Government of the People's Republic of Bangladesh
Local Government Engineering Department

Final Report For

Baseline Study of Climate Adaptation and Livelihood Protection under Haor Infrastructure and Livelihood Improvement Project (HILIP)

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ABBREVIATIONS

AEZ	–	Agro Ecological Zone
BUG	–	Beel User Group
BWDB	–	Bangladesh Water Development Board
CALIP	–	Climate Change Adaptation and Livelihood Protection
CBOs	–	Community Based Organizations
DOF	–	Department of Fisheries
FGD	–	Focus Group Discussion
HB	–	Hybrid Variety
HILIP	–	Haor Infrastructure and Livelihood Improvement Project
HYV	–	High Yielding Variety
KII	–	Key Informant Interview
LGED	–	Local Government Engineering Department
LP	–	Livelihood Protection
MT	–	Metric Ton
NGO	–	Non Government Organizations
PPRC	–	Power and Policy Research Center
SCBRMP	–	Sunamganj Community Based Resource Management Project
UNO	–	Upazila Nirbahi Officer
UP	–	Union Parishad
VT	–	Vocational Training

CHAPTER 1: INTRODUCTION

1.1. A Glance Look of the Project Area

The *Haor* Basin in the north-eastern part of Bangladesh has to face an adverse agro-ecological and climatic condition due to inundation of almost the entire basin area comprising crop land, natural fish reserves and homestead areas during the long wet season for 6 to 7 months (April to October). The region mostly suffers from extensive annual flooding often more than once in a year. Early flood or flash flood occurs usually in April-May, but in some years it occurs in March which is about one month before the harvest of *boro* paddy, the main crop of the region. Thereafter, monsoon flood begins and continues up to September October for which *kharif-1* or *aus* and *kharif-2 aman* paddy cannot be grown in most part of the region. Again, most part of the floodplains in the *haor* region do not dry even in October-November, so, winter crops like pulses, oilseeds, spices, wheat, maize and potato cannot be grown. Also for prolonged rainy season, fruits and vegetables cultivation is very limited in this region.

The region is however rich in fisheries resources and aquatic biodiversity, wetland vegetation and migratory and native birds. But, devastating flash flood causes damage to these resources also. Particularly, substantial proportion of rural people of the region depends on fishing as main or second source of earning. Income from fishing is further constrained by resource depletion due the overfishing, destructive fishing and access denial by the fisheries leaseholders who are supposed to be genuine fisher but effectively dominated by power-elites.

Aquaculture has potential and is increasing in the recent years. But, it is highly capital intensive and risky. The poor, marginal and small farmers cannot afford it and access to formal financial services is very limited. Rearing of duck, poultry, cattle, goat and sheep is in practice but commercial farming of livestock is limited partly for flooding and poor infrastructure but more importantly for risk of diseases and calamities.

The transport infrastructure is poorly developed with submersible rural roads providing some connectivity during the dry season and boats being the main mode of transport during the wet season. The poor transportation network limits access to markets, agricultural production and off-farm employment opportunities, all adversely affecting economic growth. Further, the poor transport network limits access to social services like health and education and centers of administration and judiciary.

Protection of villages against flood and wave action, proper management of the fishery resources and securing existing livelihoods such as crop and animal production are critical needs for the poor rural households living in the *haor* region.

The *haor* region has riverside embankments constructed by the BWDB over the last few decades but these are under threat to collapse and such severe damage occurred this year due to flash floods. Maintenance of embankment and road network remains a critical issue to address.

1.2. The CALIP Project

The Climate Change Adaptation and Livelihood Protection (CALIP) project is a supplementary project of the IFAD's Haor Infrastructure and Livelihood Improvement Project (HILIP) launched by the IFAD President in 2012. The LGED is implementing CALIP over a five year period from 2014 to 2019. The CALIP project will scale up a number of successful climate change adaptation innovations piloted under the IFAD's Sunamganj Community Resource Management Project (SCBRMP) initiated in 2003 and completed in 2014. CALIP will also introduce some new innovations and these two together will help build up a comprehensive response to enhance community and ecological resilience to climate change.

After inclusion of CALIP total cost of CALIP and HILIP will be BDT 10,556 million (revised BDT 10,763 million) of which GOB contribution is Tk. 2,699 million (25%). The remaining 75% or Tk. 8,064 is financed by the IFAD. However, total cost of CALIP only is USD 15.0 million in 4 components noted below in section 1.2.1.

1.2.1 The CALIP Project Components

The CALIP project comprises the following four components:
Community Infrastructure including Village Protection Works (USD 8.6 million)
Livelihoods Protection (USD 4.3 million)
Capacity and knowledge for building resilience (USD 1.7)
Project Management (USD 0.4 million)

Description of CALIP Components

Components	Activities and Targets
2. Community Infrastructure including Village Protection Works (USD 8.6 million)	a. design and build types of village slope protection using local materials, b. landscape level reforestation for reducing wave action, c. common village infrastructure, d. construction of model village, e. promotion of vegetative species for alternative slope stabilizer of al-weather Upazila roads and village roads, and f. killas (emergency flash flood platforms) for threshing and post-harvest storage.
4. Livelihood Protection (USD 4.3 million)	Introduce new climate change resilient value chains based on indigenous vegetation species
	Introduction of pond fisheries in high ground areas
	Income diversification through promotion of improved handicraft manufacture using local materials
	Non-farm vocational training relevant to the haor context, i. e. boat building, engine repair, bamboo curing etc.

5. Capacity and knowledge for building resilience (USD 1.7)	A set of Action Research studies will be launched to better understand climate change impacts and implications in key livelihoods in the haor area
	A set of action research studies will be launched to better understand climate change impacts and implication on livelihoods in the haor area. Introduction of a flash flood early warning system to reduce crop loss.
	A robust knowledge management system to monitor results of action research and field tests
	Climate sensitive pro-poor policy dialogue that strengthens local access, control and management of natural resources and development of pro-poor adaptation pathways.
Project Management Budget USD 0.4 million	This will put in place the management, coordination and monitoring system for all project activities.

1.2.2 Relevant Indicators to Assess Success

The Project Goal is derived from the HILIP saying that the project will contribute to the reduction of poverty in the Haor Basin. The relevant indicators are:

i) Number of households reporting improvement in asset ownership, self- employment, reduction of poverty, development of socio-economic systems, increase in production, employment of women, upgrading of nutritional status, food security, and

ii) Reduction (in %) the prevalence of child mortality.

Information on changes by these two indicators will be available from secondary source (Multiple Indicator Cluster Survey) reports of the BBS for both baseline and evaluation periods. However, the Baseline survey contains information in the micro level (comprising household income, employment, asset holding, production and food security etc.) for comparison during the evaluation.

The Project Development Objective is to improve: living standards and reduce vulnerability of the poor in the Haor area directly benefiting 115,000 poor households. In addition, the CALIP will strengthen the community and ecological resilience in climate change. The relevant indicators are:

iii. Increase income (*of 30% households*) from a range of on-farm (*crops, horticulture, orchards, fishery and livestock*) and non-farm activities desegregated by gender (*of household head*).

