

HOUSEHOLD ECONOMY ANALYSIS (HEA)

**A Baseline for Flood Contingency Planning in the
North-west and North-central Region of Bangladesh**

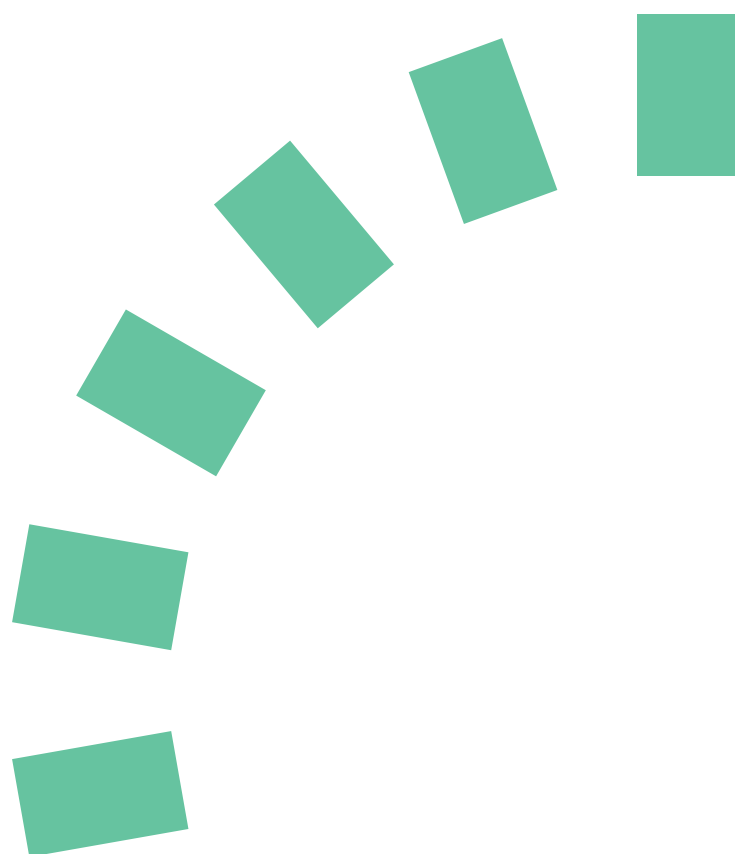
March 2022



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Authors

Khodadad Hossain Sarker, Principal Investigator and Advisor-Resilience, NIRAPAD

Manas Rudra, Co-Principal Investigator, NIRAPAD

Hasina Akter Mita, Director-Programme, NIRAPAD

Debotosh Ghosh, Programme Officer, NIRAPAD

Md. Mehedi Hasan Saddam, Programme Officer, NIRAPAD

Uzma Kawser, Research Associate, NIRAPAD

Kazi Shahidur Rahman, Humanitarian Affairs Specialist, Office of the UN Resident Coordinator, Bangladesh

Technical Review Panel

Netai Chandra Dey Sarker, Director (MIM), Department of Disaster Management (DDM)

Md. Atwar Rahman, Cash Working Group Coordinator, and Humanitarian Programme Lead, Oxfam

Mohammad Mainul Hossain Rony, Cluster Coordinator, Food Security Cluster in Bangladesh

Rumana Khan, Cluster Coordinator, Gender Based Violence (GBV) Cluster in Bangladesh

Md. Mostak Hussain, Humanitarian Director, Save the Children in Bangladesh

Palash Kundu, Assistant Director, Program Development and Resource Mobilization, SKS Foundation

Md. Mosheur Rahman, Senior Coordinator and Disaster Focal Point, ESDO

Contributors

Sajid Raihan, Country Manager, Start Fund Bangladesh

Shofiul Alam, Program Coordinator, Start Fund Bangladesh

Editors

Marwa Tasnim, Start Fund Bangladesh

Rumana Khatun, NIRAPAD

Design and Print

A Plus Communication

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The NIRAPAD team hopes this study is relevant for all those working in the humanitarian community of Bangladesh.



PREFACE

Since 2019 Start Network's Crisis Anticipation and Risk Finance (CARF) team, in collaboration with Start Network member agencies around the world, have been at the forefront of the early action humanitarian space advocating for new approaches to get ahead of predictable crises and thereby save more lives. Start Network supports agencies to analyse the risk of crises, and create a suite of timely, and reliable funding options, to disburse for different types of crises. This will enable NGOs to forecast crises, and access timely funding to reduce the impact of those disasters on communities.

In the last three years there has been a considerable amount of work taking place on Disaster Risk Financing (DRF) globally. Risk Financing allows humanitarians to be better prepared in advance of humanitarian events by quantifying risks in advance of crises or disasters, pre-positioning funds, and releasing them according to pre-agreed protocols. These are the three key fundamentals to building a DRF system and has been the focus of the work taking place in Bangladesh over the last year.

Start Network has grouped together the processes and steps that NGOs have established for humanitarian anticipatory action and disaster risk financing under a framework called the Building Blocks. This framework provides a learning resource base for members across the world which outlines the learnings and best practices in developing a humanitarian DRF system. The Start Fund Bangladesh secretariat alongside Start Fund Bangladesh members have been using the 'building blocks' framework while contextualising the steps making it relevant to the Bangladesh disaster management system. The end goal for this year (2022) is the establishment of a locally adapted disaster risk finance system which will model and monitor incoming flood forecasts with a 10-day lead time. Meaning if there is a flood forecast the model will 'trigger' which will release funds to agencies who are well placed on the frontline of communities set to be most impacted by the floods. These agencies will then implement activities which will mitigate the impacts of the incoming flood, thereby protecting more people from the worst effects of the flood.

Bangladesh has an advantage in setting up a DRF system due to the existing structures in place through the Start Fund Bangladesh mechanism which has been operational in country since 2016. This enables a more locally led approach to designing building and manage the DRF system with a network of well-placed humanitarian organisations working alongside forecasting experts who are involved in the set-up of the DRF system in country. These elements are tied up efficiently through the Start Fund Bangladesh secretariat team who's key value add is the humanitarian coordination function in Bangladesh amongst Start Fund Bangladesh members.



Clare Harris
Head of Anticipation and Risk Financing
Start Network

ABBREVIATION

| | |
|----------------|---|
| BDT | Bangladeshi Taka |
| CaLP | Cash Learning Partnership |
| C-EP | Char Extreme Poor |
| C-Poor | Char Poor |
| DDM | Department of Disaster Management |
| Dec | Decimal |
| DRF | Disaster Risk Financing |
| EP | Extreme Poor |
| FbF | Forecast-based Financing |
| FCDO | Foreign Commonwealth and Development Office |
| FGD | Focus Group Discussion |
| GBV | Gender Based Violence |
| HCTT | Humanitarian Coordination Task Team |
| HEA | Household Economy Analysis |
| HH | Household |
| KII | Key Informant Interview |
| INGO | International Non-Government Organisation |
| MEB | Minimum Expenditure Basket |
| NGO | Non-Government Organisation |
| NIRAPAD | Network for Information, Response And Preparedness Activities on Disaster |
| RB-EP | River Basin Extreme Poor |
| RB-Poor | River Basin Poor |
| SFB | Start Fund Bangladesh |
| UN | United Nations |
| UNDRR | United Nations Office for Disaster Risk Reduction |
| USD | United States Dollar |
| WB | World Bank |
| WFP | World Food Programme |

GLOSSARY

Baseline

The HEA Baseline provides a foundation for analysing households' needs and livelihood patterns. It is the starting point for understanding and predicting how households will cope in the event of a shock or hazard, such as a drought or flood. A Baseline represents a "normal year or reference year" in a defined livelihood zone. *(Source: Disaster Risk & Forecast-based Financing Design: A Guide to Using Household Economy Analysis)*

Coping Capacity

The ability of people, organizations and systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters. *(Source: UNDRR Terminology)*

Hazard

A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. *(Source: UNDRR Terminology)*

Household

A group of people, each with different abilities and needs, who live together most of the time and contribute to a common economy, and share the food and other income from this. *(Source: The Practitioners' Guide to The Household Economy Approach)*

Household Economy

The sum of ways in which a household acquires its income, its savings and asset holdings, and by which it meets its food and non-food needs. *(Source: The Practitioners' Guide to The Household Economy Approach)*

Livelihood Protection Threshold

Survival needs, plus the income necessary to cover basic household expenditures (such as basic healthcare, education and livelihood inputs), as well as the cash needed to cover other essential goods deemed necessary by communities (for example, tea and coffee). *(Source: Disaster Risk & Forecast-based Financing Design: A Guide to Using Household Economy Analysis)*

Livelihood Zone

A livelihood zone is a geographical area within which people share broadly the same patterns of access to food and income, and have the same access to markets. *(Source: Disaster Risk & Forecast-based Financing Design: A Guide to Using Household Economy Analysis)*

Minimum Expenditure Basket (MEB)

Defined as what a household requires in order to meet basic needs – on a regular or seasonal basis – and its average cost over time. Basic needs are defined by affected households themselves, International Humanitarian Law and Sphere Standards. The multi-purpose cash grant will contribute to meeting the MEB, but can also include other one off/ recovery needs. *(Source: Operational Guidance and Toolkit for Multipurpose Cash Grants)*

Outcome Analysis

The Outcome Analysis investigates and quantifies how baseline access to food and cash are likely to change as the result of a particular hazard or shock. *(Source: Disaster Risk & Forecast-based Financing Design: A Guide to Using Household Economy Analysis)*

Problem Specification

The problem specification is the translation of a hazard such as drought into economic consequences at the household level. *(Source: Disaster Risk & Forecast-based Financing Design: A Guide to Using Household Economy Analysis)*

Projected Outcome

Calculating the overall impact of the shock against the survival and livelihoods protection thresholds. *(Source: Disaster Risk & Forecast-based Financing Design: A Guide to Using Household Economy Analysis)*

Reference Year

A defined period (typically 12 months) to which the baseline information refers, needed in order to analyze how changes in the future can be defined in relation to the baseline. *(Source: The Practitioners' Guide to The Household Economy Approach)*

Resilience

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions. *(Source: UNDRR Terminology)*

Risk

The combination of the probability of an event and its negative consequences. *(Source: UNDRR Terminology)*

Seasonal Calendar

A graphical presentation of the months in which food and cash crop production and key food and income acquisition strategies take place, also showing key seasonal periods such as the rains, periods of peak illness and the hunger season. *(Source: The Practitioners' Guide to The Household Economy Approach)*

Sector

A sector is a distinct part of the economy or sphere of activity. Typical sectors included in the HEA and minimum expenditure basket are shelter and household items, health, education, WASH, livelihood, nutrition and healthy diets and so on. *(Source: Sector Minimum Expenditure Baskets: HEA Resilience Study)*

Sector Standards

Minimum acceptable standards can be derived from international standards (such as the humanitarian sphere standards) and /or national standards. Food basket may also reflect community standards and local food preferences as long as they meet minimum nutrient and energy standards. Community standards may help to determine the quality of an item in the minimum expenditure basket. *(Source: Sector Minimum Expenditure Baskets: HEA Resilience Study)*

Survival Threshold

Basic food (kilocalories) to meet households' annual kilocalorie needs, and enough cash to meet their basic non-food survival needs (such as drinking water for humans and cooking fuel). *(Source: Disaster Risk & Forecast-based Financing Design: A Guide to Using Household Economy Analysis)*

Vulnerability

The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. *(Source: UNDRR Terminology)*

Wealth Breakdown

The process by which people within a livelihood zone are grouped together using local definitions of wealth and the quantification of their assets. The level of division depends on how the community view their society, and the purpose of the analysis. *(Source: The Practitioners' Guide to The Household Economy Approach)*

Wealth Group

A group of households within the same community who share similar capacities to exploit the different food and income options within a particular livelihood zone. *(Source: The Practitioners' Guide to The Household Economy Approach)*

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EXECUTIVE SUMMARY

INTRODUCTION AND METHODOLOGY

In October 2021, *Start Fund Bangladesh* commissioned a detailed livelihood study applying the household economy analysis (HEA) framework. This report presents findings of HEA conducted in the north-west and north-central parts of Bangladesh during October-November 2021 in order to gain in-depth understanding of the livelihood and means of survival for different wealth groups, and the seasonality of livelihood strategies. The study provides more evidence-based information to support designing more effective forecast-based financing (FbF) and risk financing mechanism of Start Fund. Household Economy Approach (HEA) was used as the guiding methodological framework for the study. Specific data collection method included focus group discussions (FGDs), key informant interview (KII), consultative workshop with UN, INGOs and Start Fund representatives as well as review of available secondary documents and reports.

SUMMARY OF FINDINGS

Livelihood Zoning

This study did not conduct livelihood zoning exercise; instead used livelihood zones determined by World Food Programme in 2016 through a rigorous exercise involving government department of agriculture extension. WFP determined two livelihood zones in the north-west and north-central region of Bangladesh, such as Char and River Basin. The rationale for conducting baseline analysis in these zones for this study is that there is no significant change in peoples' livelihood practices and overall economic context. Over 80 percent people living in both zones are dependent on agriculture for their food and cash income. A brief description of livelihood zones is presented in the table below:

| Livelihood Zone | Brief Description of Livelihood |
|-------------------------|--|
| Char zone | Riverine islands in the Brahmaputra and Teesta rivers. Only means of communication is boat. Soil types vary from highly sandy to high clay. The most common soil type being mixed sandy and clay. Soil type supports cultivation a wide range of crops such as Aman and Boro rice, wheat, millet, maize, lentil, chilly, jute, mustard, groundnuts, sesame, pulses and vegetable. Majority of people rely on agriculture for their livelihood. Over 50 percent of poor households either own the cow or shared cow. People have access to market and can buy food commodities and basic household items from the markets. Flood is most common hazard in Char which occurs almost each year and affect crops, houses and livestock and livelihood of people. |
| River Basin Zone | Mainly mainland. It includes the adjacent villages located on the bank of two rivers – Brahmaputra and Teesta. The villages are logistically connected to normal road network to other districts. The villages in the river bank areas are different from further inland villages because they are lower and subject to annual inundation by two rivers, while further inland is only affected by occasional larger flood. People grow a range of food and cash crops, including Boro, Aman, Jute, mustard, maize and variety of vegetables. Majority of people rely on agriculture for their livelihood. Annual flooding is common which affect crops, houses and livelihood of people. In the last 10 years, Aman rice has been successfully harvested 3-4 times. As result, people do not prefer cultivation of Aman rice, instead, they mostly prefer cultivation of Boro. |

Baseline Analysis

Wealth and Asset Profile

The baseline findings show that 35 percent of households are categorized as Extreme Poor (EP) in the Char zone while 40 percent as Poor. Households fall in the Middle category constitute 17 percent of total households and rich 8 percent. Wealth is primarily determined by the amount of land a household is able to cultivate, access to land, ownership of livestock and productive asset.

In the River Basin zone, 20 percent of households are categorized as Extreme Poor (EP), while 43 percent Poor. Households belong to Middle and rich wealth group constitute 27 percent and 10 percent of total households. Wealth is primarily determined by the amount of land a household is able to cultivate, access to land, ownership of livestock and productive asset.

Sources of Food Income

In both zones, the Extreme Poor and Poor households heavily rely on market for their food. In Char, market purchase met 91.5 percent of food needs of Extreme Poor households and 77 percent food needs of Poor households. Labour exchange was the second important food source for both Extreme Poor and Poor households which met 9.2 percent of annual food needs of Extreme Poor households, while 7.7 percent of Poor households. The middle household obtain major portion of their food from own production which met 55 percent of their annual food needs.

