridges, etc.?
9. Do you think developing shelters or other infrastructures for the char communities impacted by climatic risks is of high priority right now? What is the status of such measures?
10. What are the roles and responsibilities of different stakeholders to mitigate the climate change impact in these regions? What role does your department play?
11. What is needed to manage climate-induced risks for this community? (assistance such as financial, staff training, technology, infrastructure construction and machine installation, maintenance, and monitoring)
12. What is your recommendation in terms of climate change adaptation and mitigation programs to sustain the livelihood and empower these communities?

11.3 Annex-3: List of KII, PRA and FGD conducted

Stakeholder	Tools	Area and Number		Total Number
		Kurigram Sadar	Ulipur	
<ul style="list-style-type: none"> • Extreme Poor Women • Very Poor Women • Men (mixed) 	PRA & FGD	3	3	6
Total				6
Community Leader (religious leader and school teacher)	KII	1	1	2
UNO		-	1	1
PIO		1	1	2
Upazila Chairman/ CCA Committee		1	-	1
Upazila Agriculture Officer		1	1	2
Upazila Engineer-LGED		1	1	2
Upazila Social Services Officer		1	1	2
Department of Cooperatives: District Audit Officer		1		1
Upazila Secondary Education Officer		2		2
DRRO		1		1
Project officials (RDRS)		1		1
CCA and DRR expert		2		2
Development partners		2		2
Local NGOs		1		1
Total				22
Grand Total				28

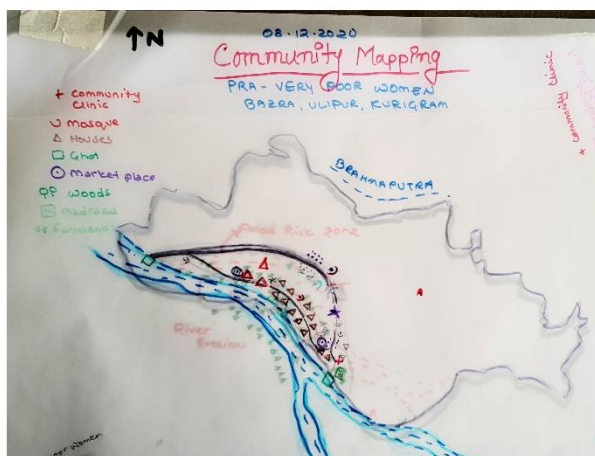
11.4 Annex- 4: Community Mapping from PRA Sessions



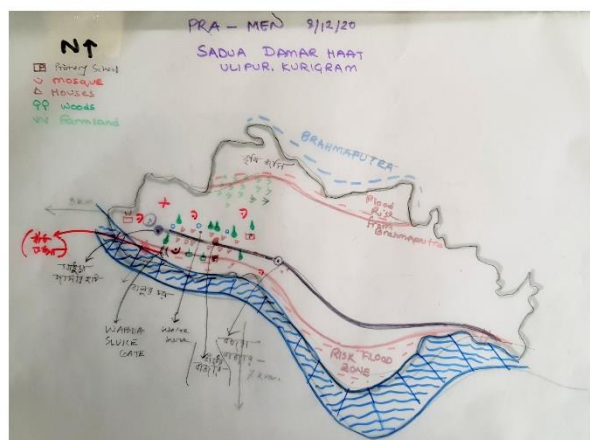
PRA Sessions Community Mapping Exercise

Khudar More, and Sadua Damar Haat
Bazra Union, Ulipur Upazila, Kurigram
08 December, 2020

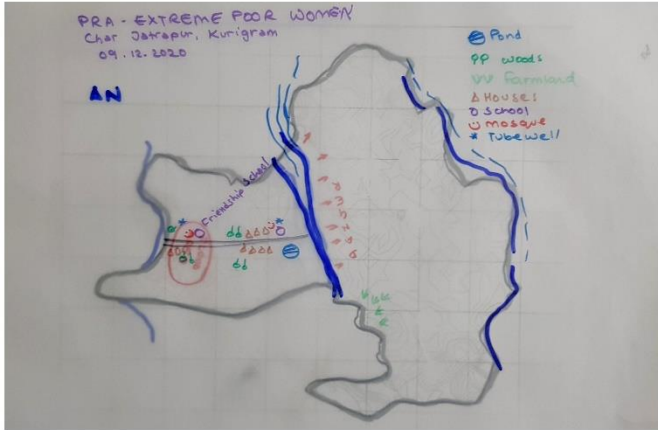
Community Mapping Exercise
Extreme Poor Women



Community Mapping Exercise
Very Poor Women



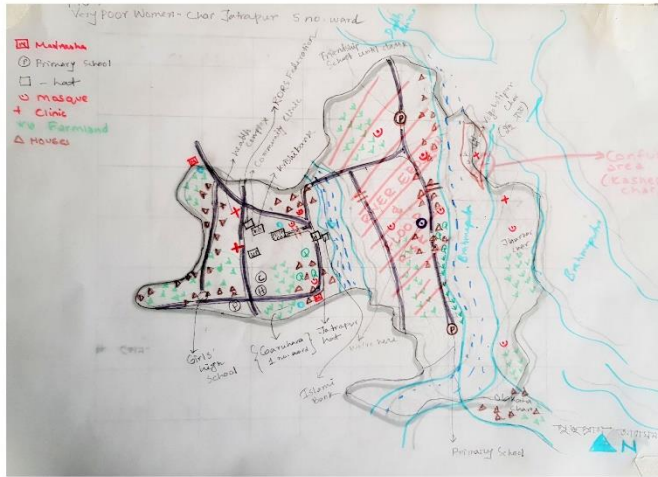
Community Mapping Exercise
Men



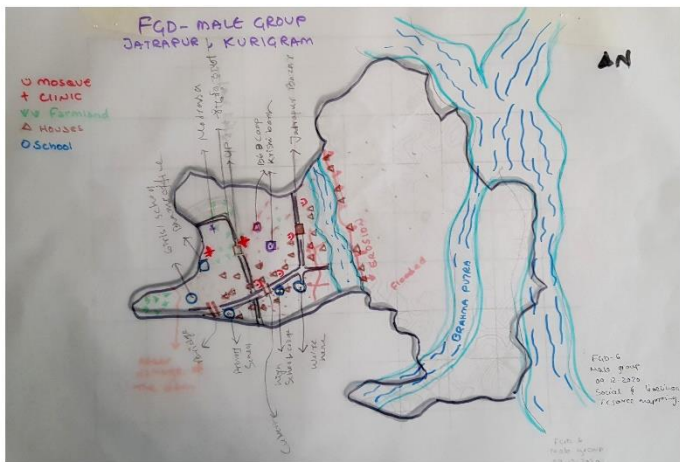
**PRA Sessions
Community Mapping Exercise**

Char Jatrapur, Jatrapur Union,
Kurigram SadarUpazila, Kurigram
09 December, 2020

Community Mapping Exercise
Extreme Poor Women



Community Mapping Exercise
Very Poor Women



Community Mapping Exercise
Men



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