The information obtained is about the household by interviewing household head or an adult member of the household.

iv. Reduction in losses for damages caused by flood, wave action and diseases (*of crops, livestock, fish* etc.). Information obtained by interviewing household head/ adult member, FGD and KII.

v. Number of beneficiary household heads/ respondents reporting improved food security (*for men, women and children and desegregated by gender of household head*)

vi. Number of *beneficiary* households/respondents made resilient (with diversified income sources, better access to information, enforceable usufruct right and security from avoidable hazards.

The Community Infrastructure component will enhance village level mobility and increase farm production by protection against extreme weather events as an outcome.

The indicators are:

vii. Traffic volume increase by 200%- number of various mode of transport on selected routes as per FGD with transport users and operators

viii. Volume of goods marketed increase by 100% - goods coming to selected markets and going out from the same markets reported by FGD with traders and transport operators

ix. Number of homesteads damaged by wave action reduced by 70%

Livelihoods Protection as its outcome will enhance production, diversification and marketing of crop and livestock and pond fishes.

The indicators are:

x. Number of farmers reporting increased production/ yield (Target 30% increased yield

xi. Number of farmers accepting recommended technology including variety (Target 70% acceptors)

xii. 50% target group households diversify income sources mainly by self-employment

xiii. 137,844 target group members trained in various production vocational courses/ technologies under village forestry, pond fishery, advance products marketing, vocational trades and micro enterprise.

Capacity and Knowledge for Building Resilience component as an outcome will enhance capacity and knowledge to contend with climate change impacts.

The relevant indicators are:

xiv. Number of villages adopted CALIP tested low-cost village protection technology

xv. Number of people reached by agro-meteorology, early flash flood and weather forecast.

1.2.3 Geographical Area of the Project

The geographical location of the Climate Adaptation and Livelihood Protection (CALIP) comprises five (5) Haor districts of Netrokona, Habiganj, Brahmanbria, Kishoreganj and Sunamganj. About 176 haor unions have been chosen from 28 upazilas of diverse poverty range, addressing vulnerability in the *Haor*, poverty and communication system. The project is implemented by the Local Government Engineering Department (LGED). Total area covered is estimated 5.918 $km^{2,}$ with estimated total population of 3.0 million of 688,000 HHs, mostly farmers. However the Baseline Survey found that population of the 28 CALIP Upazila is 6,576,089 in 1,238,802 households of which 54% will be benefited by the project.

Project Location Map

6-6-2011

The designations employed and the presentation of the material in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.

IFAD *Map compiled by IFAD*

1.2.4. The Project Beneficiaries

Direct beneficiaries of the CALIP project are following:

SL	Components/ Sectors	Number of Upazila	Number of Village	Number of LCS	Group Size	Total Beneficiary Households/ respondents
A	**Community Infrastructure**					
1	Village Protection	28	224	224	30	6,720
2	Village Internal Services	28	168	168	30	5,040
3	Model Village		4	8	30	240
4	Canal Bank Protection/ Killa			40	30	1,200
5	Beel Bank Protection by swamp planting 30 Beel			30	30	900
6	Upazila Roads Slope Protection 50 km			50	30	1,500
	SUB TOTAL of A					15,600
B	**Village Protection and Common Internal Services**					
7	224 villages and 4 model villages protected	28		228	50 HHs average HH size 4.4	50,160 in 11,400 HHs
8	168 villages with common internal services	28		168	50 HHs average HH size 4.4	36,960 in 8400 HHs
	SUB TOTAL of B					87,120 in 19800 HHs
C	**Livelihood Protection**					
9	Village forestry	28				114,240 respondents
10	Pond fishery					5,040 respondents
11	Improved wood/ wood products					7,560 respondents
12	Vocational Training					11,004 respondents
	SUB TOTAL of C					137,844 respondents
	TOTAL: A+B+C					240,564 people

Present population of the 28 project upazilas in five districts is **6,576,089** in **1,238,802** households with average household size of 5.3.

SL	Project District	Project Upazila	Number of HH	Population
01.	Sunamgonj	1. Jamalganj	29935	167260
		2. Sunamgonj sadar	49557	279019
		3. Dakkhin Sunamgonj	32033	183881
		4. Bishwambarpur	29336	156381
		5. Tahirpur	37931	215200
		6. Derai	45040	243690
		7. Sulla	45040	243690
		8. Dowarabazar	42693	228460
		9. Dharmapasha	43918	223202
		10. Chhatak	66724	397642
		11. Jagannathpur	42866	259490
		Sub Total =	**465073**	**2597915**
02.	Habigonj	1. Ajmiriganj	21293	114265
		2. Lakhai	27759	148811
		3. Baniachong	59433	332530
		Sub Total =	**108485**	**595606**
03.	Kishoregonj	1. Itna	34637	164127
		2. Austagran	31129	152523
		3. Mithamain	23850	122026
		4. Nikli	30450	133729
		Sub Total =	**120066**	**572405**
04.	Brahmanbaria	1. Nasirnagar	59024	309011
		2. Nabinagr	94871	493518
		3. Sarail	58622	315208
		4. Ashuganj	33552	180654
		5. B.Baria adar	95802	521994
		6. Banchharampur	59699	298430
		Sub Total =	**401570**	**2118815**
05.	Netrokona	1. Khaliajuri	18903	97450
		2. Kalmakanda	58069	271912
		3. Madan	31751	154479
		4. Mohangonj	34885	167507
		Sub Total =	**143608**	**691348**
		Grand Total =	**1,238,802**	**6,576,089**

Of the total population, a total of 240,564 (about 4%) people will be directly benefited by the CALIP project activities under four components. The target beneficiaries comprise crop, horticulture, livestock and fish farmers as well as households engaged in various off-farm activities. The beneficiaries of the improved agro-meteorological forecasting particularly related to early flash flood will be much higher, about 3 million people of 668,000 (54%) households in the 28 Upazilas.

1.3. Background of the Study

Local Government Engineering Department (LGED) engaged the Environment, Agriculture and Development Services (EADS) Ltd, Dhaka together with the Development Technical Consultants Pvt. Ltd. (DTCL), Dhaka to conduct the baseline survey of Climate Adaptation and Livelihood Protection (CALIP) project.

Rationale of the Study:

The CALIP is a very important project implemented in the haor region of Bangladesh addressing climate change adversities and enhancing people's resilience to cope with such adversities. The project has well defined objectives and outputs with specified time bound targets. CAALIP has scope to modify the targets, approach and implementation modality fine tune them if required. Therefore, early assessment of the project area scenario and of socio-economic condition of the target group people is essential to indicate the changes taken place over the project duration. Therefore, the project authority decided to execute a baseline survey which will develop a set of baseline values in terms of pre-defined key indicators at the level of project development objective, outcome and output levels. Further, the baseline survey will provide household level data in descriptive Tables as of 2015 to describe pre-project scenario of production, crop, damage, coping mechanism, food security, market access, financial services access and of the role and status of women. All these data are important for monitoring the project during implementation, its mid-term review and evaluation in future to assess impacts and develop future project based on its learning.