In the River Basin, market plays a dominant role for supplying food for The Extreme Poor and Poor households. Market purchase met 89.6 percent of total annual energy needs of Extreme Poor households and 64.2 percent of the Poor households. Middle households met 81 percent of total annual energy needs from their own production. The second largest food source for Extreme Poor and Poor households was labour exchange which met 8-9 percent of their total annual energy needs.

Sources of Cash Income

The study findings show that income sources vary by wealth groups. The Extreme Poor and Poor households in both zones relied more on labour and loan while the Middle and Rich households relied more on selling their crops and livestock.

Char Zone

- The Extreme Poor households earned an average BDT 109,900 in the reference year. Cash income from Labour exchange at local level accounted for 53.5 percent of total income, while migration met 25.4 percent of their total annual cash needs in the reference years
- Poor households earned an average BDT 132,450 in the reference year. Labour exchange met 42.3 percent and migration met 22.5 percent of their annual cash needs in the reference year.
- The Middle households earned an average BDT 198,900 in the reference year. They rely on own production, livestock and remittance which contributed to meet 44.7 percent, 20.1 percent and 20.1 percent respectively of their total annual cash needs.
- Income from loan make up 11-18 percent of total income for Extreme Poor and Poor households.

River Basin Zone

- The Extreme Poor households earned an average BDT 113,750, while the Poor households earned an average BDT 133,500 in the reference year. Income from labour exchange accounted for 54.8 percent of annual total cash needs for Extreme Poor households, while it was 42.5 percent for Poor households.
- Migration was the second largest cash income source for both Extreme Poor and Poor households. Cash income from migration accounted for 26.2 percent of annual cash needs for Extreme Poor, while it contributed to meet 24.9 percent of annual cash needs for poor households.
- Cash income from loan made up 15-17 percent of total income for Extreme Poor and Poor households.
- Middle households mainly rely on their own production, livestock and remittance. Cash income from selling own production (rice and other crops) accounted for 44 percent of their cash income, while livestock 29.2 percent and remittance 12.2 percent.

Household Expenditure Pattern

Households in the two zones spent on a variety of items, including food, social services (school, health), inputs, clothing, livestock, transport, house maintenance, and loan repayment. The biggest expenditure of Extreme Poor and Poor households was on food, followed by loan repayment.

Char Households

- The Extreme Poor and Poor households spent 39-48 percent of their reference year income on food.
- The second largest expenditure was on loan repayment which accounted for 13-20 percent of total income of Extreme Poor and Poor households.
- Expenditure on agriculture inputs made up 11 percent of expenditure of Poor.
- Expenditure on education, transport, clothing accounted for 4-6 percent of total expenditure for Extreme Poor and Poor households.

River Basin Households

The study found similar expenditure pattern households across the wealth groups in River Basin zone.

- Extreme Poor households spent maximum on food which accounted around 47.3 percent of their income, while Poor households spent 37.1 percent of their income on food.
- Loan repayment accounted for 16-20 percent of total expenditure of Extreme Poor and Poor households.
- Expenditure on agriculture inputs made up 11.8 percent of total annual expenditure of Poor
- Expenditure Extreme Poor and Poor on education, transport, clothing, ranged between 4-5 percent of total annual expenditure in the reference year.

Effect of the Problem

Change in the Economic and Livelihood Context

The Extreme Poor and Poor households in Char zone found employment a total 168 and 160 days in agriculture field at local level, the Extreme Poor and Poor households in River Basin found 178 and 172 days. They mainly worked in land preparation, plantation, weeding and harvesting for Aman, Boro, and Jute. They also engaged in casual labour at local level. Flood 2020 had devastating effect on Aman, jute and casual labour which contributed to change in the livelihood and economic context in the study areas as

- Aman harvest was 5 Percent in Char and 10 percent in River Basin of reference year.
- Jute harvest was 5 percent in Char and 40 percent in River Basin of reference year.
- Casual labour opportunity was 30 percent in Char and 60 percent in River Basin of reference years.

Outcome of Change in the Economic Context

The change in the reduction of harvest and casual labour opportunities led to a loss of cash income for the households across the wealth groups.

| Cash Income Loss Resulted from Flood 2020 | C-EP | C-Poor | RB-EP | RB-Poor |
|---|---------------|---------------|---------------|---------------|
| Income loss from labour exchange in Aman | 14,963 | 13,300 | 17,325 | 17,325 |
| Income loss from Boro labour | - | - | - | - |
| Income loss from labour exchange in Jute | 6,650 | 4,988 | 4,200 | 2,520 |
| Income loss from casual labour at local level | 6,860 | 8,575 | 4,200 | 4,900 |
| Income loss from selling Aman | - | 7,496 | - | 5,252 |
| Income loss from selling Jute | - | - | - | - |
| Income loss from selling Boro | - | - | - | - |
| Income loss from livestock | 1,000 | 1,995 | 1,000 | 1,000 |
| Total Loss of Cash Income | 29,473 | 36,553 | 26,725 | 31,992 |

Income Deficit with Respect to Survival and Livelihood Protection Threshold

Despite applying all possible coping strategies, the Extreme Poor and Poor households in both zones could not cover up the loss resulted from the flood 2020. The Extreme Poor and Poor households in Char managed to cover up 38.2 and 26.8 percent respectively of their total loss, while the Extreme Poor and Poor households in River Basin managed to cover up 49.5 percent and 31.3 percent respectively of their loss. Hence, they continued to suffer from a deficit of cash throughout the following year as shown in the table below.

| | C-EP | C-Poor | RB-EP | RB-Poor |
|--|----------------|----------------|----------------|----------------|
| Total reference year income | 109,900 | 132,450 | 113,750 | 133,500 |
| Survival threshold | 64,950 | 64,950 | 64,950 | 64,950 |
| Livelihood protection threshold | 115,250 | 133,250 | 116,208 | 147,315 |
| Total loss due to flood in 2020 | 29,453 | 32,672 | 22,722 | 30,468 |
| % of loss covered applying coping strategy | 38.2 | 26.5 | 49.5 | 31.3 |
| Projected income | 91,677 | 105,846 | 102,278 | 112,085 |
| Remaining deficit in cash income | 18,223 | 26,604 | 11,472 | 21,415 |

It is clear that the Extreme Poor and Poor households in both zones will survive without external assistance, but they dropped to far below the livelihood protection threshold after the flood 2020. This indicates that their resources are too low to cover the cost of a household's minimum livelihood protection needs.

Photo Credit: ARCO



1. INTRODUCTION

1.1. Background

1.2. Objectives

1.3. Methodology

1.4. Scope and Limitations

1. INTRODUCTION

1.1. Background

Start Network is made up of more than 50 humanitarian agencies across five continents, ranging from large international organisation to national NGOs. The network aims to transform humanitarian action through innovation, fast funding, early action, and locally led action. People affected by crisis around the world do not receive the best help fast enough, resulting in needless suffering. Start Fund is addressing this biggest systematic problem that the humanitarian sector faces which includes slow and reactive funding, centralised decision-making, and an evasion of change.

Start Fund Bangladesh was created in 2017 on the spirit of Grand Bargain and World Humanitarian Summit commitment. Since then, it has responded to country's many underfunded small to medium sized crises. Start Fund activates funding within 72 hours of crisis alert which is accessible to local, national and international NGOs operating in Bangladesh to respond early to radar emergencies.

The crisis application and risk financing team of start network received a grant from DFID at the beginning of 2020 for 18 months, which aims to provide the support needed to set up the global infrastructure that enable the disaster risk financing system at national level. Disaster risk financing arranged in advance of a crisis, triggered by data indicators to support pre-planned and coordinated assistance. Disaster risk financing system comprised of three components, yet interrelated, such as (a) understanding and quantifying risk and setting triggers, (b) pre-planning activities, and (c) prepositioning financing.

Bangladesh is one of the member countries of the Start Network has been identifying for piloting the disaster risk financing because of significant level of ongoing activities in the ex-ante humanitarian space. Disaster risk financing component would be complementary to the anticipatory part. In view of this, *Start Fund Bangladesh* requests NIRAPAD for an assessment in north-west and north-central region of Bangladesh using household economy approach to enable operationalize the disaster risk financing system.

1.2. Objectives

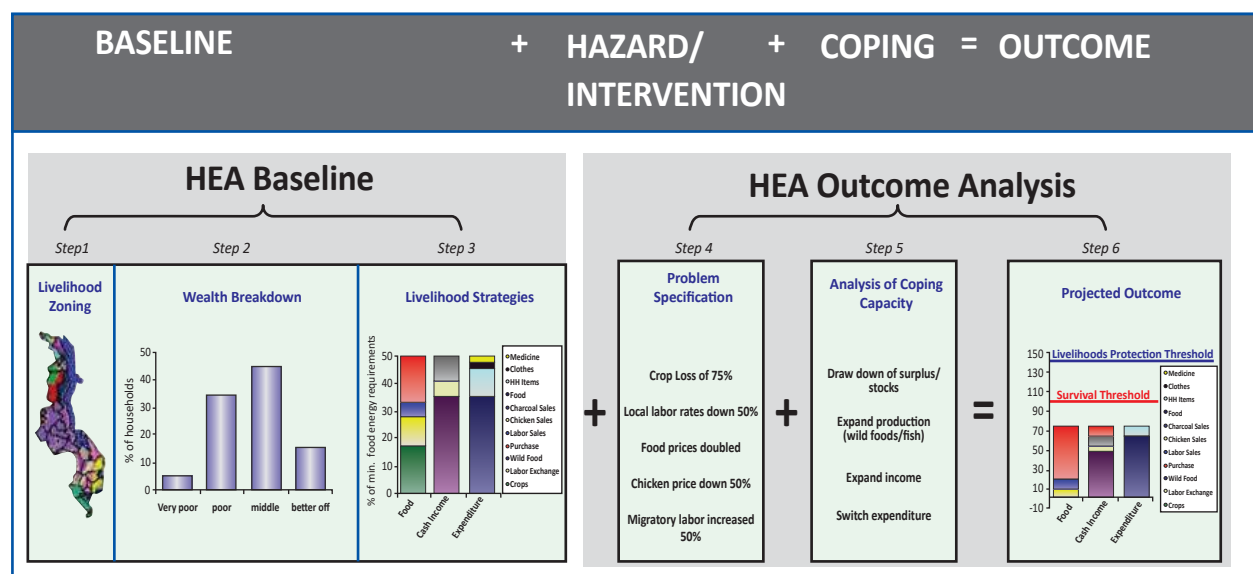
The main objective of the study is to provide humanitarian community with evidence-based information and quantification of problems of household of different categories, especially after any crisis. This will enable humanitarian community in Bangladesh to develop and operationalize its anticipatory and risk financing system.

1.3. Methodology

1.3.1. Conceptual Framework

The household economy approach (HEA) is a livelihood-based framework for analysing the way people obtain access to food and cash income and household expenditure pattern. It is one of the number of approaches to have evolved out over 20 years of work by a number of organisations and researchers on nutrition, food security and emergency planning – work motivated by large part by the need for information of practical use in responding to food shortage. At the heart of the HEA is the representation of typical rural households' everyday circumstances, understanding how people

normally obtain access to food. This is an essential part of predicting how they will react to crisis. The analysis helps determine people's food and non-food needs and identify appropriate interventions for short-term emergency assistance, longer-term development programming, and assist in recommending policy change. The framework includes six steps such as livelihood zoning, wealth breakdowns, livelihood strategies, problem specification, coping capacity, and projected outcomes. The first three steps of the framework referred to as the HEA baseline and the last three steps are outcome analysis as illustrated in the graphic below:



Livelihood Zones are areas in which the same food and cash income options tend to be available and relied upon to varying degrees by extreme poor, poor, middle and rich households. In general, agro-economic boundaries determine the initial livelihood zone outline. Thereafter, difference in crop produced, livestock numbers, the existence of rivers and lakes, highland or lowland opportunities, the proximity of markets and a number of other factors that define shared risk further refine the initial outline. The rationale for using livelihood zone rather than conventional administrative boundaries is that administrative boundaries may encompass a number of different livelihood zones. For example, what makes households vulnerable to food shortage is a highland area, where there is high dependence of agricultural production and where opportunities for earning cash are limited will probably be quite different to what makes households vulnerable to food shortage in an adjacent lowland area where household income is derived from livestock ownership and employment.

Wealth Breakdown refers to dividing households into socioeconomic groups using local definition of wealth and quantification of assets.

Profiling Livelihood Strategies refers to the quantification of each wealth group's sources of food and cash income, and household expenditure pattern and their coping strategies.

Problem Specification is the translation of a shock into economic consequences at the household level. It is the sum of information about changes in the larger economy that affect production and exchange options open to rural households.

Analysis of Coping Capacity measures the extent to which individual strategies employed by the household to obtain food and cash can be expanded to cover up the deficit as a result of shock.

Outcome Analysis is the final picture which compares the available total food and income against access threshold (survival and livelihood protection). It investigates and quantifies how baseline access to food and cash income is likely to change as a result of a particular hazard or shock.

1.3.2. Study Design

The study using the HEA framework applied rapid appraisal method for data collection from the study areas. The method includes focus group discussion (FGD) and key informant interview (KII). This was done through a series of process described below:

- **Livelihood Zoning** – the study conducted in the two livelihood zones which were identified by World Food Programme (WFP) in 2016 following a rigorous method involving government Ministry of Agriculture. Hence, this study team did not conduct livelihood zoning exercise as there is not significant changes in the economic context and livelihood practices of majority households.
- **HEA Baseline Training** – before data collection, 7-day training was conducted with two teams, 3 university graduates in each team, one for Char Zone and other for River Basin zone. Later, they were provided with 7 days’ field practical training at the field. They learned how to collect quantitative data using qualitative research techniques and consistency check.
- **Data Collection for HEA Baseline** – after the training, three teams were deployed to two livelihood zones. Data collection was done on purposively selected villages in two zones. Key informant interviews and focus group discussions were conducted with the senior knowledgeable persons and representatives of each group in each village. In each Union, one key informant interview and five FGDs, four with male groups and one with female group were conducted by the team. Key informants include aged farmers, senior UP members, and school teachers. All of the participants had good knowledge in the local context, livelihood of the people, markets and local disasters. Additionally, the team conducted interview with the market traders at Union and Upazila level. All data are available in this link. Table below shows details of KIIs and FGDs.

Table 1: Details of KIIs and FGDs

| District | Upazila | Union | KIIs | FGDs | Market Assessment |
|--------------------------|-------------------------|------------------------|----------------------|----------------------|-----------------------------------|
| Kurigram | Kurigram Sadar | Jatrapur | 1 | 5 | 1 |
| | | Pachgachi | 1 | 5 | 1 |
| | Nageshwari | Kochakata | 1 | 5 | 1 |
| | | Bolloberhash | 1 | 5 | 1 |
| Sirajganj | Belkuchi | Belkuchi Sadar | 1 | 5 | 1 |
| | | Rajapur | 1 | 5 | 1 |
| | Chauhali | Ghorjan | 1 | 5 | 1 |
| | | Sthal | 1 | 5 | 1 |
| Jamalpur | Islampur | Kulkandi | 1 | 5 | 1 |
| | | Chinaduli | 1 | 5 | 1 |
| | Madarganj | Charpakerdaha | 1 | 5 | 1 |
| | | Gunaritala | 1 | 5 | 1 |
| Total 3 Districts | Total 6 Upazilas | Total 12 Unions | Total 12 KIIs | Total 60 FGDs | Total 12 Market Assessment |

- **Timing of the Study** – The study started in October 2021. Data collection, data cleaning and analysis covered entire November and December. Data collection process prolonged due to following limitations.