1.3.1 Objectives of the Assignment:

The main purpose of the assignment is to design and carry out a comprehensive study for providing baseline data consistent with the goal and purpose of the project. The collection and analysis through the baseline survey will focus gender and social diversity to determine the specific needs and roles of smallholder farmers, women and youths in the context of climate change. The study will determine pre-project or benchmark condition against which achievements as to project goal, development objectives and outcomes. The study will determine baseline values in terms of about 15 indicators noted in this report under chapter 1.2.2.

The study result will be used to:

i. A set of baseline values and adjust performance targets against which progress can be tracked;

ii. Fine-tune the critical areas of interventions to ensure gender inclusiveness in relation to local/ indigenous adaptation and mitigation strategies to climate change.

1.4. Specific Tasks of the Study

The baseline survey will generate information that will be a basis upon which changes in the conditions of target population/ right holders (women, men, girls and boys) will be measured during and after the project implementation in line with program intervention result targets. The program baseline will act as benchmark conditions or performance start point for measuring progress, outcomes and impacts of the program interventions.

The specific tasks of the baseline survey include:

- To assess household socio-economic status, gender dynamics and participation in climate smart agriculture including factor such as differences in status, roles, constrains, opportunities, access to and control over resources of women and men, as farmer.
- Identify and describe agro-ecological diversity and endogenous adaptation and mitigation strategy to climate change in the intervention area.

The above study objectives and tasks have been set to assess improved living standards, reduced vulnerability of the poor and improved awareness, capacity and knowledge of the poor living in the project areas to contend with the climate change impacts. The study will also make an initial assessment of the cost effective and equitable use of project resources by stakeholders. The Baseline survey has been conducted at all the 5 district in 28 Upazilas covered under the project area where landless, small and marginal farmers families (HHs) including LCS members are the major respondents

Following the TOR, The baseline survey has ensured providing information related to:

- Enhance access to markets, livelihoods opportunities and social services;
- Enhance village level mobility, reduce production losses and protection against extreme weather events;
- Enhance access to fishery resources and improved conservation of biodiversity;
- Enhance production, diversification and marketing of crop and livestock products;
- Efficient, cost effective and equitable use of project resources by stakeholders; and
- Enhance awareness, capacity and knowledge to contend with climate change impacts.

1.5. Responsibilities of the Consultants

The responsibilities of the consultants include:

- Consultants will carry out the baseline study following necessary steps on the basis of objectives of the assignment considering the project components mentioned in the scope of study. Review the functional status of major components of project assignment and sample survey.
- Interviewing target group for technology adoption, men and women in the project area and their roles in production activities and decision making for agricultural and non-agricultural production.
- Review the formats/questionnaires attached with this Inception Report and propose, if need be revised formats/questionnaires, FGD and KII ;
- Field test the formats/questionnaires and incorporate changes if required in consultation with the project authority but before the start of field work;
- Organize a comprehensive Training session to orient the enumerators on formats/questionnaires and data collection methods and selection of beneficiaries and on technical matters;
- Carry out the data collection from the indicated number of selected project communities and beneficiaries mentioned;

- Analyze data and prepare and finalize baseline survey report.
- Identify and describe social diversity in the intervention areas in relation with climate-smart agriculture including the needs of women and youth.

1.6. Timing of the study

The study assignment was awarded in August 2017 and was expected to be completed by the year end. It may however be noted here that the fieldwork of the study actually began in December 2017. But, for various reasons like preparation of agreed Bangla version of the study instrument, supplementary fieldwork after preparing and presentation of the draft report and finalizing the report with important feedback from the client, the study took more than expected time. Finally, it has been completed in September 2018 but without extra cost.

1.7. Output and Deliverables

- Inception Report: Two (2) copies of the Report by 10 days of signing the Contract - done
- Progress Report: Two (2) copies of the Report within 2 (two) months of signing the Contract
- Draft Report: Three copies of the Report within 3 months of signing the Contract- prepared.
- Final Report: Ten (10) copies Report including soft copy and all dataset within 4 months of signing the Contract or within 15 days of receiving feedback in writing.

The dataset would include all data collected throughout the assignment period and invariably submitted with the final report.

CHAPTER 2: TECHNICAL APPROACH & METHODOLOGY

2.1. Study Approach

The study comprises both qualitative and quantitative approaches of collecting information from variety of primary and secondary sources and with the application of a number of participatory rural appraisal tools such as Focus Group Discussion (FGD), Quick Census for Summary Information by homestead yard group discussion (uthanboithak), Key Informant Interview (KII) and various observation methods. The study included the following approaches and methodology tools:

- Desk review of relevant documents,
- A sample survey of 6885 households
- Interview of LCS group members, farmers, fishers, women and other target beneficiaries by structured household interview questionnaire
- Key Informant Interview of people having vast knowledge of the problems and of the project (LGED Engineers, Upazila Nirbahi Officer, Upazila and UP Chair, Upazila/UP woman members, teachers, various GOB offices (of DAE, DLS, DOF, meteorology department), HILIP project officials and concerned NGO executives)
- Focus Group Discussion with LCS group members, farmers, fishers, transport operators, traders, women and other target beneficiaries.
- A special type of FGD with elderly and knowledgeable farmers to have ideas on disaster vulnerability, likely yield of various crops by variety, present and past technologies, input use, likely crop damage, cost of production and local market price in the post-harvest period.
- Another type of special FGD was conducted with transport operators and traders in 15 selected market centers to have an estimate of transport and trade volume on haat and non-haat days.

The study approach applied ensured that information concerning natural hazards like early flash flood, flood, hailstorm and thunder storm natural hazards like early flash flood, flood, hailstorm and thunder storm; early flash flood warning, extreme weather events and mitigation measures in the event of natural hazards like migration for work; various on-farm and off-farm activities, livelihoods of men, women and youths, vocational training including road safety/ driver training, handicrafts and other training; village forestry, slope protecting vegetation, conservation of haor area and aquatic biodiversity; services access, water and sanitation; and dimension of poverty with causes of poverty in the haor area.

2.2. Sampling Frame

Determining sample size and selection of sample followed acceptable statistical procedures to help achieve the objectives of the study. Further to this, qualitative information was accorded equal importance. It is important that the study is designed taking into account of the project objectives, strategy, activities, outputs and outcomes as spelled out in the CALIP design report.

A multi-staged sampling frame was followed to select sample households and other respondents. A total of about 7,000 sample households were interviewed who are target beneficiaries of the three components of CALIP. The samples were taken from all 5 districts and 28 Upazilas covered by the project. In each Upazila, one to three Unions were selected were CALIP activities are initiated or are likely to be implemented but the target respondents were not reached as of 2015 by such interventions. This strategy has been applied as the study is a Baseline Survey to describe pre-project scenario as of 2015.

In addition to the household interview by structured questionnaire, the study included enumeration of about 17,000 households in the same villages. Since the number is so large, only summary information was collected by community level group discussion in the homestead yards (*uthanbaithak).* The summary information for each household comprised gender of the household head, his/her age, number of household members categorized by age and sex (male, female, adult, minor), main source of income and status of food security of the enumerated household. In addition, 65 Focus Group Discussions were held with the target respondents and 26 Key Informant Interviews were held with the officials of local administration (UNO) local body elected representatives (UP Chair, Member, UP female seat members) LGED Engineers and HILIP project staff (working for CALIP) and other relevant GOB agency officials representing the DAE, DLS, DOF and meteorology department.

Considering the project goals and objectives, the high priority target population of HILIP and CALIP projects, - the small and marginal farmers, fisher-folk, landless, poor women, small traders and micro-entrepreneurs were included in the sample for both household interview and FGDs.

Two important statistical measures, margin of error and confidence level have been used to determine desired sample size and with the assumption of maximum variability in the study population where value of p and 1-p are 0.50 or p square value is 0.25. In this study depending on the margin of error (or confidence intervals) and confidence level required sample size has been estimated and the results shown in Table- below.

Table 2.1: Sample Size Determination

Category of Beneficiaries	Population Size	Confidence Level	Margin of Error (%)	Sample household determined by using statistical formula	Actually Interviewed
LCS Group Members	15,660	95%	2.35	1,566	1,566
Member of village protection	19,800 HHs (87,120 persons)	95%	2.09	1,980	1,980 HHs
Livelihood protection/ Value Chain / Vocational Training	137,844	99%	2.2	3,345	3,339
Total Households	240,564			6,891	6,885
Summary Information by Uthan Boithak					17,421
Total Households Covered	Target 24,056				24,206

[Ref: For determination of sample size, an online sample size estimation Calculator is used available at URL: http://www.raosoft.com/samplesize.html]

Following the above mentioned formula, 1566 LCS members, 1980 households benefited by village protection and 3,345 households benefited by livelihood protection or a total of 6891 sample households would be statistically desired sample size assuming 95% to as high as 99% confidence interval and 2.09 to 2.35% margin of error. However, the LGED desired that a total of 24,062 samples are covered which is 10% of the CALIP target beneficiaries. So, to compensate for the shortfall, it was targeted to collect summary information of 17,171 households in addition to interviewing of 6891 sample households by structured questionnaire. Against this target, a total of 6885 households were interviewed with structured questionnaire and 17,421 households were covered with the collection of summary information by *uthanbaithak*.

2.3. The Study Instruments

The field survey has applied a number of study instruments as described below:

1) Household interview format to interview a total of 6885 household heads,

2) Focus Group Discussion (FGD): Simultaneously to field survey by the field investigators, Key informant interview, physical observations/inspections visit to offices - A total of 65 FGDs were conducted with a total of 589 participants including 157 women.

3) Key Informant Interview: Besides questionnaire survey (using instrument 1) and FGD (using instrument 3), the study will have a checklist (instrument 2) for Key informant interview with knowledgeable people living or working in the project area and are acquainted with the CALIP/ HILIP project. The informants comprised LGED engineers in the district and Upazila level and various GOB agencies and NGOs working in disaster management, hence addressing climate change adversities and resilience. A total of 26 KII were conducted in five districts. Besides the discussion points specifically mentioned in the checklist, the KII had scope for open discussion and it included such probable new

interventions road safety with training on traffic rules and training of about 2000 drivers targeting local as well as overseas employment.

4) Special FGD with transport operators and traders in the selected market centres to assess pre-project level of the volume of trade and movement of vehicles. A total of 15 special FGDs were conducted with traders and transport operators in 15 market centres with 154 participants. Besides the discussion points specifically mentioned in the checklist, the FGD had scope for open discussion and it included such probable new interventions road safety with training on traffic rules and training of about 2000 drivers targeting local as well as overseas employment.

5) Special FGD with groups of famers to have precise information on the use of technology, crop varieties, input use, cost of production, yield and profitability per unit area of land (*bigha*) and likely crop damage. A total of 15 FGDs were conducted with farmers.

6) Collection of summary information in the community level to enumerate all households living in small clusters of homesteads (*adi)* by interviewing groups of local informants who know the households in the immediate neighbourhood. A total of 17,421 households were covered by *uthanboithak*.

While household interview and collection of summary information by *uthanboithak* were conducted by enumerators and verified by supervisors, the KIIs, FGDs and special FGDs were conducted by supervisors and verified by the coordinator/ consultants.

The FGDs were conducted to know the information from the community. The communities were selected in such a way that most households are target beneficiaries of CALIP. Considering this at least one FGD was arranged in each sample Union and taking at least 2 Unions from each of the Upazila covered. The FGD checklist included all important aspects and indicators noted in the project design report and the scope of work of this study. Thus, about 65 FGDs were conducted each having average 10 participants. FGD participants comprised male and female LCS group members, beneficiaries of VP and LP in male and female groups, landless/ tenant/ marginal farmers, small & medium farmers, fishermen, women groups and aquaculture farmer groups.

A total of 65 FGDs have been conducted which comprises:

i) Labor Contracting Societies (LCS):

About 10 number of FGD to be held two from each of five study districts. The selection of LCS group would be purposively chosen by different sub-component e.g. LCS engaged in: a) village protection and model village b) village internal services c) Killa d) Beel and d) upazila road slope protection.

About 10-12 LCS members, most of them from women folk were organized to hold the FGD sessions. The FGD were facilitated by a supervisor and later verified by coordinator/ expert team members including team leader. The FGDs used a check list prepared by the consultant team.

ii) Agriculture (crop):
At least 10 FGDs were held, two from each of five study districts for collecting information on agricultural crop production situation of the *Haor* area.

The outcome of the discussion forum accumulated real information of both field crop and homestead agriculture cropping practices: crop variety grown, production technology, pre-harvest and post harvesting losses. A pre-formatted defined checklist was used at the time of discussion to facilitate gathering information on the existing agricultural production performances and history of crop production status. About 8-12 representatives from small, marginal and landless farmers were gathered at the community level divided in two groups (landless/ tenant/ marginal farmers and small/ medium farmers).

(iii) Fisheries

Similar to above 10 FGD were organized to gather quantitative and qualitative information / data on fish cultivation both at open and control situation. An arrangement was made to get together participants from the fishing community members. The session mostly concentrated on barriers and perceived problems encountered within the fisheries sector (open water fisheries management, access to water-bodies, sanctuary management, resource conservation, leasing policy and practices etc.). A separate check list was prepared to record information on: Fish growing pockets, species grown, fish capture in the *beel, Haor*, canal and aquaculture in ponds. About 8-12 participants with men and women engaged in fishing and aquaculture farmers were participate in the FGDs.

Of the ten, 4 FGDs were conducted with aquaculture farmers, both male and female farmers and 6 FGDs with fishermen and fisher women groups which included existing or potential BUG members.