1.4. Scope and Limitations

The conceptual framework of HEA clearly outlined the scope of this study. It is important to note that HEA is an analytical framework, not a method for information collection. It defines the information that needs to be collected and the way in which it should be analyzed in order to answer a particular set of questions in response to the needs of particular decision-maker. For this study, Start Fund and other humanitarian agencies in Bangladesh are particularly interested to - where is assistance needed, who needs it, how much do they need, when and for how long? Hence, this study seeks to answer to these questions to provide evidence-based information for operationalising disaster risk financing mechanism of humanitarian agencies. Other issues, e.g. education, protection, gender not explicitly included in the scope of this study.

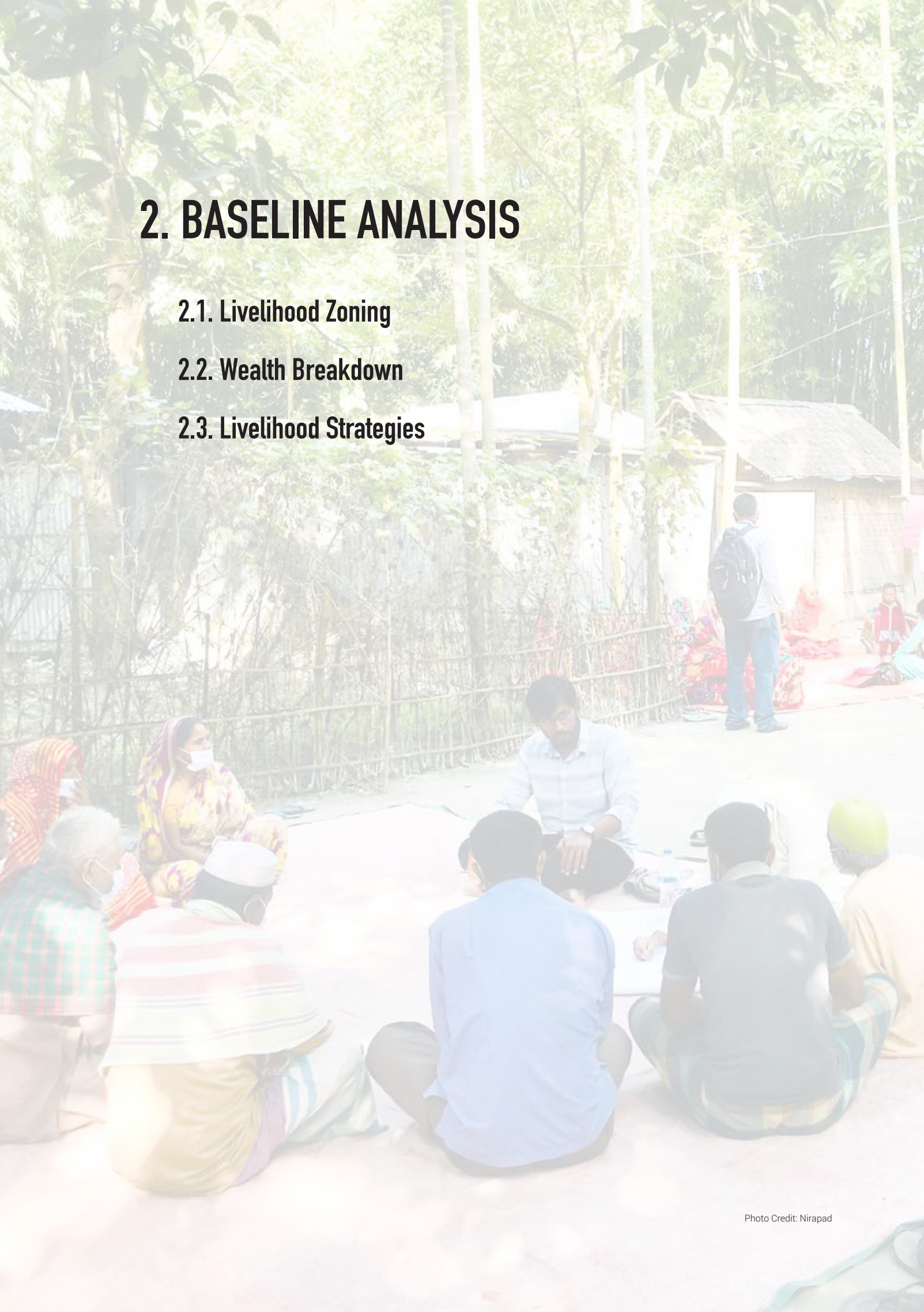
Applying HEA at field requires a team of trained people with good exposure to HEA. NIRAPAD could not make available such experienced people in the team for primary data collection from the field. As a result, it trained up a new team comprising young university graduate and directly engage them in data collection through Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs). They have suffered problem in cross-checking consistency of data during FGDs with the representatives of different wealth groups and reconciling and triangulating data.

2. BASELINE ANALYSIS

2.1. Livelihood Zoning

2.2. Wealth Breakdown

2.3. Livelihood Strategies

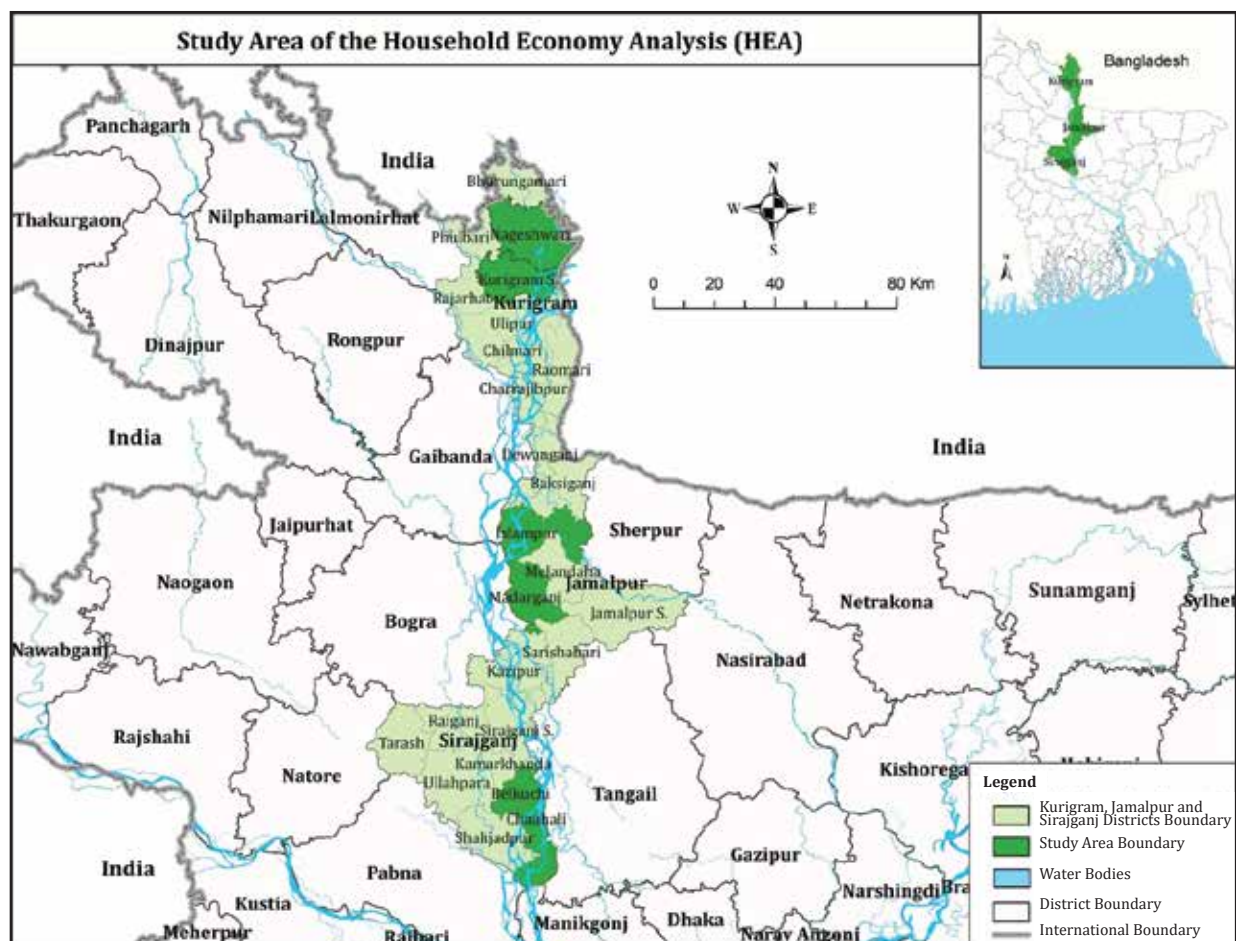


2. BASELINE ANALYSIS

2.1. Livelihood Zoning

2.1.1. Descriptions of Livelihood Zones

This study uses livelihood zoning conducted by WFP in 2016 as there is no significant change in the livelihood practice of majority of the people. WFP’s livelihood zoning exercise identified and confirmed two livelihood zones in the north-west and north-central districts, such as **Char and River Basin**. Majority people in each zone broadly share the same pattern of access to food and cash income, and have the same access to markets. Detailed HEA baseline is conducted in the identified zones to gain an understanding of how people normally obtain their food and cash income and their household expenditure pattern, taking into consideration seasonal variation.



The geographical areas covered in this study lies in the active Brahmaputra-Jamuna flood plain and part of Brahmaputra-Ganges-Meghna River system. This river system has the highest level of sediment load in the world. The width of Brahmaputra is 5 km in the dry season but varies by location. During flood, the width increases to 15-20 km. As mentioned earlier, there are two livelihood zones: Char zone and River Basin. The River Basin zone includes the adjacent villages located on the banks of two rivers. These villages are logistically connected by normal road network to other parts of Bangladesh. The dark green colour on the map indicates the areas for these baseline findings can be considered representative. The study team visited six locations in the Char and six locations in the River Basin.

The villages in the riverbank zone are different from villages' further inland by the fact that they are lower and therefore subject to annual inundation by the two rivers, while villages further inland are only affected by occasional larger floods. Annual inundation is part of river basin livelihood for some villages, especially lying lower and closed to river. There is significant economic and social interaction between the Char and River Basin zone, as they are immediately adjacent to each other along the length of the rivers, and interactions between these two zones and other areas located further inland is also strong.

Char zone comprised of riverine islands in the Brahmaputra and Teesta rivers. Only means of communication is boat from the mainland. There are hundreds of Chars in the two rivers; some of them were emerged long ago which are called old Char, some as recently as last year. There is no specific geographical factor that determines the age, height, and location of Char, other than random sediment movement and deposition with annual inundation and bigger floods. Typically, outer edges of Chars are eroded each year, in some cases the entire Char can disappear. Some of the Chars are only slightly above the average water level (usually not inhabited), while others are several meters above the average water level. Dimensions of Char vary significantly with some only being up to 50 or so hectares in area while other can be measured in square kilometer. Soils vary from highly sandy to high clay, the most common soil type being mixed sandy clay. Land size per village on the Chars is usually larger than in the River Basin, with population density being also lower.

Majority people in both zones rely on agriculture for their livelihood. Soil type supports cultivation a wide range crops, such as Boro rice, Aman rice, wheat, millet, maize, lentils, sesame, chili, jute, mustard, groundnuts, vegetables and fruit trees. The variation in crop type, especially on the Chars, is mostly determined by soil type, but also by height of the land. Pulses, sesame and groundnuts, for example, are more common on the Chars than in the River Basin zone due to higher levels of sand in the soil. Mustard is more intensively cultivated in the southern end of the two zones (Sirajganj) due to soil suitability. It is also cultivated in the north-west district, Kurigram, however better-off households from the River Basin zone tend to cultivate mustard on plots of land they have on the Chars. There are large areas of many of the Chars which are not suited to any crops, where only wild grasses grow, suitable for grazing and collection of fodder.

Irrigated Boro rice is the primary food crop produced. Other food crops grown on the Chars, such as wheat, millet, and Aman rice, are far more minor. Millet and wheat are cultivated at the same time as the more preferred Boro rice, meaning they are in direct competition. Transplanted Aman rice is rain-fed and therefore coincides with the time of the year of peak risk of flooding. Limited land sizes in the River Basin zone mean that farmers default firstly to the production of Boro rice over other crops, except for rich farmers with larger plots of land that can afford the risk of diversification.

In the last 10 years, Aman rice has been successfully harvested 3-4 times. Most farmers did not successfully harvest Aman during the reference year. Hence, it is arguable that Aman rice is not, and cannot be, a fundamental crop in the livelihood system in these two zones given the geographical realities of the flood plain. Crucially, the short duration nature of mustard seed means that farmers often immediately replace a lost Aman crop (e.g. September) with mustard, which will be ready for harvest (in January) just in time for the next planting season of Boro rice (also in January). Because of the timing clash between Boro rice and jute (i.e. jute needs to be planted in March before the Boro rice is ready for harvest in April-May), a piece of land cultivated with Boro rice would otherwise lie fallow during the rainy season if Aman is not planted. This underlines the "bonus" nature of cultivating Aman, even though the last ten years indicates only a 30% chance of successful harvest. Both the River Basin and Char zones are net rice importers, from the northern end of the zones to the southern end of the zones. Rice is usually sold as paddy. Most farmers use high yielding varieties which requires them to purchase seed every time. This is the case for most crops, except jute which is typically grown from seed stored from the previous season.

Transplanting and harvesting period of rice and jute create huge demand for labour in both zones. Labour for land preparation replaced by power tiller. Men engaged in majority of agriculture work; however, women are also engaged in harvesting, processing, weeding and planting. Women from poorer households also engaged as labourers with daily wage around 60 percent of men. Advance selling of labour is now days rare due to increased demand of labour outside the zone. They can search for normal paid work instead of selling their labour cheaply.

In general, the Chars are more suited to livestock rearing than the River Basin zone, although it is an important component of livelihoods for both zones. Fundamentally this relates to lower population density (i.e. larger spaces for grazing), as well as availability of wild grasses growing on the Chars, especially those that are not inhabited. Goat population is not high in either of the zones, in particular in the River Basin zone. Not only are they deprioritized due to their lower importance and status value, but annual inundation and occasional flooding actually make keeping of goats burdensome. High rate of mortality is also a significant challenge in both zones.

Two methods of raising cattle are used in both zones. Fattening for sale is common. Households often purchase young male cattle around October once the rains have reduced and fodder is widely available. They fatten for 7 to 8 months, then sell in April to June. Some fatten for a shorter duration, with a sale and re-purchase taking place around January/February. Religious and cultural festivals are also a peak period of sales. Cattle fattening is done using local varieties, except for some villages in the north in close proximity to India where Indian varieties are sometimes raised. Breeding of cattle is the other method of rearing, mostly done by better-off households. Adult females are inseminated, calves are kept and raised for sale, with the milk being both consumed by the household as well as sold. Data from interviews during this research indicate that lactation is slightly longer in the Char zone, likely due to greater availability of grass. The southern region of the two zones (in particular in Sirajganj district) have higher availability of natural fodder (grasslands including Napier grass) which explains the higher numbers of cattle raised than further north. Anthrax and foot and mouth disease are the two most common cattle diseases. Vaccines are provided by government and nongovernment actors for payment by cash.

Lack of cultivable land, especially in the River Basin, and the high proportion of the population without access to land are the main barriers to greater crop production. Similarly, a limitation of availability of fodder is the main factor limiting higher level of livestock production. Fishing is not as widespread as a means of livelihood. Except for a percentage of fisher households in each zone, households intermittently catch small number of fish from the river for their own needs, to supplement fish buying from the market.

Most common hazard in both zones is flood which affect household almost each year. Variation in type of flood affect livelihood of people in different ways. Monsson flood is normally not destructive because they are slow onset, shorter duration and lower height. Annual inundation benefits people as it deposits nutrients and help good harvest. Following are some variations in the type of flood that affect people:

- Early onset – usually occurs in June
- Flood cerate inundation – more than 2-3 weeks
- Flood higher than normal water level
- First rising water level
- Flash flood – usually occurs due to sudden release of water from India.
- Consecutive flood – two floods in consecutive years with no break. This creates long duration flood.

2.1.2. Overview of Markets

Apparently, there are market in all the Unions and Upazilas. All the commodities are traded in these markets. These markets are open twice a week. Small traders mainly operate at Union level, while the medium to larger grain and livestock traders operate at Upazila level market. Agriculture input and equipment as well as a range of commodities are available in the Union level market. The markets are well connected with the road network to other districts in Bangladesh. The Upazila level rice traders are linked with big rice traders within the district and rice surplus districts in other part of north-west region. Commodities produced in Char zone are traded in the Upazila and Union markets located in the adjacent parts of River Basin zone. Informal markets operate almost each day of the week in all Unions and most of the villages. Trade volume of these markets are lower and hence a limited range of commodities are traded in these markets. Average price of most of the commodities is slightly higher in Char zone compared to the River Basin. Interview with the trader at Union and Upazila level confirmed that flood and inundation do not disrupt operation of Union and Upazila level market nor the flow of commodities through these markets. Prices of rice and other food commodities fluctuates with seasons but they do not go beyond the ability of poor people. There are 5 to 10 grades of rice available in the market at any particular time. This means that increased per kilogram rice cost associated with increased transport cost during flood period can be offset by switching to lower grade rice.

The two zones are both sources of agricultural labour for neighbouring districts of the north-west and north-central region. Labour prices in major rice producing areas are around 50% higher than the labour price within the two zones. Distances between the two zones and these other areas are relatively close meaning that migrant labourers can travel back every month to take salaries to their families. Peak migration times are September/October/November/December when Aman rice are being cultivated and harvested, as well as March/April/May when Boro rice is being harvested and jute being cultivated. Typical destinations for migrant agricultural labour are Munshiganj, Sylhet, Tangail, Cumilla, Bogura, Rajshahi, Dinajpur, Naogaon and Rangpur.

2.1.3. Timelines and Reference Year

The baseline assessment refers to a very specific time period called the 'reference year'. In both zones, reference year covers the consumption period from April 2018 to March 2019. During KII with the community leaders, they were asked to rank the last 10 years with respect to production and livelihood of the people with '1' indicating poor consumption year and '4' a good consumption year. It is noteworthy that the baseline reference year was itself a moderately bad year with respect to production, slightly what the local people considers 'normal'. Table 2 summarizes the response from the community leaders indicating poor and a good consumption year.

Table 2: Timeline and Reference Year

| Consumption year | Rank | Critical events |
|--------------------------|------|---|
| 2020 (Bad Year) | 1 | 95% of Aman and jute crops damaged in Char zone, while in River Basin, 90% Aman and 60% jute crops damaged. Overall in both zones, 70% of the roads (partially 50% and fully 20%) damaged resulted in huge disruption of communication in and between local and neighboring areas, 45% of the houses partially damaged, 90% WASH facilities damaged, and 100% schools remain closed during the flood. Over 80% people suffered from a variety of health problems and received treatment |
| 2019 | 3 | 50% Aman damaged, 30% jute damaged, 20% houses partially damaged, 60% of the road were inundated for 2-4 weeks, and 100% schools were closed. |
| 2018 (Reference Year) | 4 | 40% of Aman and 40% of Jute damaged, 30% of the roads partially damaged, 10% of the houses damaged, and 100% schools were closed. The markets were stable and no price rise of the essential commodities. |
| 2017 | 1 | 100% of Jute and Aman damaged, 100% schools were closed, 40% of the roads fully damaged and 50% partially damaged, 90% of WASH facilities fully damaged, 40% of the houses partially damaged, and over 80% people suffered from water related diseases and received treatment. |
| 2016 | 3 | 50% Aman and 40% jute in the field damaged, 20% of the houses partially damaged, 60% of the roads inundated for 3-4 weeks and 30% of the road remained water-logged for 6-8 weeks, and 100% schools were fully closed during the flood |
| 2015 | 2 | 70% of the Aman and Jute damaged, 35% of the houses partially damage, 100% school were fully closed during flood, 90% of the roads inundated and 20% of the roads remained water-logged for 4-6 weeks |
| 2014 | 4 | 40% of Jute and 50% of Aman crops damaged, 30% road either partially or fully damaged resulted in disruption of communication of the people. About 70% people suffered from health problem, and 100% schools were closed. The markets were stable and no price rise of the essential commodities. |
| 2013 | 3 | 60% of Aman and 30% of jute crops damaged, 10% of the houses damage, 50% of the roads inundated and partially damaged, 100% school fully closed during flood. |
| 2012 | 3 | 60% of Aman and Jute crops in the field damaged, 15% of the house damage, 60% of the roads inundated for 2-3 weeks, 100% school were fully closed during flood. |

4 = a good or above average consumption year for household food security.

3 = an average consumption year in terms of household food security.

2 = a below average consumption year for household food security

1 = a poor consumption year for household food security.

2.1.4. Seasonal Crop Calendar in The Reference Year

Seasonal labour calendar shows that the households in the study areas produced a range of food and cash crops. The main food and cash crops include rice, Jute, mustered, green chili, wheat, maize, groundnuts and different kinds of pulses, vegetables. The Extreme Poor and Poor households find employment in the agriculture field at local level. When work is difficult to get at local level, they migrate to other places out of the zone and get engaged in agriculture work and other of-firm activities.

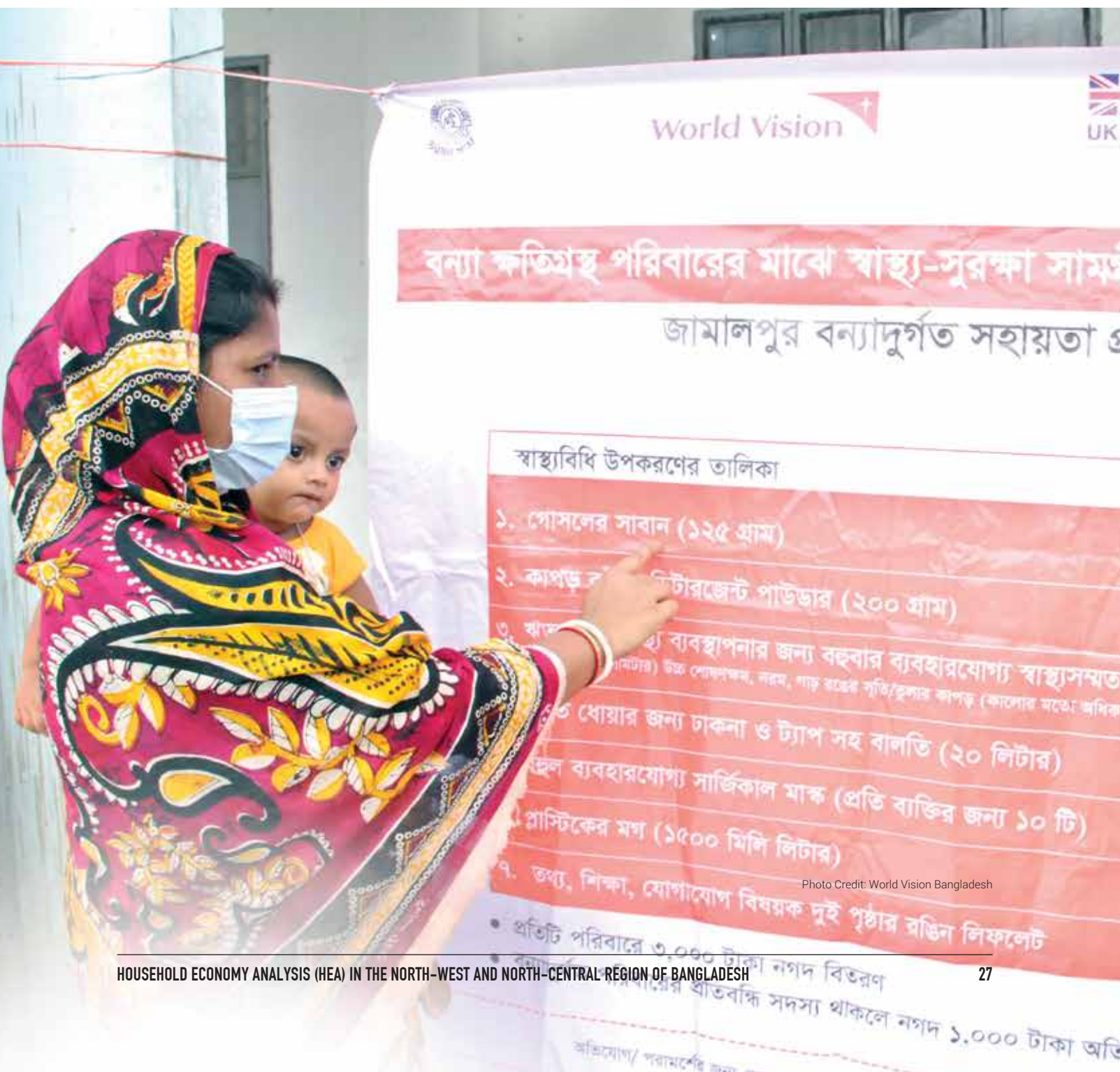


Photo Credit: World Vision Bangladesh

Table 3: Labour Calendar of the Char (Based on Extreme Poor People's Engagement)

| Major Activities | Months | | | | | | | | | | | |
|---------------------|------------------------|-------------------------|--------------------------|---------------------------|-------------------------|-------------------------|--------------------------|------------------------|-------------------------|-------------------------|------------------------|------------------------|
| | Mid Pou-Mid Mag Jan | Mid Mag- Mid Fal Feb | Mid Fa-Mid Chai March | Mid Chai-Mid Bai April | Mid Bai- Mid Jai May | Mid Jai-Mid Ash June | Mid Ash- Mid Sra July | Mid Sra-Mid Bha Aug | Mid Bha-Mid Asw Sept | Mid A sw-Mid Kar Oct | Mid Kar-Mid Agr Nov | Mid Agr-Mid Pou Dec |
| Rice Aman | | | | | | | | | | | | |
| Land Preparation | | | | | | 5 | | | | | | |
| Plantation | | | | | | 5 | | | | | | |
| Weeding | | | | | | | | | | | | |
| Harvesting | | | | | | | | | | | | |
| Post Harvesting | | | | | | | | | | | | |
| Rice Boro | | | | | | | | | | | | |
| Land Preparation | | | | | | | | | | | | |
| Plantation | | | | | | | | | | | | |
| Weeding | | | | | | | | | | | 35 | |
| Harvesting | | | | | | | | | | | | |
| Post Harvesting | | | | | | | | | | | | |
| Jute | | | | | | | | | | | | |
| Land Preparation | | | | | | | | | | | | |
| Plantation | | | | | | | | | | | | |
| Weeding | | | | | | | | | | | | |
| Harvesting | | | | | | | | | | | | |
| Post Harvesting | | | | | | | | | | | | |
| Other casual labour | | | | | | | | | | | | |
| Migration Labor | | | | | | | | | | 30 | | |
| | | | | | | | | | | | 10 | |
| | | | | | | | | | | | 20 | |
| | | | | | | | | | | | | 18 |
| | | | | | | | | | | | | 30 |

Labour Engagement of the Char Area's Extreme Poor People

- Aman Labour (Mid-June to End of December) - 40 days
- Boro Labour (First Week of January to End of May) - 70 days
- Jute Labour (Mid-March to Mid-August) - 15 days
- Casual Labour (Mid-December to Mid-January and Last Week of August to End of September)- 35 days
- Migration Labour (Last Week of March to Mid-May, Mid-August to First Week of October, and First Week of November to End of December) - 80 days

Table 4: Labour Calendar of the River Basin (Based on Extreme Poor People's Engagement)

| Major Activities | Months | | | | | | | | | | | |
|----------------------------|-----------------|-----------------|------------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | Mid Pou-Mid Mag | Mid Mag-Mid Fal | Mid Fal-Mid Chai | Mid Chai-Mid Bai | Mid Bai-Mid Jai | Mid Jai-Mid Ash | Mid Ash-Mid Sra | Mid Sra-Mid Bha | Mid Bha-Mid Asw | Mid Asw-Mid Kar | Mid Kar-Mid Agr | Mid Agr-Mid Pou |
| Rice Aman | | | | | | | | | | | | |
| Land Preparation | | | | | | | | | | | | |
| Plantation | | | | | | | | | | | | |
| Weeding | | | | | | | | | | | | |
| Harvesting | | | | | | | | | | | | |
| Post Harvesting | | | | | | | | | | | | |
| Rice Boro | | | | | | | | | | | | |
| Land Preparation | | | | | | | | | | | | |
| Plantation | 7 | | | | | | | | | | | |
| Weeding | | | | | | | | | | | | |
| Harvesting | | | | | | | | | | | | |
| Post Harvesting | | | | | | | | | | | | |
| Jute | | | | | | | | | | | | |
| Land Preparation | | | | | | | | | | | | |
| Plantation | | | | | | | | | | | | |
| Weeding | | | | | | | | | | | | |
| Harvesting | | | | | | | | | | | | |
| Post Harvesting | | | | | | | | | | | | |
| Other casual labour | | | | | | | | | | | | |
| Migration Labor | | | | 30 | | | | | | | 30 | 10 |

Labour Engagement of the River Basin Area's Extreme Poor People

- Aman Labour (Mid-June to End of December) - 45 days
- Boro Labour (First Week of January to End of May) - 75 days
- Jute Labour (Mid-March to Mid-August) - 20 days
- Casual Labour (Mid-December to Mid-January and Last Week of August to End of September) - 28 days
- Migration Labour (Last Week of March to Mid-May, Mid-August to First Week of October, and First Week of November to End of December) - 85 days

2.2. Wealth Breakdown

2.2.1. Wealth Breakdown of Households in Char

Key Informant Interview with local knowledgeable people suggested the proportion of people fall in the different wealth category is slightly different from the River Basin. Proportion of Extreme Poor (EP) and Poor household in Char is higher than River Basin. Although wealth is determined by the same parameter as River Basin, most of the people belong to Middle and Rich wealth groups were living in the mainland (River Basin) to gain better access to services and resources. However, throughout the reference year, Extreme Poor and Poor households were 35 percent and 40 percent of the total households, while Middle and Rich households made up 17 percent and 8 percent respectively. Table 5 shows that Extreme Poor households did not own land nor had access to land for growing crops. Livestock ownership made them better-off compared to the Extreme Poor households in River Basin. Almost 50 percent Extreme Poor households had 1 cow, while 50 percent had 1 shared cow. Average household size was 4.5. They did not have other assets, except tools for agriculture work and mobile phone. The Poor households in the Char had cultivated 25-35 decimal of land. Average household size was 5. Over 80 percent of Poor households owned 1 cow and 1-2 goats, while 20% of had 1 shared cow. They owned at least 3 bananas and 1 jackfruit tree, and other asset such as mobile phone and some had solar panel. The Middle household had access to 130-150 decimal of land and cultivated 120-140 decimal of land in the reference year. Most the households owned 2-4 cows, 1-2 goats, and 8-10 chicken and ducks. They also owned 4-5 fruit trees and 1-2 timber trees, and bicycle as well as other assets such as mobile phone, solar panel, electricity connection, and TV. The Rich households had access to 297 decimal of land and cultivated 230 decimal of land in the reference. Most of the households owned at least 4 cows, 4 goats, and 8 chicken and ducks. They had productive assets such as power tiller, boat, fishing net, motorcycle, and many fruit and timber trees and other assets such as mobile phone, gold, solar panel, electricity connection and TV.