(iv) Livestock

At least 10 FGD were organized to gather salient information on livestock rearing in the Haor area. About 8-12 participants with women engaged in livestock/ poultry/ duck rearing were invited to join the FGDs. A checklist was made to gather information on livestock rearing. The theme of the discussion concentrated on existing knowledge and practices to livestock poultry and duck farming, individual rearing techniques, availability of feeds and other essential inputs essential for profitable production process. The discussion also covered livestock mortality and vaccination, source of vaccination, reasons for mortality and disaster vulnerability.

(v) Women Groups

About 10 FGD were organized exclusively from women folk where 10-12 women gathered in 10 villages from 10 Haor upazilas. This session will focus on engagement of women in decision making process at the household level. Spending money those women earn, making purchases / sales of major household assets (land, livestock etc.), engagement of non-farm sources.

(vi) Vocational Training/ Livelihood Protection Beneficiaries

About 10-12 beneficiaries were requested to participate from various trades. Ten FGDs were organized in the village level. A check list format was prepared to gather the training need of the people of the area especially from the women group. A complementary mix of beneficiaries from different trade e.g. handicraft, country boat making, engine repair, bamboo ware etc. both male and female participants were invited to attend the session. Separate sessions were held

for male and female participants. A total of 10 FGDs were held with potential or eligible beneficiaries VT/ LP component.

(vii) Remote and Tribal Area FGD

A total of 3 FGDs were conducted with tribal men and women groups in very remote areas of Kolmakanda and Dhormapasha Upazilas.

Thus a total of 65 FGDs were conducted in 25 Upazila covering a total of 35 Unions. Total number of FGD participants was 559 comprising 412 men and 147 women.

The intended output from the FGD is to find the location based outcome of the project e.g. disaster calendar, crop calendar, cropping pattern, land use, identifying the hazard prone area by location, crop loss estimates, input cost, cropping intensity, crop vulnerabilities finding the adaptation options that best needs of the community. The FGD locations and participants were purposely selected to ensure participation of potential beneficiaries of all components representing various occupation and income groups disaggregated by gender and ethnicity. Special attention was given to ensure inclusion of the poor and vulnerable groups, farmers, fishers, aquaculture farmers, livestock farmers, crafts men and women and those more likely to be affected by various natural calamities.

2.4. Sources of Field Data

Data collection was made broadly at levels:
A) District and Upazila Level by meeting and review of secondary data, and
B) Field Level (Household interview, FGD, KII, Summary Information by *uthanboithak*)

A. District Level

Secondary source data will be collected from nation building departments working in the district level. The departments are: LGED, Department of Agricultural Extension, Environment, Livestock, Fisheries, Haor Development Authority, Agricultural Research Institute's Field offices and different national and international NGO representatives. The consultant may prepare a format to record the structure data from district level (breakdown by upazila will be very useful)

a) Agro Ecologies:

Agro Ecological Zone (AEZ) information on land, soil, crop and water resources provided very important and meaningful information to get a broad picture of the district. Secondary information from different departments was obtained besides fresh information by KII and FGD.

b) Social diversity and the need and role of women and youth in climate smart agriculture:

The Haor inhabitants, especially women and youths of the flash flood area are adopting few local indigenous methods in order to sustain their livelihood. Government in collaboration with the NGOs, donor agencies adopts different location specific schemes towards addressing the vulnerability of the people living over there. Secondary source data sources were explored to have a picture of women's potential need and role in climate change.

c) Indigenous adaptation and mitigation to climate change:

Information on crop, livestock, fisheries, livelihood adaptation option menu and mitigation measures to combat the adverse effect of the climate change.

d) Policy environment for climate-smart agriculture

Consultation with and review of different policy documents (e.g. NAPA) and study reports published by the concern worldwide, Bangladesh, an international organization working few of the Haor area.

e) Level of infrastructure such as road that would hinder access to markets

Collate the up-to-date information on construction and present condition of infrastructure e.g. upazila road, bridge, protection wall, ghat, market shed, disruption action to wave etc. and potentials to slope protecting vegetation.

f) Access to services (government, private sector and civil society)

B. Field level

Household Interview

a) Demography, asset holding and income sources.

i) Age, sex and education of household head, number of family members- male and female children,

ii) Education of education of male and female household heads, occupation of earning members, income source, and yearly household income.

iii) Household asset holding- land, house type (pucca, semi-pucca, kutcha), possession of production input, domestic animals, fisheries, boats, nets, other production appliances, transport, home appliances etc.

b) Access and use agricultural inputs and climate-smart agricultural practices

i) use and tenure of agricultural land

ii) Skill and knowledge on utilization of agricultural inputs like seed, fertilizer, HYV / HB crop varieties and perception to adopt flood risk free crops and availability of agricultural inputs (improved seed, fertilizer, herbicides / insecticides, climate-smart agricultural practices

iii) Cost of production

iv) Access to extension services in crop farming, livestock and fisheries

v) Access to formal sector to secure credit

c) Access to information

i) use of cell phone (mobile) and level of networking performances.

ii) Knowledge on climate change and livelihood adaptation.

Contents of Household Interview

a) Family Description: Identification of household, family description, living duration at the present residence

b) Economic Status: livelihood status,

c) Educational attainment, non-formal education, professional class

d) Agricultural practices, yield performance, measuring the risk and uncertainties, crop loss estimates, livestock, fisheries and forest resources, local entrepreneurship
e) Knowledge, Attitude and those of Practices
f) Motivation, Awareness, campaign
g) Any motivational activities or any promotional activity performed by the government agencies as well as NGOs field personnel for the mitigation of disaster risk.
h) Role and status of women

2.5. Indicators of CALIP by Subject Measurement

The following table describes the important indicators and the key attributes (variables) to be encountered for collecting the information from the project beneficiaries.

Subject of Measurement& study instrument used	Indicators	Attributes (variables)
Status of crop production: FGD/ KII	a. Rice yield per acre b. Input costs for growing of rice c. Number of rice crop grown in a year d. Variety of rice/ crop grown e. Loss of rice /crop due to flooding f. Use of modern agro-technology	a. yield per acre (kg) by season/variety b. input cost i.e. seed, fertilizer & others. c. cropping pattern and season, its cost d. rice variety HYV, Hybrid, MV, LV grown. e. crop damages pre or post-harvest loss f. line sowing, use of mechanical tech
Storage of Rice FGD/ KII	a. How rice is stored b. Reasons for the damage of rice, if happens	a. storing facilities warehouse, home etc b. Cause crop loss early flood, pest infestation, hail storm, fog, drought etc
Cropping practices: FGD/KII	a. Use of high quality rice seed/ variety b. Maintaining proper spaces, line sowing, timeliness of sowing/ planting/ harvesting c. Use of recommended seed storage methods d. Pest control e. Proper use of fertilizer	a. rice/ crop variety grown, HB, HYV, LV etc b. what are the plantation space of rice c. seed storing: drum, plastic pot, poly d. pest control method: use IPM, use of insecticide or do nothing e. balance dose of fertilizer use
Homestead Gardening: HH	Type of vegetable/ fruits grown	Vegetable/ fruits cultivation by season & variety
Access to market: HH	a. Distance of the nearest market b. Usual mode and cost of transportation to the market c. Whether wholesaler coming to the growing areas? d. If not, what are the problems do the farmers face	a. Travel time and distance to near market b. mode of transport: boat, road, walk, other c. primary mkt or farm gate selling possible d. Problem faced in marketing
Education of HH heads HH	Highest Class passed	Education Level: None / Primary /Secondary
Membership of BUG/ NGO/ CBO group : HH	a. Whether anybody from the family is the member of BUG/ NGO/ CBO	a. have membership to beel user group/ NGO or CBO group