Table 5: Characteristics of Wealth Groups in Char

| | HH size | Land (Dec) | | Livestock | Main livelihood and Asset | Other Asset | | | | | | | | | | |
|---|--------------|------------|---|---|--|-------------|--------|----|------|---|-----|---|---|----------------------------------|----------------------------------|----------------------------|
| | | Accessed | Cultivated | | | | | | | | | | | | | |
| <p>Chart 1: Distribution of Wealth Groups in Char</p> <p>The chart displays the percentage distribution of households across four wealth categories. The x-axis represents the percentage from 0 to 60, and the y-axis lists the wealth groups. The bars show: Ex. Poor at 35%, Poor at 40%, Middle at 17%, and Rich at 8%.</p> <table border="1"> <caption>Data for Chart 1: Distribution of Wealth Groups in Char</caption> <thead> <tr> <th>Wealth Group</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Ex. Poor</td> <td>35</td> </tr> <tr> <td>Poor</td> <td>40</td> </tr> <tr> <td>Middle</td> <td>17</td> </tr> <tr> <td>Rich</td> <td>8</td> </tr> </tbody> </table> | Wealth Group | Percentage | Ex. Poor | 35 | Poor | 40 | Middle | 17 | Rich | 8 | 4-5 | 0 | 0 | 50% own 1 cow 50% share 1 cow | Wage labour, 3-4 banana trees | Relevant tools, cell phone |
| | Wealth Group | Percentage | | | | | | | | | | | | | | |
| | Ex. Poor | 35 | | | | | | | | | | | | | | |
| | Poor | 40 | | | | | | | | | | | | | | |
| | Middle | 17 | | | | | | | | | | | | | | |
| Rich | 8 | | | | | | | | | | | | | | | |
| 5 | 0 | 25 - 35 | Over 80% own 1 cow, 20% share 1 cow, 1-2 goats | Wage labour, 3-4 banana trees, 1-2 mango and jackfruit trees each, bicycle | Cell phone, solar panel, | | | | | | | | | | | |
| 5 | 130 -150 | 120 -140 | Most of the HH own 2-4 cow, and 1-2 goats, 8-10 chicken and ducks | Agriculture, 4-5 each mango, jack fruit, banana trees plus timber trees, bicycle | Cell phone, solar panel, electricity, TV | | | | | | | | | | | |
| 6 | 297 | 230 | Most of the HH own 4-6 cows, 8-10 chicken and ducks, 0 goat | Agriculture, Many fruit and timber trees, power tiller, boat, fishing net, motorcycle | cell phone, gold, solar panel, electricity, TV | | | | | | | | | | | |

2.2.2. Wealth Breakdown of Households in River Basin

Table 6 shows a summary of wealth characteristics of households in the River Basin. Wealth is primarily determined by the amount of land a household is able to cultivate, access to land, ownership of livestock and productive assets. Key Informant Interview (KII) with the people with good knowledge in the areas revealed 20% of total households were extreme poor in the reference year while 43% were poor. People belong to middle and rich make up 27% percent and 10% respectively of the total households in River Basin zone. The extreme poor and poor households do not own cultivable land, but the poor households reported to have access to 5-10 decimal of land. They also engage in share cropping of 30-50 decimal of land. Middle and rich households cultivated more land and were able to produce more crops thus ensuring more income. Important productive assets for households belong to poor and extreme groups included tools for agriculture work and 1-2 fruit trees. Although, livestock was also identified as important asset supporting livelihood, the poorer households did not own of this asset, so they mostly relied on wage labour. Households of middle wealth groups have livestock, fruit trees, timber trees, and bicycle, while the rich households have increasing number of livestock, fruit trees and timber trees.

Table 6: Wealth Breakdown of Households in River Basin

| HH size | Land (Dec) | | Livestock | | Main livelihood and Asset | Other Asset |
|---------|------------|------------|---------------------|-----------------|---|---|
| | Accessed | Cultivated | Owned | Shared | | |
| 5 | 0 | 0 | 0 cow 0 goat | 0 cow 0 goat | Wage labour, Agric. Tools | Relevant tools, cell phone |
| 5 | 5-10 | 30-50 | 1 cow 1 goat | 1 cow | Wage labour, Agric. Tools 1-2 mango, jackfruit trees each, bicycle | Cell phone, solar panel, electricity |
| 5 | 80-90 | 80-90 | 2-4 cow 1-2 goat | | Agriculture, 4-5 each mango, jack fruit, banana trees plus timber trees, bicycle | Cell phone, solar panel, electricity connection |
| 6 | 260-275 | 250 | 4-6 cows 0 goat | | Agriculture, Many fruit and timber trees, power tiller, boat, fishing net, motorcycle | Cell phone, gold, solar panel, electricity, TV |

Chart 2: Distribution of Wealth Groups in River Basin



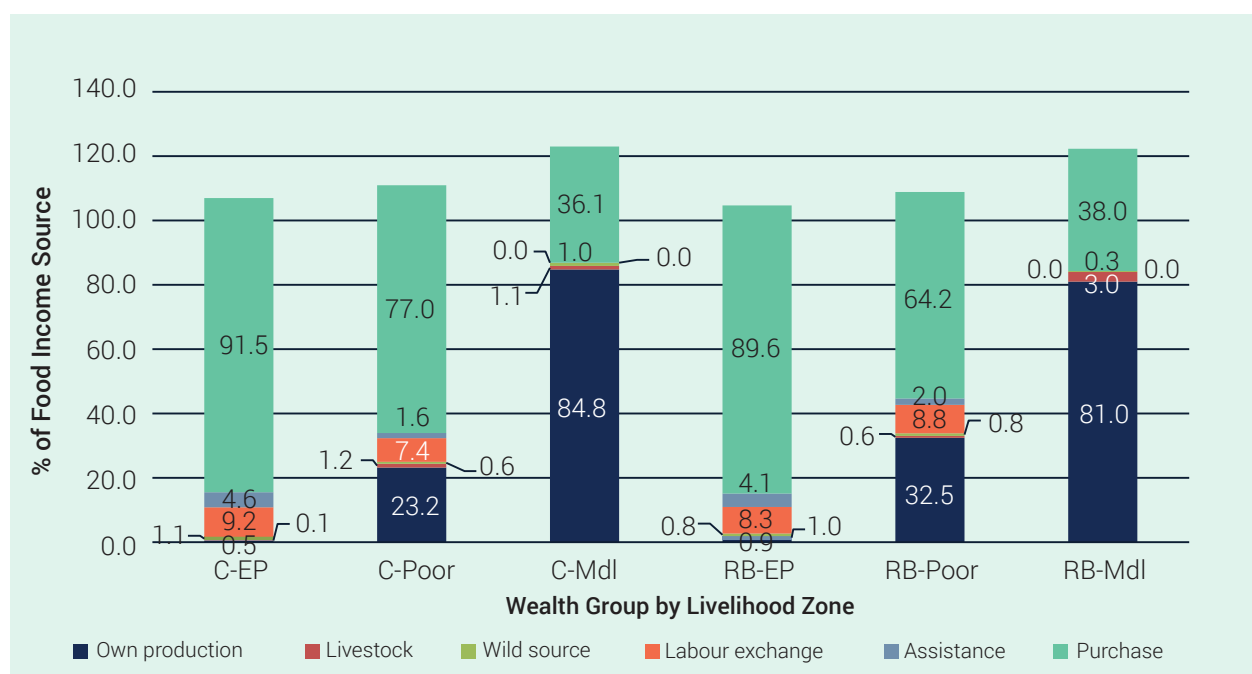
2.3. Livelihood Strategies

2.3.1. Sources of Food Income

Analysis of food economy data reveals the households belong to each wealth group in both the livelihood zones met their 100 percent calorific needs over the reference year. Households across the wealth groups mainly obtained their food from a range of sources available to them. Chart 3 below provides source of food in percentage term. All food in the reference year quantified in calorific terms and expressed as a percentage of annual needs based on WHO reference figure of 2,100 kcal per person per day.

Clearly, Extreme Poor and Poor households across the livelihood zones relied on market purchase of food. Market purchase met 91.5 percent of annual food needs of Extreme Poor households and 77 percent of annual food needs of Poor households living in the Char, while the middle households relied on their own production of crops and vegetables. Labour exchange appears to be the second important source of food for Extreme Poor and Poor households. This source met 9.2 percent of total annual food needs for the Extreme Poor households and 7.4 percent for Poor households.

Chart 3: Sources of Food Income



Similar trend observed in the River Basin. Market purchase of food accounted for 89.6 percent of annual food needs for the Extreme Poor households and 64.2 percent for the Poor households. Middle households met 81 percent of their food needs from their own production. In the River Basin zone, food obtained from labour exchange provided second largest contribution and meet 8.3 percent of annual food needs of Extreme Poor households and 8.8 percent of Poor households.

The difference in income between poor and middle households resulted from the difference in diversity of income sources and amount earned from each.

2.3.2. Sources of Cash Income

Chart 4 shows absolute annual cash income earned by the households across wealth groups in both zones. The income is estimated mid-point of a range for the income earned in the reference year. It shows that the income increases by wealth, which is attributed to the difference in asset ownership and access.

The main income sources were labour exchange, crop and livestock sales, loan, and remittance. In the reference year, Extreme Poor and Poor households in Char earned an estimated average of BDT 109,900 and BDT 132,450 respectively. In the River Basin areas, Extreme Poor and Poor households earned an average BDT 113,750 and BDT 133,500. The Middle households in Char and River Basin earned an average BDT 198,900 and BDT 205,200 respectively. Extreme Poor and Poor households in both livelihood zone heavily relied on wage labour in agricultural field and off-firm work for their cash income. Migration to other place for cash income is the common livelihood practice of Extreme Poor and Poor households in both livelihood zones. In the reference year, they migrated to other areas out of the zones and engaged in a range of activities for cash income.

The huge difference in income between poor and middle households resulted from the difference in diversity of income sources and amount earned from each source which is related to land and livestock ownership. The first main source of difference income from crops. The Extreme Poor households did not earn any income from the crops, although the Poor households some income from the source in the reference year, whereas, the middle households earned a significant income from rice, other crops, and vegetables. In addition, the Middle households earned a significant income from livestock and remittance.

Chart 4: Sources of Cash Income

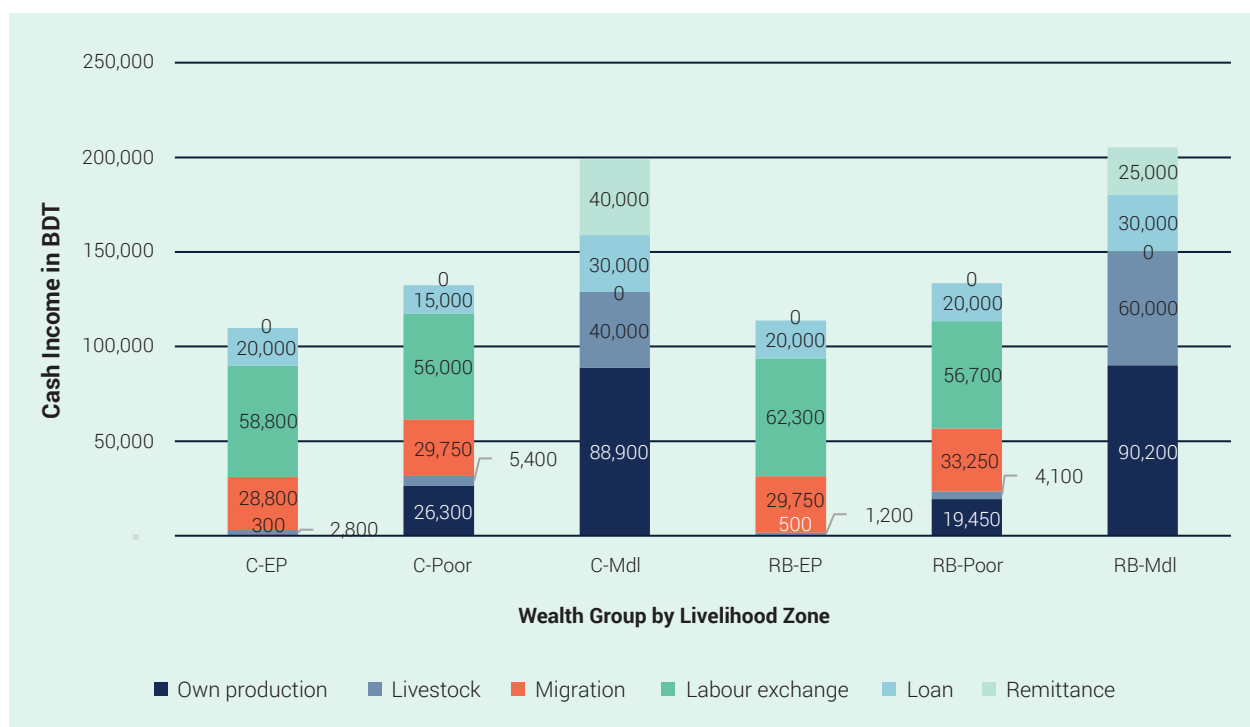
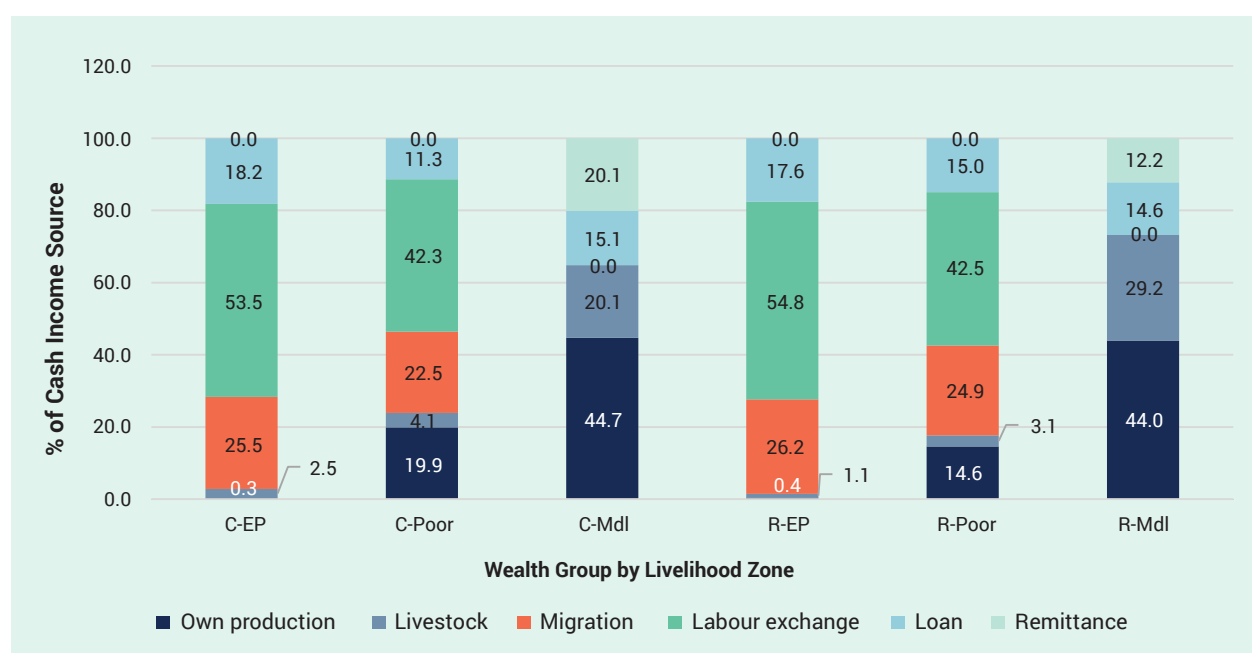


Chart 5 presents relative importance of each source of cash income. It reflects that Extreme Poor and Poor households in both the zones were heavily relied on labour exchange for their cash income. In the Char, labour exchange at local level accounted for 53.5 percent of total annual cash needs for Extreme Poor household, while Poor households obtained 42.3 percent of the total annual cash needs from the labour exchange. The second largest source of cash income for both Extreme Poor and Poor households was migration which met 25.5 percent of cash needs for Extreme Poor households and 22.5 percent of cash needs of Poor households in the reference year. Middle households in Char had cultivable land and livestock. They grew mainly rice twice a year, vegetables, mustard, different kinds of pulses. They also had livestock and sold at least one cow and one goat. Cash income from own production and livestock accounted for 44.7 percent and 20.1 percent of total annual cash income respectively. It is noteworthy that at least one member of Middle households was engaged in job out of the zone in the reference year and they sent money to home which contributed 20.1 percent to total annual income of the households.

In the River Basin areas, cash income from labour exchange met 54.8 percent of cash needs of Extreme Poor household in the reference year, while 42.5 percent of annual cash needs of Poor households. The second largest source of cash income of the both Extreme Poor and Poor households was migration which met 26.2 percent and 24.9 percent respectively. Poor households in the both zones obtained around 14.6 percent of their total annual cash income from own production of crops and vegetables. The Middle household had enough cultivable land and they grew variety food and cash crops. Major proportion of cash income came from their own production which met 44.0 percent of annual cash income. They also made cash income from selling at least one cow and one goat which accounted for 29.2 percent of total annual income. Remittance contributed 12.2 percent of total income of middle households in the reference year.

Chart 5: Relative Importance of Each Source of Cash Income



2.3.3. Household Expenditure Pattern

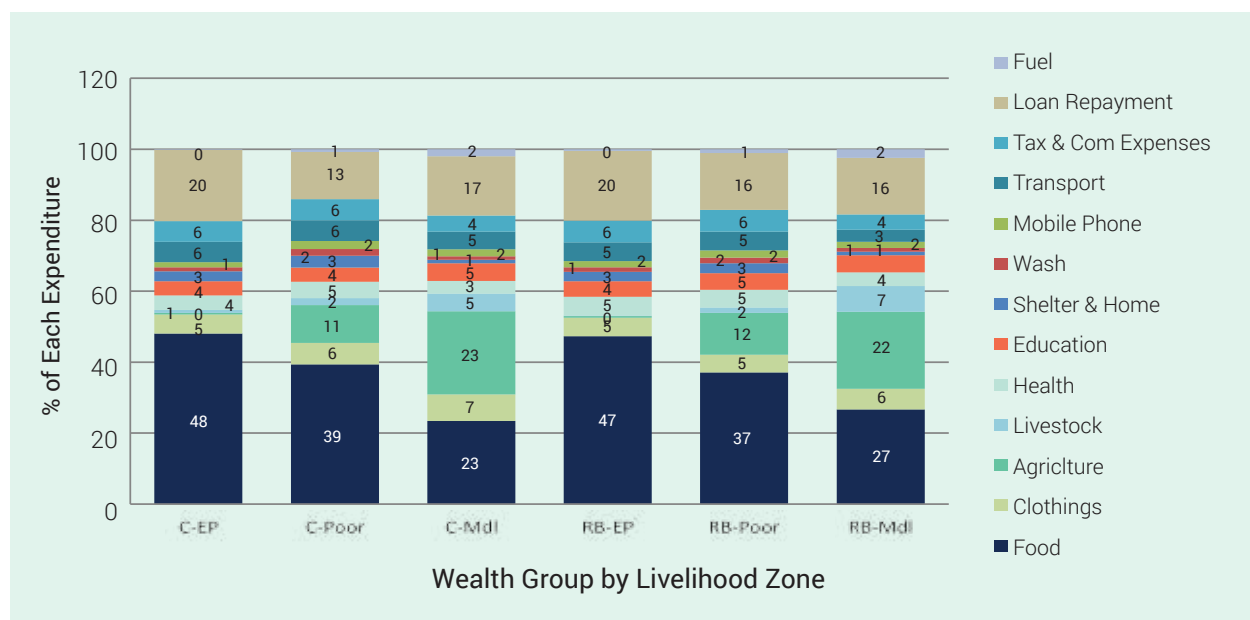
Table 7 shows expenditure pattern of households across the wealth groups in both zones. All the households spent their income on a range of categories in the reference year. There is slight different in expenditure of households in Char and River Basin. Extreme Poor households in Char spent a total BDT 111,980 and Poor households spent a total BDT 131,616 in the reference year. Similar expenditure pattern observed in the River basin. Extreme Poor households in the River Basin spent a total BDT 114,200 while Poor household spent BDT 140,200 in the reference year. Middle households in the Char Basin spent a total BDT 200,500 while the total annual expenditure of Middle households in River Basin was around 207,010 in the reference year.

Table 7: Absolute Expenditure of Households Across Wealth Groups in Char and River Basin

| Household Expenditure | C-EP | C-Poor | C-Middle | RB-EP | RB-Poor | RB-Middle |
|-----------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Food | 53,800 | 51,816 | 47,000 | 54,000 | 52,000 | 55,210 |
| Clothing | 6,000 | 8,000 | 15,000 | 6,000 | 7,000 | 12,000 |
| Agriculture | 500 | 14,000 | 47,000 | 500 | 16,500 | 45,000 |
| Livestock | 1,000 | 2,600 | 10,000 | 200 | 2,200 | 15,000 |
| Health | 4,500 | 6,000 | 7,000 | 6,000 | 7,000 | 8,000 |
| Education | 4,500 | 5,300 | 10,000 | 5,000 | 6,500 | 10,000 |
| Shelter & Home | 3,200 | 4,400 | 2,000 | 3,000 | 4,000 | 2,000 |
| Wash | 1,200 | 2,500 | 2,000 | 1,500 | 2,200 | 2,200 |
| Mobile Phone | 1,600 | 3,000 | 4,000 | 2,000 | 2,800 | 3,600 |
| Transport | 6,500 | 7,500 | 10,000 | 6,000 | 7,500 | 7,000 |
| Tax & Com Expenses | 6,500 | 8,000 | 9,000 | 7,000 | 8,500 | 9,000 |
| Loan Repayment | 22,500 | 17,500 | 33,500 | 22,500 | 22,500 | 33,000 |
| Fuel | 180 | 1,000 | 4,000 | 500 | 1,500 | 5,000 |
| Total | 111,980 | 131,616 | 200,500 | 114,200 | 140,200 | 207,010 |

Chart 6 shows the relative importance of each expenditure of the households in the reference year. While absolute expenditure increases with wealth in line with total cash income, the expenditure breakdown in percent in this chart showing the relative proportion of income spent on different heads.

Chart 6: Relative Importance of Each Expenditure



The biggest expenditure for households across the wealth groups in Char and River Basin was food. The Extreme Poor and Poor households in Char spent 39-48 percent of their annual income on food, which the Extreme Poor and Poor households in River Basin spent 37-47 percent of their annual income on food. This is the largest of Extreme Poor and Poor household's expenditure in the reference year. The Middle household in Cash spent 23.4 percent of their annual cash income on food, while it is 26.7 percent for the Middle households in River Basin. While the relative importance is larger to Extreme Poor and Poor groups because of their low income, the absolute expenditure on food was actually higher with the Middle wealth groups as shown in Table 7. The Poor households in the Char and River Basin spent about 10-12 percent of their annual income on agriculture, while the Extreme Poor spent less than 1 percent.

The Middle households spent 22-23 percent of their income on agriculture, including agriculture inputs, hiring labour for land preparation, plantation, weeding, and harvesting. All households spent on education and health. Although primary education is free in Bangladesh, there are some other costs associated with education such as school uniform and stationery which are not covered by the Government. As for health, this is important expense for the households in each zone. In the reference year, the Extreme Poor and Poor households in Char and River Basin spent an average 4-5 percent of their annual income on health. As mentioned in the cash income section, Extreme Poor and Poor households in Char and River Basin zones had a greater dependency on loan to supplement their income in the reference year. They mostly borrowed the loan from NGOs running microfinance programme and local money lenders in the areas with higher interest rate. The analysis of HEA data shows that the Extreme Poor households in both zones spent 20 percent of their annual income on loan repayment with interest, which is quite significant thus showing how important is the loan to these households.

3. OUTCOME ANALYSIS

3.1. Problem Specification

3.2. Household Response Strategy to Flood

3.3. Projected Outcomes of the Effect

3. OUTCOME ANALYSIS

3.1. Problem Specification

3.1.1. Defining Problems

Following field survey, all the data has been triangulated and analysed. Key informants stratified the entire population into four strata which is referred to as the wealth groups. Hence the existence of four wealth groups in the study areas was apparent, such as Extreme Poor (EP), Poor, Middle and Rich households. The Extreme Poor and Poor households constitute respectively 20 percent and 43 percent, while the Middle 27 percent and Rich 10 percent of the total population. Household size of Extreme Poor households was 4.5, while the Poor and Middle were 5 and Rich household size was 6 persons. Food consumption in the reference years estimated to 2,100 kcal per person at a minimum. To facilitate designing risk financial strategy for Start Fund, this report covered the analysis of three wealth groups, such as Extreme Poor, Poor and Middle households living in Char and River Basin zones.

In the study areas, agriculture sector created major employment opportunities for the Extreme Poor and Poor households. They engaged in a range of activities such as land preparation, plantation, weeding, harvesting and even post-harvesting activities. As seen in the sources of cash income Chart 4, they mostly relied on agriculture wage labour at local level for their cash and food income. When work was difficult to find at local level, they migrated to neighboring zones and other districts, and engaged in agricultural labour and off-firm activities, including rickshaw pulling. Table 8 shows that the Extreme Poor and Poor households in Char found employment in agriculture field at local level for a total 168 and 160 days respectively. The Extreme Poor and Poor households in River Basin managed to find work in the agricultural field for 178 days and 172 days. The details distribution of work days is shown in the table below.

Table 8: Number of Days Engaged in Wage Labour

| Labour Engagement | C-EP | C-Poor | RB-EP | RB-Poor |
|-------------------|------------|------------|------------|------------|
| Aman Labour | 45 | 40 | 55 | 55 |
| Boro Labour | 75 | 70 | 73 | 70 |
| Jute Labour | 20 | 15 | 20 | 12 |
| Casual Labour | 28 | 35 | 30 | 35 |
| Total | 168 | 160 | 178 | 172 |

It is noteworthy that the study areas in Char and River Basin are highly susceptible to flooding. People living in these areas experience moderate flood almost each year which perpetuates poverty of the Extreme Poor and Poor households. Monsoon flooding in 2020 with inundation for 3-4 weeks had devastating effect on the overall economic context of the of the study areas as it damaged crops, houses, road communication network, water and sanitation facilities, and severely reduced the employment opportunities available for the Extreme Poor and Poor households.

This section defines the problem that has arisen from the flooding in 2020. It is crucial to define the problem because it has contributed to change in the economic context in which the households operate. The problem combined with the information collected from the field to establish the effect of the flood 2020 on the household income, the likely ability of the households to make up the deficits, the cost required for the households to do it, and how this varies with households in different wealth groups.

3.1.2. Effect of the Problem

Triangulation of field data reflects that Aman production have fallen by 95 percent in Char and 90 percent in River Basin, Jute harvest estimated to have fallen by 95 percent in Char and 60 percent in River Basin, and casual labour opportunity at the local level fallen by 70 percent in Char and 40 percent in River Basin. Daily wage rate has not fallen and the prices of essential commodities in the market was affordable. Table 9 presents problem statement with respect to change in the economic context in the study areas triggered by the flood 2020.

Table 9: Problem Statement

| Key Parameters | Compared with the Reference Year 2018 | |
|----------------|---------------------------------------|--------------------------|
| | Char | River Basin |
| Aman Labour | 5% harvest (95% loss) | 10% harvest (90% loss) |
| Jute Labour | 5% harvest (95% loss) | 40% harvest (60% loss) |
| Casual Labour | 30% available (70% loss) | 60% available (40% loss) |

Clearly, the harvest failure of Aman was 90-95 percent in the study areas. It did not have an effect on the price in the market because of Government policy to stabilize the rice price in the market, even in the disaster situation. Moreover, commodity supply chain was not too much disrupted during the flood. However, this has an effect on the local employment. Table 10 shows the proportion of cash income came from own production and employment. at local level.

Table 10: Income from Own Production and Local Employment in Reference Year 2018

| Income from Own Production and Local Employment | | C-EP | C-Poor | C-Middle | RB-EP | RB-Poor | RB-Middle |
|---|---------------------------|--------|--------|----------|--------|---------|-----------|
| Labour Exchange | Income from Aman labour | 15,750 | 14,000 | - | 19,250 | 19,250 | - |
| | Income from Boro labour | 26,250 | 24,500 | - | 25,550 | 24,500 | - |
| | Income from Jute labour | 7,000 | 5,250 | - | 7,000 | 4,200 | - |
| | Income from casual labour | 9,800 | 12,250 | - | 10,500 | 12,250 | - |
| Own Production | Income from selling Aman | - | 7,890 | 26,670 | - | 5,835 | 27,060 |
| | Income from selling Boro | - | 18,410 | 53,340 | - | 13,615 | 54,120 |
| | Income from selling Jute | - | - | 8,890 | - | - | 9,020 |
| Livestock | Income from livestock | 2,800 | 5,400 | 40,000 | 1,200 | 4,100 | 60,000 |

The loss of cash income from wage labour at the local level was almost similar for Extreme Poor households in both zones, while the Poor households in both zones accounted for higher loss from Aman failure as they cultivated Aman crops. The Poor households in Char and River Basin accounted for 27 percent and 24 percent loss from as a result of the flood. The Middle households

in Char and River Basin accounted for 17 percent and 15 percent loss from as a result of the flood. Their loss was mainly for not being able to sell Aman paddy. Table 11 presents details of the loss in percent and absolute term experienced by Extreme Poor, Poor and middle household in Char and River Basin.