Subject of Measurement& study instrument used	Indicators	Attributes (variables)
	group b. Whether any member of the family raise / catch fish c. Where the fish is grown (own pond / on lease pond) d. Types of fish grown e. Where fish is harvested (canal/beel/river) f. Types of fish caught g. Whether authorized to catch fish from these water bodies h. Advantage of becoming BUG member	b. family member catch fish / raise fish c. have any own pond or lease pond (size) d. variety of fish grown e.g carp, tilapia etc e. Access to catching fish at canal / beel/river f. catching fish classification e.g. big, small g. have any legal entry to catch fish in open h. benefits to admission in BUG
Employment status of women: HH	Whether engaged in any income earning activity	secure with any income earning activity
Access to information and technology: HH	a. Awareness of sources of information and support for agriculture, livestock rearing, gardening or pond / fish management b. Whether received any information or support from any of the sources c. If received, what kind of information / support was received	a. Relationship with union centre or agriculture, livestock and fisheries field office. b. source of technical message support c. information type: HYV crop, fish, livestock rearing, training
Crisis coping strategy: HH	In the event of damage to crop, livestock, aquaculture	Source of assistance (spent past saving, relatives, banks, MFIs, government help etc.)
Role of women in decision making HH	a. Making purchases of daily household need b. Making purchases / sales of major household assets (such as land) c. Spending money that women earn	a. frequency of household purchases b. purchase any major HH resource nearly. c. How to utilize money earned by women d. right to owning and managing assets
Livestock mortality and vaccination HH	a. Reasons for mortality b. Number of animals die, how and why c. Numbers of animals per household d. Numbers of animals vaccinated and frequency of vaccination e. Source of vaccination (free or at cost)	a. death causes: poultry, duck animals if any b. prevalence of animal death and its causes c. ownership of animals per HH d. animal, poultry vaccination its frequency intervals e. collection of vaccine at cost or free.
Access Essential Services HH	Access to essential services (Gas, Electricity, health card, FP materials)	Facilities: cooking, lighting, treatment, FP
Transport/ Communication HH	Status of village internal transport/ communication	Distance from market, owning vehicles, having cellular phone, TV , internet etc.
Water &Sanitation: HH	a. Source of Drinking Water b. Status of Latrine	a. Source of drinking water: TW/ ponds / river b. Have any Latrine: water seal/pit/jungle/ open

Subject of Measurement& study instrument used	Indicators	Attributes (variables)
Awareness of climate change adaptation: HH	Level of awareness / knowledge on FFEWS, early maturing crops	Knowledge on signal system of FFEWS, practices in climate-smart agriculture
Capacity HH, FGD/KII	Present Capacity to protect the FFEWS	Advantage of EWS for flash flood
Weather and Flash Flood Forecasting: HH/ FGD/ KII	a. Means of receiving agro meteorological weather and flash flood forecasting b. No. of people and institute receiving agro least meteorological weather and flash flood forecasting	a. FFEWS message transmission: Light / signal / Flag / louder / community radio b. Jurisdiction of FFEWS message transmission

2.6. Recruitment of Supervisor and Enumerators/ Interviewer

Twenty qualified Enumerators and 6 Supervisors were deployed for collection of information/data from the field. The Supervisors were minimum graduation in any discipline with long knowledge and skill in supervising similar survey work and have minimum three years' experience. They are graduates in social science, agriculture and various other disciplines with adequate knowledge and interest in data collection work. The enumerators were also had graduate level of experience, knowledge data collection and at one years' experience in similar work in rural areas.

2.7. Training for Field Survey Team

A Thorough training session will be organized for the Supervisors (6) and Enumerator (20) in six segments;

a) One (1) day training/orientation prior to field training and field test of survey instruments,
b) One (1) day Field Training; and
c) One (1) day dissemination and sharing of the outcomes of the field training and pre-test of the instruments

Field Supervisors and Enumerators were imparted extensive training on;

1) The background and objectives of the study;
2) TOR of the study
3) Study methodology so that investigators achieve in-depth understanding on subject matter and the adoption of methods therein.
4) Study Instruments (tools and technique of the study);
5) Categories of Respondents
6) Method of Approaching the respondent;
7) Collection of information and data recording into the instruments;
8) Conducting FGDs and KIIs;
9) Record keeping and
10) Submission of survey report along with filled-in questionnaires.

The training was held at EADS HQ, Dhaka. Prior to the training, the CALIP project representatives illustrated the project targets and the context of the study to the core team members and also provided explanation of queries.

2.8. Pre-Testing and Finalization of Survey Instrument

A pre-test of draft survey instruments was conducted prior to the actual survey was started in order to assess the question response and understanding of the respondents as well as suitability and completeness of the study objectives. All the Investigators and Supervisors moved to the field in an area other than sample upazila near to the project area. They were provided with the survey instruments (questionnaire and checklist) for conducting pilot survey. The study team conducted pilot test by interviewing similar respondents. Consultants of the Team guided the supervisors and enumerators in asking questions and filling up the questionnaires and solving any problem they face. Promptness and interest of the respondents were observed and rectified if the informants faced difficulty to answer. All points identified by the respondents were be noted by the consultant to finalize the questionnaires and checklists. The consultant firm shared the experience of the pre-test with the project authority.

2.9. Administering the Field Survey

The Supervisors and Investigators were responsible for collection of data from household heads and other respondents using pre-tested check list and questionnaire. Following were the key responsibilities of Investigators:

- Meet the selected household head or other adult member in absence of HH head in second attempt and ensure their participation in getting response;
- Conduct face-to-face interviews with the selected respondents;
- Record the answers and code the questionnaires correctly;
- Ensure completeness of answers and perform accuracy check of the questionnaires;
- Deliver completed questionnaires to the supervisor;

Responsibilities of Supervisors:

- Check on daily basis the work done by the enumerators and ensure that inform are internally consistent hence low risk of being incorrect,
- Also check that the figures are within defined range as indicated in consultant's guidance during training and pre-testing.
- Safeguard the confidentiality and privacy of the collected information.
- Send filled-in questionnaire to the EADS headquarters on weekly basis.

Responsibilities of Consultant Team:
Check sample questionnaires and take necessary measures to correct all data by following methods:
Follow-up visits where necessary
Consistency checking electronically with the involvement of computer programmer
Appropriate coding and recoding before, during and after data entry

The consultant team organized all field operations including availability of logistics required for data collection, obtaining household consent to conduct the interview, if needed. The Specialists/ Consultants would step to collect some relevant information during their visit to the farmer/household. In some cases if respondents did not have time or not in place, the field team revisited those of respondents.