Table 11: Loss of Cash Income Experienced by Extreme Poor and Poor Households

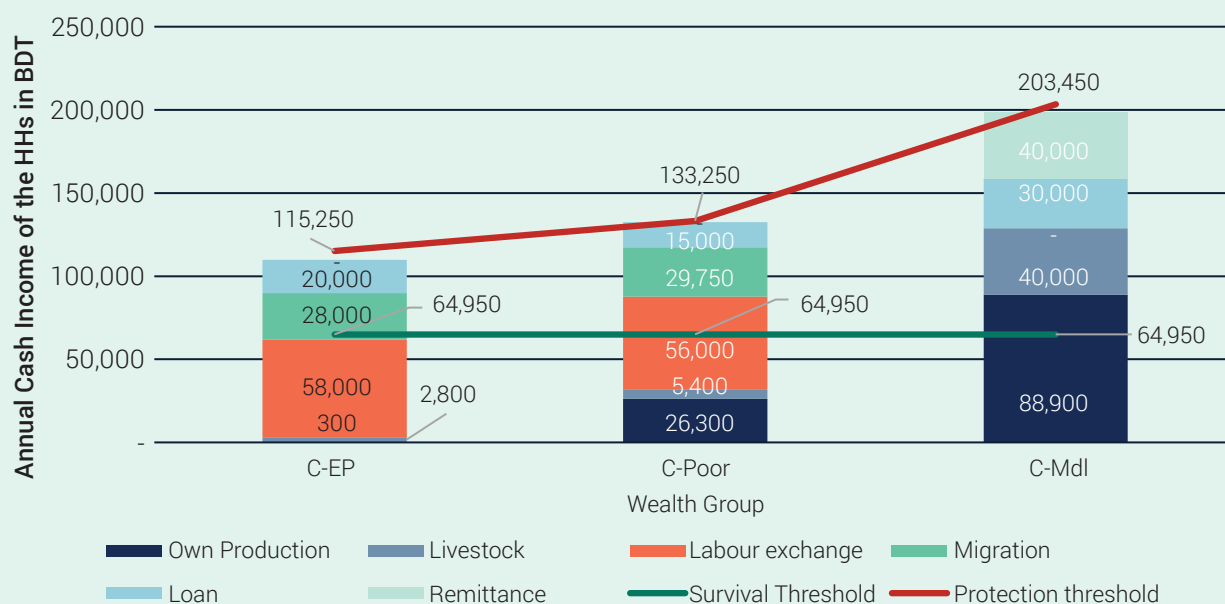
| Key Parameter | Income Loss from Flood 2020 | | | | | | | | | | | |
|-----------------------------------|-----------------------------|-----------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|-----------|
| | C-EP | | C-Poor | | C-Middle | | RB-EP | | RB-Poor | | RB-Middle | |
| | BDT | % | BDT | % | BDT | % | BDT | % | BDT | % | BDT | % |
| Income loss from Aman labour | 14,963 | 14 | 13,300 | 10 | 0 | 0 | 17,325 | 15 | 17,325 | 13 | 0 | 0 |
| Income loss from Boro labour | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Income loss from Jute labour | 6,650 | 6 | 4,988 | 4 | 0 | 0 | 4,200 | 4 | 2,520 | 2 | 0 | 0 |
| Income loss from casual labour | 6,860 | 4 | 8,575 | 6 | 0 | 0 | 4,200 | 4 | 4,900 | 4 | 0 | 0 |
| Income loss from selling Aman | 0 | 0 | 7,496 | 6 | 25,337 | 12 | 0 | 0 | 5,252 | 4 | 24,354 | 12 |
| Income loss from selling Boro | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Income loss from selling Jute | 0 | 0 | 0 | 0 | 8,446 | 4 | 0 | 0 | 0 | 0 | 5,412 | 3 |
| Income loss from livestock | 1,000 | 1 | 1,995 | 2 | 1,689 | 1 | 1,000 | 1 | 1,000 | 1 | 1,600 | 1 |
| Total loss from flood 2020 | 29,473 | 27 | 36,553 | 27 | 35,471 | 17 | 26,725 | 23 | 31,992 | 24 | 31,366 | 15 |

Clearly, the Poor households in Char and River Basin had maximum loss compared to the Extreme Poor households. The Poor households in Char and River Basin suffered from a loss of BDT 32,672 and BDT 30,468 as a result of flood in 2020. The Middle households in Char accounted for a loss of BDT 35,471 while in River Basin BDT 31,366. The loss of Middle household is relatively less than the Extreme Poor and Poor households in both zone because of their less preference to Aman cultivation and they did not engage in labour. Table 11 shows the loss of Middle households in both zones in percent and absolute term.

3.1.3. Survival and Livelihood Protection Threshold

The deficits are measured against two different thresholds: survival threshold and livelihood protection threshold. A survival food basket includes the cost of sufficient staple food to meet survival food energy needs for a year, as well as survival non-food including soap, fuel for cooking, water expenses, and salt. Resources below the threshold indicates that a household does not have the food energy required for survival. A livelihood protection threshold measures the resources needed to meet survival food energy need plus basic livelihood expenditure needs. If resources fall below this threshold, it indicates that the household resources are too low to cover the costs of a household's minimum livelihood protection needs. The survival and livelihood protection threshold are more typically used for emergency planning to judge the food and livelihood insecurity and the extent of food and income gaps.

Chart 7: Basic Survival and Livelihood Protection Threshold for HHs in Char



A high proportion of resources dedicated to survival indicates poverty. Table 12 provides absolute values of the threshold in comparison to total income, and Chart 7 and 8 shows households total income against the survival and livelihood protection threshold. Total income is composite of cash and food income equivalence all converted to cash for this analysis. It essentially measures households' total production in terms of both food and cash and can be used to assess if households are able to meet their needs or may be compared to the standard national poverty lines as measure of absolute poverty.

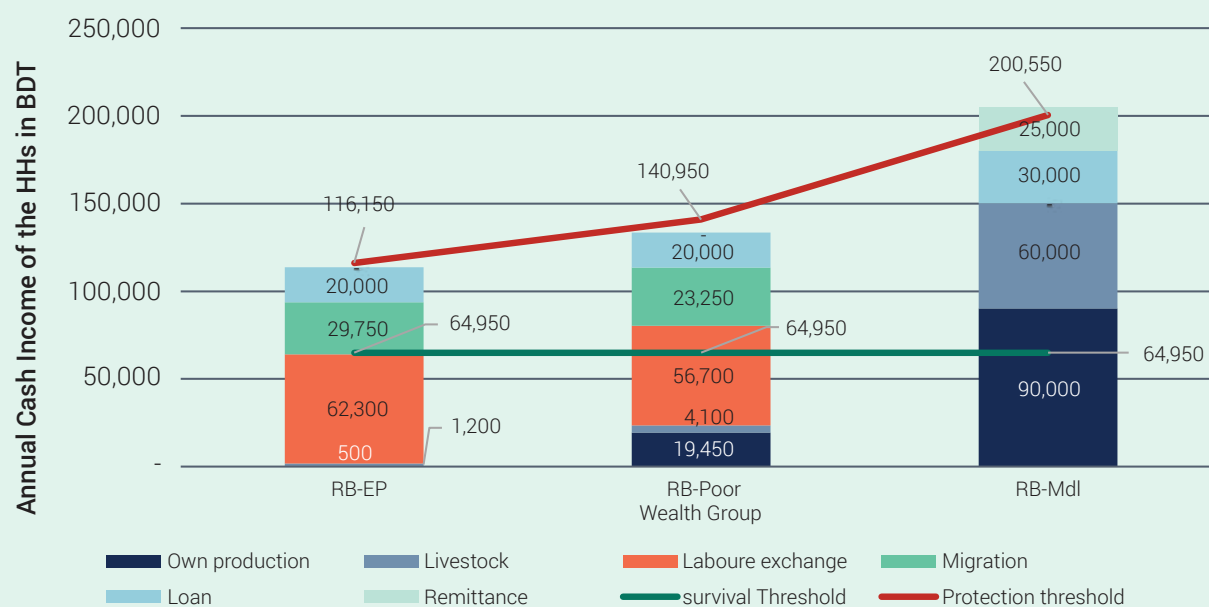
In the reference year, all wealth groups in both zones were able to access adequate resources to cover their survival threshold – the cost of meeting 2,100 kcal per person per day and costs associated with the food preparation and consumption. Details of the Survival Threshold are available in this link. Households across the wealth groups in Char were not able to meet their livelihood protection threshold- survival cost plus cost associated with maintaining existing livelihood assets, expenditure on livelihood inputs, and maintaining a locally acceptable standard. But, the Middle households were slightly below the livelihood protection threshold in the reference year as shown in the Chart 7.

Table 11: Loss of Cash Income Experienced by Extreme Poor and Poor Households

| Threshold | EP | Poor | Middle |
|--|----------------|----------------|----------------|
| Char | | | |
| Survival threshold | 64,950 | 64,950 | 64,950 |
| Livelihood protection threshold | 115,250 | 133,250 | 203,450 |
| Total annual income of reference year | 109,900 | 132,450 | 198,900 |
| River Basin | | | |
| Survival threshold | 64,950 | 64,950 | 64,950 |
| Livelihood protection threshold | 116,150 | 140,950 | 200,550 |
| Total annual income of reference year | 113,750 | 133,500 | 205,200 |

For Extreme Poor and Poor households in Char, the cost of survival food basket was around 59 and 49 percent of their total income in the reference year, while Extreme Poor households and Poor households in River Basin, the cost was around 57 percent and 49 percent respectively.

Chart 8: Basic Survival and Livelihood Protection Threshold for HHs in River Basin



It is instructive to note that the cost of livelihood protection for Extreme Poor and Poor households in Char and River Basin was 101-110 percent of their total expenditure in the reference year, of which 49-59 percent was the cost for survival food basket and 1-13 percent livelihood input cost. This justifies their poverty of the Extreme Poor and Poor households in both zones. On the other hand, livelihood protection cost for Middle households in both zones estimated to be 102 percent of the expenditure in the reference year, of which around 32-33 percent survival food basket cost and 28-29 percent livelihood input cost.

All the figures and tables above indicate, even in the reference year that has been selected as a normal year in the study areas, the total resources secured by the households in each wealth group were mostly below the international poverty line [USD 1.9 per person per day, WB 2015]. In both good and bad years, income per person per day was found to be below the estimated poverty line for Asia. [USD 1.51 per person per day, ADB -2015].

3.2. Household Response Strategy to Flood

The flood 2020 that affected both Char and River Basin resulted in weakening of households' capacity to cope with the shock. Although the reference year was relatively peaceful, households are still on a recovery path to rebuild their livelihood and hence their coping capacity. This study shows that the flood 2020 has led to the loss of cash throughout the year despite employing their coping strategies. It is clear that the adoption of a particular set of adjustments depends on households' socioeconomic circumstances. Impoverishment and marginalisation in part reflect inequitable access to cultivable land and other resources. The likelihood of impoverishment of the households is further increased not only by social and demographic factors (gender, education, health, age) but also by underlying economic and social relationships. This study looked at the adjustment strategies of Extreme Poor and Poor households of Char and River Basin areas against flood. Clearly, the Extreme Poor and Poor households neither had available

options nor did they have resources to adjust to the shock. Interviews carried out with different wealth groups, especially Extreme Poor and Poor households suggest the cash deficit is likely to increase their impoverishment and even to more drastic regime of simpler food, increase malnutrition, increase the level of diseases, increase migration, and vulnerability to future flood. However, the focus group discussions identified the following as some of the adjustments (response strategies) that they employed in the bad year, especially for three months.

a. Manage Situation with Resources Available to Households

- **Eat Less and Change in Food Habit:** This is a common practice of Extreme Poor and Poor households in the study areas, especially during a disaster. During flood 2020, they reduced food consumption to stretch it over a longer period; especially women had to sacrifice more as they take food after feeding all the family members. They also reduced rice consumption and supplements by increasing the consumption of potatoes and pulses, except lentils. They drastically reduced consumption of animal protein such as chicken, meat, fish.
- **Cut Budget:** Usually families stop spending on certain things in response to the disaster– especially on education, clothing, and hygiene. It always adversely affects children and women, in particular. During flood 2020, most of the Extreme Poor and Poor households reduced expenditure on clothing and hygiene. They also reduced the cost of education for their children as the schools remain closed due to inundation. Most of the schools were used as a shelter for flood-displaced people. Moreover, schools were closed due to the Covid-19 pandemic. These households managed to save the expenditure on education materials, private tutors, and transport. They reduced community expenditure that included visits to friends and family members, entertainment, gift for social events such as weddings, refreshments for guests, betel leaves, and nuts. By reducing expenditures in response to flood 2020, the Extreme and Poor households saved 2-3 percent of the total annual expenditure compared to the reference year 2018.
- **Work More:** Family members, especially women and children took up additional work to compensate for the losses and repair of houses. Head of households, who were usually male, remained busy roaming around for searching jobs at distant places, in addition to their normal gender roles in the family, women had to collect food and other relief items from relief distribution centres and participated in food/cash for work. It increased the workload of a woman manifold.

b. Make Sacrifices to Ensure Survival

- **Increase Migration:** This was the most viable option to offset a greater portion of the cash deficit suffered from the flood. Most of the Extreme Poor and Poor households adopted the strategy to increase migration. There was significant demand for labour for Aman harvesting in other places beyond the zone. The discussions with them suggest that they increased migration for 15 days for Aman harvesting and other off-farm activities.
- **Sell Assets:** The Extreme Poor and Poor households sold chickens, ducks, goats, and trees to raise funds to compensate losses of the flood.

c. Seek to Recover Losses through Additional Efforts and Inputs

- **Borrow Cash and Kinds:** Many of the Extreme Poor and Poor households took loans (cash or kinds) from relatives, friends, non-governmental agencies, and local moneylenders.
- **Seek Assistance:** Most of the Extreme Poor and Poor households received assistance from the Government and humanitarian agencies. It included rice, cash, and hygiene materials.
- **Withdraw Savings:** Most of the Extreme Poor and Poor households reported to have withdrawn their savings from the microfinance agencies. It is noted that savings are mandatory for members to be able to register with the microfinance agencies and take the loan. Although the member cannot take a loan from the agencies during the inundation, they are provided with the opportunity to withdraw savings to cope with the crisis.

Despite employing the above strategies to cover up the loss, it was clear in the discussions that some households spent a little amount of money to prevent loss and damage from the flood. Most of the households felt the need to increase expenditure to implement some preparedness measures to save valuables and home structures from the flood. This includes homestead plinth raising and buying bamboo, rope, and nails to repair the house. In addition, expenditure on health care increases due to increased incidence of diseases during and post inundation period. The Extreme Poor and Poor households cannot afford the cost of health care although they managed to buy some medicines reducing the cost from other heads.

3.3. Projected Outcomes of the Effect

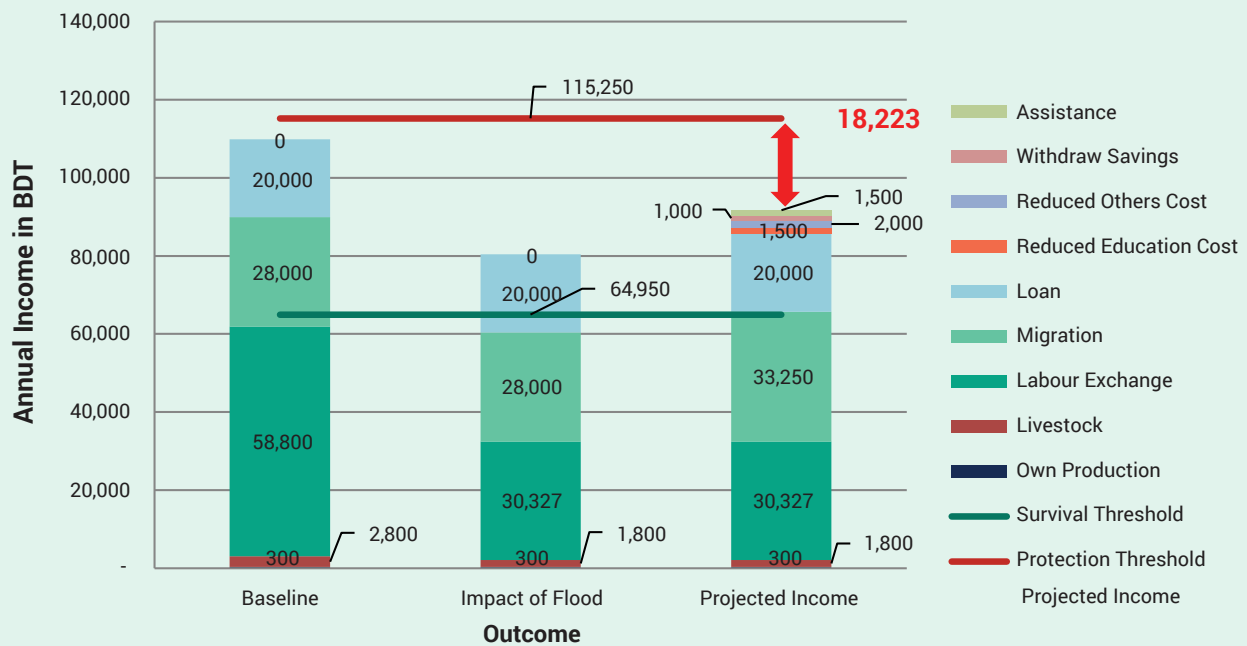
Economic opportunity for the Extreme Poor and Poor households in Char and River Basin is very limited. Only livelihood option available for them is wage labour in agriculture field and off-firm activities. When work is difficult to get at local level, they migrate to adjacent areas out of the zones and other districts in Bangladesh. Although Poor households have access to 20-30 decimal of land for cultivation, this was inadequate to cover up their survival cost. Hence, they also resort to wage labour both at local level and out of the zone. They do not have enough resources to cover up the loss of cash income. It is noteworthy that the Extreme Poor and Poor households in both zones have access to microfinance in normal time, but in the disaster situation triggered by flood, the microfinance organisations temporarily suspend the delivery of loan in order to secure their money. FGDs with the representatives of different wealth groups reflected that they sold out chicken/duck, reduced expenditure on gift and recreation, education materials for children, withdrawn savings and increased migration to cope up with the crisis. It is estimated that the Extreme Poor and Poor households in Char managed to cover up 38.2 percent and 26.8 percent of their total loss, while Extreme Poor and Poor households in River Basin 49.5 percent and 31.3 percent of their total loss respectively. Hence, the Extreme Poor and Poor households in both zones continued to suffer a deficit of cash income through the year. The amount of cash deficit for Extreme Poor and Poor households is presented in Table 13 below.