2.10. Quality Control and Monitoring:

The Team Leader and other Specialist members of the Team visited the field teams in all districts in two weeks and after the field work in another week. The locations of the investigators were continuously monitored through cell phone tracking and maintain regular contact to focal person. It is assured that the consulting firm provided the list and details of contact numbers of the field team so that the LGED and project personnel can also monitor the progress of work.

The Supervisors and Coordinator checked all completed questionnaires including a minimum of 2% of instant verification by revisiting the respondents in order to validate the accuracy of the data recorded. The process also involved asking respondents any inconsistency in their replies or misreporting by the investigator.
The team of professionals checked the questionnaires prior to making entry into the computer. The data entry plan was confirmed by the EADS Task Manager before hands.

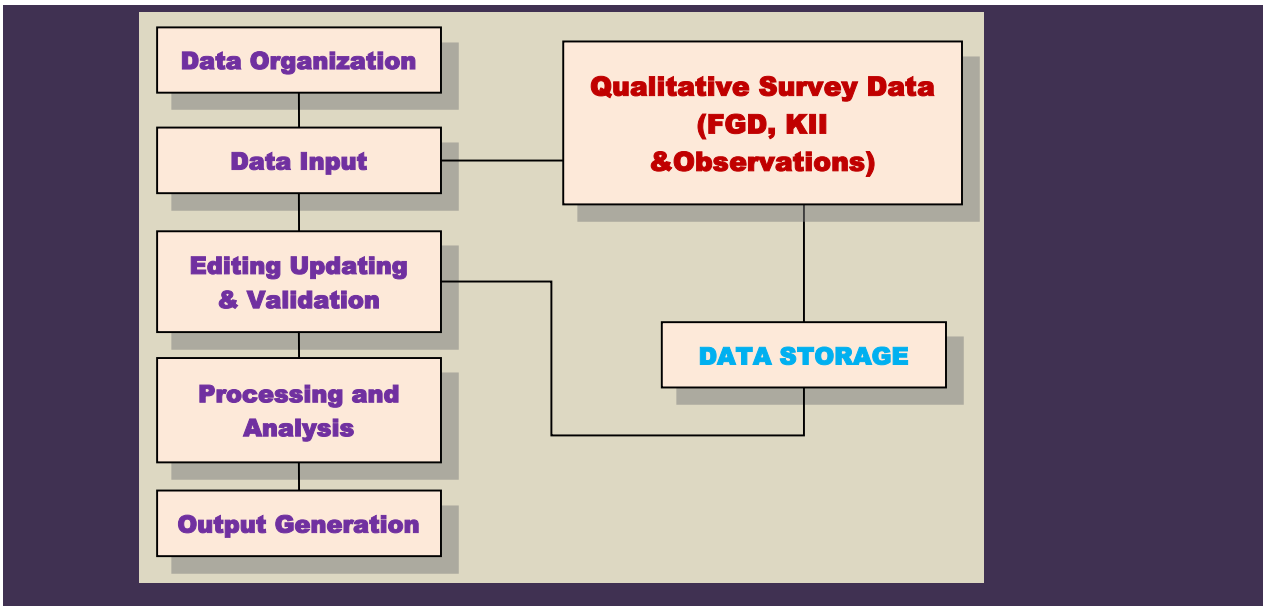
2.11 Coding and Data Entry

In order to capturing data from the coded questionnaire into the computer, standalone database application software would be prepared with a front end data entry screen and quantitative data set in the back end. A database management system would further be transformed into data table for further analysis using SPSS software. The structured questionnaire is substantially pre-coded. However, if needed post coding will be applied.

2.12. Data Analysis and Interpretation

The collected data were analyzed by using software like SPSS. Mainly descriptive tables are provided but ensuring minimum 95% confidence level allowing maxim 2.5% margin of error. For descriptive tools: averages, proportions, graphs etc. are provided. Taking into consideration said in the TOR interpretation of data has been made by the consultants. The following diagram will be followed in data organizing, entry and processing.

Schematic diagrams of study approach and data collection methods



2.13. Output and Deliverables

- **Inception Report**

Two copies of inception report will be submitted within 10 days of the confirmed agreement of the assignment. On the other, the EADS, the consulting firm hold a discussion session on inception report, methodology, survey tools (questionnaire, FGD), details of work plan. – Already delivered

The report included the work plan along with detail approach and methodology for the study, data collection, tabulation, analysis with a time frame and a list of outputs including anticipated deviation for the proposal and for the approval of the project management. The defined manpower allocation and staffing requirement, transport, office accommodation, approach and methodology and other relevant matters will be included in the inception report. – Already delivered

The consulting firm will prepare study design and questionnaire to be used for the base line survey in English version for review and comments of project management and submit the final questionnaire for approval incorporating views and ideas. The Bangla version would be prepares for actual data collection. – Already done

- **Draft Report**

The consulting firm will submit three (3) copies of draft report of baseline survey will be submitted by end 30th November, 2017 for review and comment of the project management. Output of the review meeting would be incorporated in the final report. The Final Report will be submitted after getting written approval of the Project Director, CALIP, LGED Office.

The final report shall contain recommendation to act as the future guides as planning and operation during the project span of time.

- **Final Report**

Getting feedback from the Project Director (PD), CALIP and other authorities will be incorporated in the final report and thereby modified. The final report will be submitted in 10 copies by 15th December, 2017.

The final report will confirm the following contents:

- Executive summary
- Background, objectives, rationale, scope, methods, quality control of data, and limitations
- Basic tables for all variables of the survey
- Description of findings based on variables
- ToR requirement wise tables and findings
- Challenges, recommendations and conclusion.
- Cleaned data set with variable names and values (provided in memory stick)
- Presentation of findings

CHAPTER 3: THE STUDY FINDINGS

3.1 Demographic Information

A total of 6,885 households were interviewed using a structured household survey questionnaire. **Table 3.1** shows that 83.4% of the respondents are household themselves and another 11.9% are spouse of household head. The remaining 5% respondents are other adult members of the sample households.