Table 13: Amount of Cash Deficit for Extreme Poor and Poor Households

| | C-EP | C-Poor | RB-EP | RB-Poor |
|--|---------------|---------------|---------------|---------------|
| Total reference year income | 109,900 | 132,450 | 113,750 | 133,500 |
| Total loss due to flood in 2020 | 29,473 | 36,553 | 26,725 | 31,992 |
| % of loss covered applying coping strategy | 38.2 | 26.8 | 49.5 | 31.3 |
| Remaining deficit in cash income | 18,223 | 26,604 | 11,472 | 21,415 |

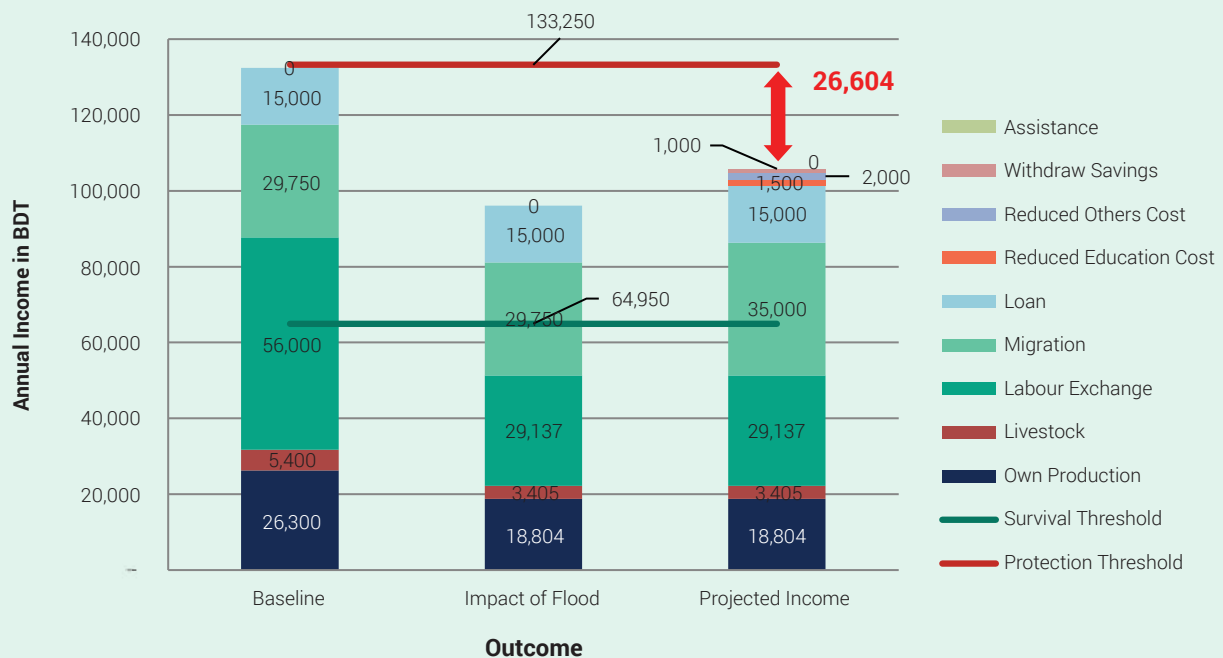
This cash deficit generated impact on the survival and livelihood for the Extreme Poor and Poor households in both Zones. In Char, Extreme Poor households will survive without external assistance, but they need some assistance either in the form of cash or some kind intervention that ensure necessary cash income to maintain a standard living. Chart 9 the impact of flood and projected outcome after applying coping strategies by the Extreme Poor households in Char. It shows that income from labour exchange at local level reduced by 48.4 percent of reference year. They did not have any alternative but the increase the migration for 15 days to cover up the loss. Despite applying all possible strategies, they are below the livelihood protection threshold.

Chart 9: Char Extreme Poor Households' Projected Income



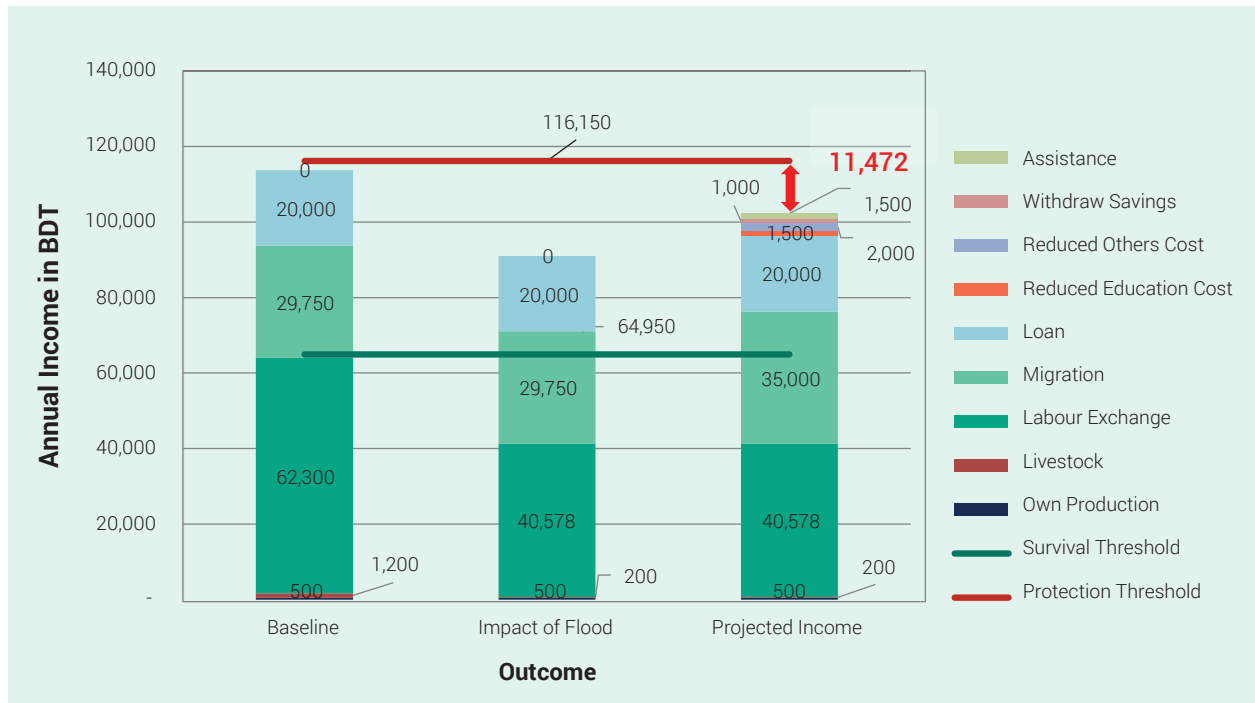
The Poor households in Char, managed to cover up 26.5 percent of their total loss. Chart 10 shows that they were far below the livelihood protection threshold despite applying their all-possible coping strategies.

Chart 10: Char Poor Households' Projected Income



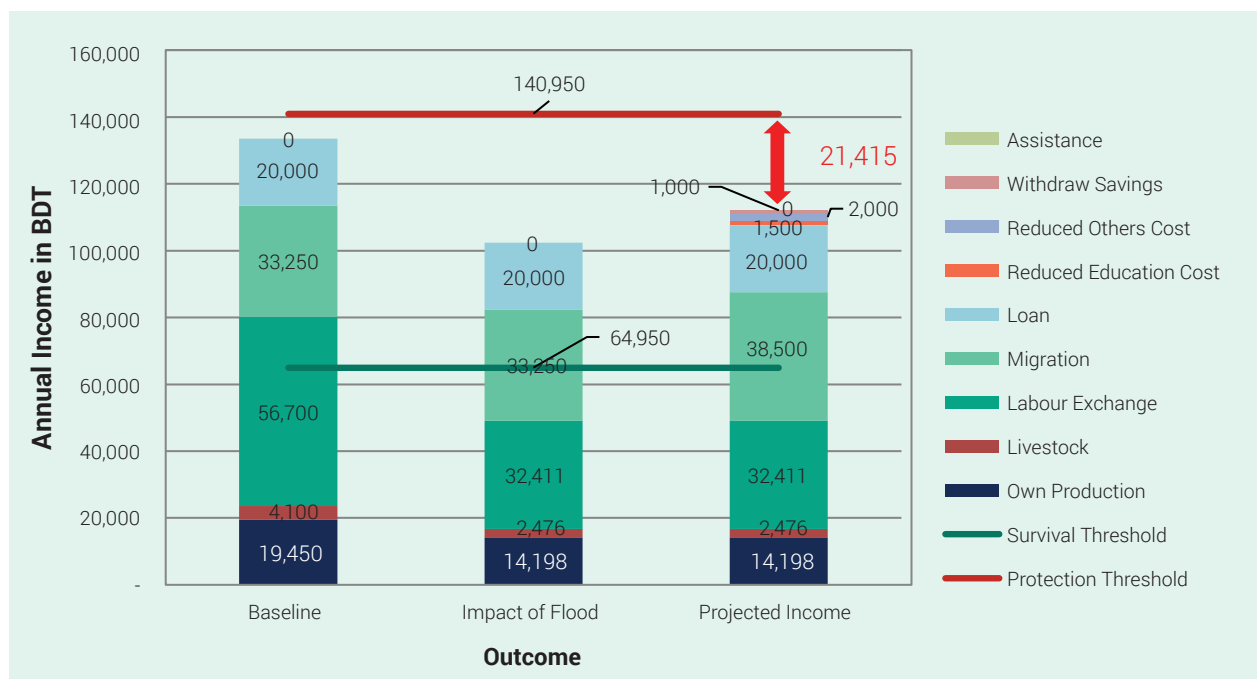
In River Basin areas, the Extreme Poor households can well survive without external assistance, but they need external assistance to maintain their standard of living considered at local context. Chart 11 below clearly shows that they could not reach the livelihood protection threshold despite applying their possible coping strategies. They were still below the protection threshold.

Chart 11: River Basin Extreme Poor Households' Projected Income



The Poor households in River Basin zone was already far below the livelihood protection threshold with respect to total annual income in the reference year 2018. The flood in 2020 forced them to go further below the threshold. Chart 12 below shows that they will survive without external assistance, but they could not reach the protection threshold despite applying their possible coping strategies such as reducing children's education cost, other costs such as recreation, gift and other social costs, withdrawal of saving, and increased migration. They need external assistance to maintain their standard of living.

Chart 12: River Basin Poor Households' Projected Income



4. CONCLUSION

The study carried out in two zones in the north-west and north-central areas of Bangladesh. It addressed questions such as (a) what was extent of production losses, (b) what effect of these losses had on household access to food and cash income, (c) how did households cope with these losses, and (d) which households were worst affected and what was the extent of their food and income gap? This will enable humanitarian agencies to identify where is assistance needed, who need it, how much do they need, when and for how long. In order for a fair understanding of the effect, data from the two zones analysed using the HEA framework. The findings showed that household across the wealth groups in two zones managed to maintain their survival threshold in both good and bad years.

The impact of flood 2020 was much more severe for the Extreme Poor and Poor households in both zones. Households responded to this shock mainly by reducing education cost, their non-essential expenses, withdraw savings, and looking for additional days in migration. These strategies helped reduce the initial income gap that they faced but serious gap remained. The end result was that the Extreme Poor and Poor households in two zones to differing degrees lacked the resources to cover livelihood protection needs. In Char, Extreme Poor and Poor households constitute 75 percent of total households; while in the River Basin, Extreme Poor and Poor households constitute 63 percent. To fill the gap, each Extreme Poor household in Char required BDT 18,223 and each Poor household required BDT 26,604. In the River Basin, each Extreme Poor household required BDT 11,472 and each Poor household required BDT 21,415.

The baseline data reflected that even in the average production year (Reference Year), around 75% of households in Char and 63% in River Basin zone had total resources falling below US \$1 per person per day. Average food and cash income was US\$ 0.70 per person per day for the extreme poor households. It dropped to an average US\$ 0.58 per person per day due to flood. In both good and bad years, per person per day income level was found to be far below the estimated extreme poverty line of US\$ 1.51 per person per day for Asia. It is also below the international poverty line US\$ 1.90 which was raised by the World Bank in 2015.

Table 14: Extreme Poor and Poor Households Income

| | C-EP | C-Poor | R-EP | R-Poor |
|--|---------|---------|---------|---------|
| Reference year | 109,900 | 132,450 | 116,150 | 140,950 |
| Reference year 2018 cash income in US\$ | 1,277.9 | 1,540.1 | 1,350.6 | 1,639.0 |
| Reference year 2018 cash income per person per day in US\$ | 0.70 | 0.84 | 0.74 | 0.90 |
| Projected income in BDT (after flood 2020) | 91,677 | 105,846 | 102,278 | 112,085 |
| Projected income in US\$ (after flood 2020) | 1,066.0 | 1,230.8 | 1,189.3 | 1,303.3 |
| Projected income per person per day in US\$ (after flood 2020) | 0.58 | 0.67 | 0.65 | 0.71 |

*1 US\$ = 86 BDT (As on 8 February 2022, source: <https://www.bb.org.bd/econdata/exchangerate.php>)

It is Important to note that this study did not look into determining the sector minimum expenditure basket. It provides a measure of economic robustness taking into account minimum sector standards, such as food, health, education, WASH. Household falls below the sector minimum expenditure basket threshold are less robust because without the resources to meet basic standard of food, health, education, WASH and so on, they are vulnerable to economic shock. Hence, it is strongly recommended to conduct another study using the same framework to determine sector minimum expenditure basket to be able to design appropriate interventions to enhance resilience for the extreme poor and poor households.

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For any additional information please contact: Md Shofiul Alam, Program Coordinator, Start Fund Bangladesh
Email: shofiul.alam@startnetwork.org