Table 3.1: Distribution of Respondents by Relationship with the Head of Household

Relation	Overall	
	Number of Respondents	%
Self	**5,743**	**83.41**
Spouse	**816**	**11.85**
Son	**74**	**1.07**
Daughter	**7**	**0.10**
Father	**12**	**0.17**
Mother	**18**	**0.26**
Others	**215**	**3.12**
Total	**6,885**	**100.0**

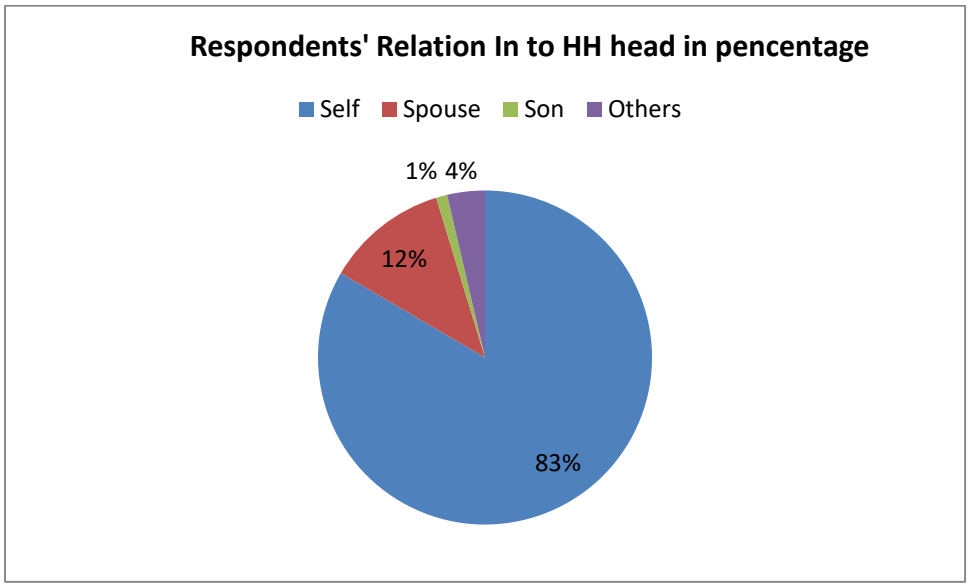


Figure 3.1: Household Survey Respondents by Relation to HH head

Table 3.2: Marital Status of the Respondents (% of HH heads)

Marital Status	Male	Female	Total
Married %	**99.19**	**67.19**	**95.86**
Unmarried %	0.61	1.42	0.7
Divorced %	0.02	1.99	0.22
Widow /widower %	0.23	27.27	2.99
Separated %	0.02	2.13	0.23
TOTAL	**6,181**	**704**	**6,885**

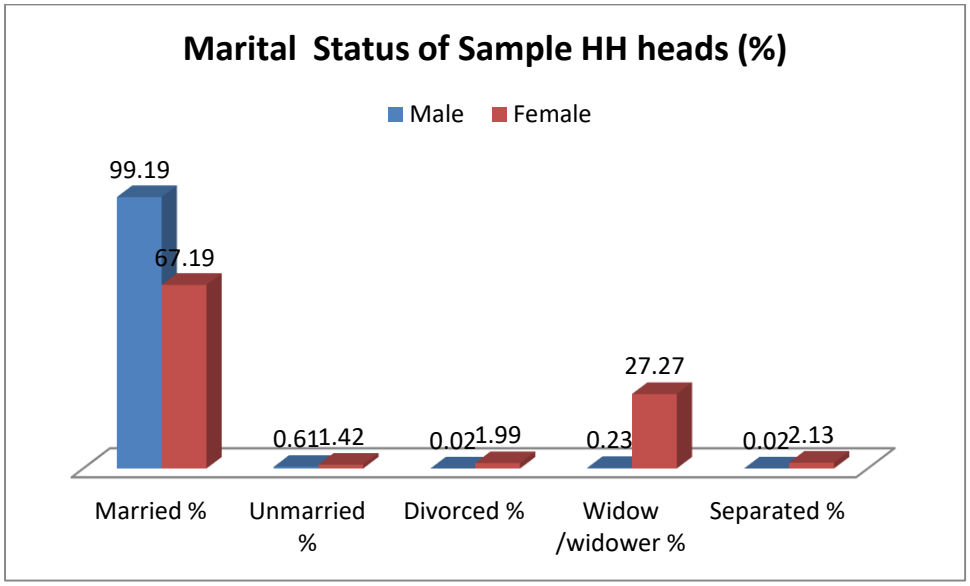


Figure 3.2: Marital Status of the Respondents (% of HH heads)

Since the respondents are mostly household head or spouse and adult members of the household, they are mostly married. Very few are unmarried and insignificant numbers are divorced. This implies that matrimonial relation is very stable which is consistent with our cultural tradition. However, when disaggregated by gender about 27% widowed and another 4% are divorced or separated.

Table 3.3: Religion of the Head of Household

Religion	Number of Respondents	%
Muslim	5,730	83.22
Hindu	1,155	16.78
Christian	0	0.0
Buddhist	0	0.0
Total	6,885	100.0

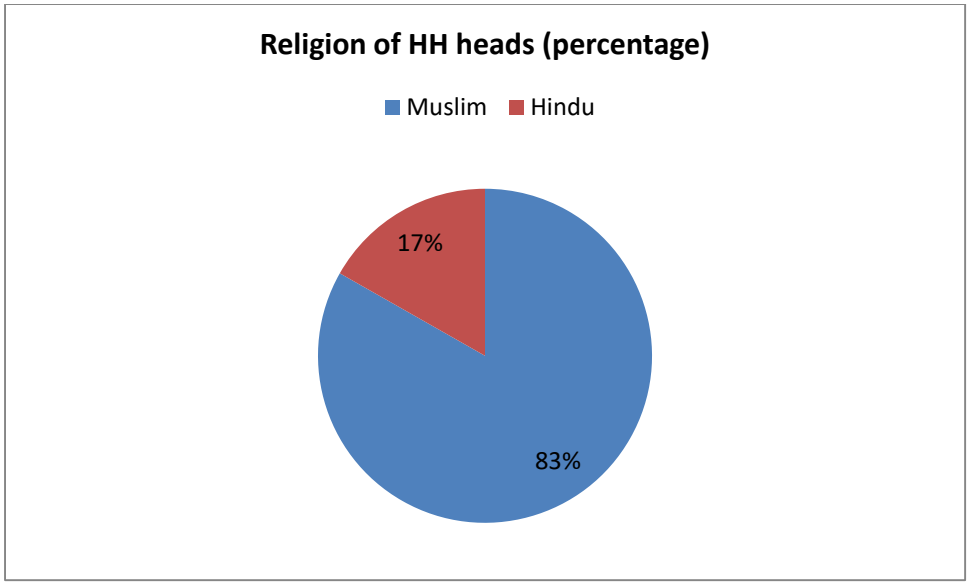


Figure 3.3: Religion of Sample Household Heads (%)

Table 3.3 shows that 83% of the household heads are Muslim and the remaining 17% Hindu by faith. No sample household belongs to other faith or ethnicity. The sample has good representation of both Muslim and Hindu Communities but lack representation of ethnic minority group. Therefore, three special FGDs have been conducted two women groups and a men's group in ethnic communities in two remotest areas of two Upazilas- Dhormapasha of Sunamganj and Kolmakanda of Netrakona.

Table 3.4/A: Age-Sex Combination of Sample Household Heads (All 5 Districts)

Age of HH head	Male headed	Female headed	Total
Below 30	481	58	539
	7.78	8.24	7.83
30 – 39	1,833	197	2,030
	29.66	27.98	29.48
40 – 49	2,069	236	2,305
	33.47	33.52	33.48
50 – 65	1586	179	1765
	25.66	25.43	25.64
65+	212	34	246
	3.43	4.83	3.57
Total	6,181	704	6,885
	100.0	100.0	100.0

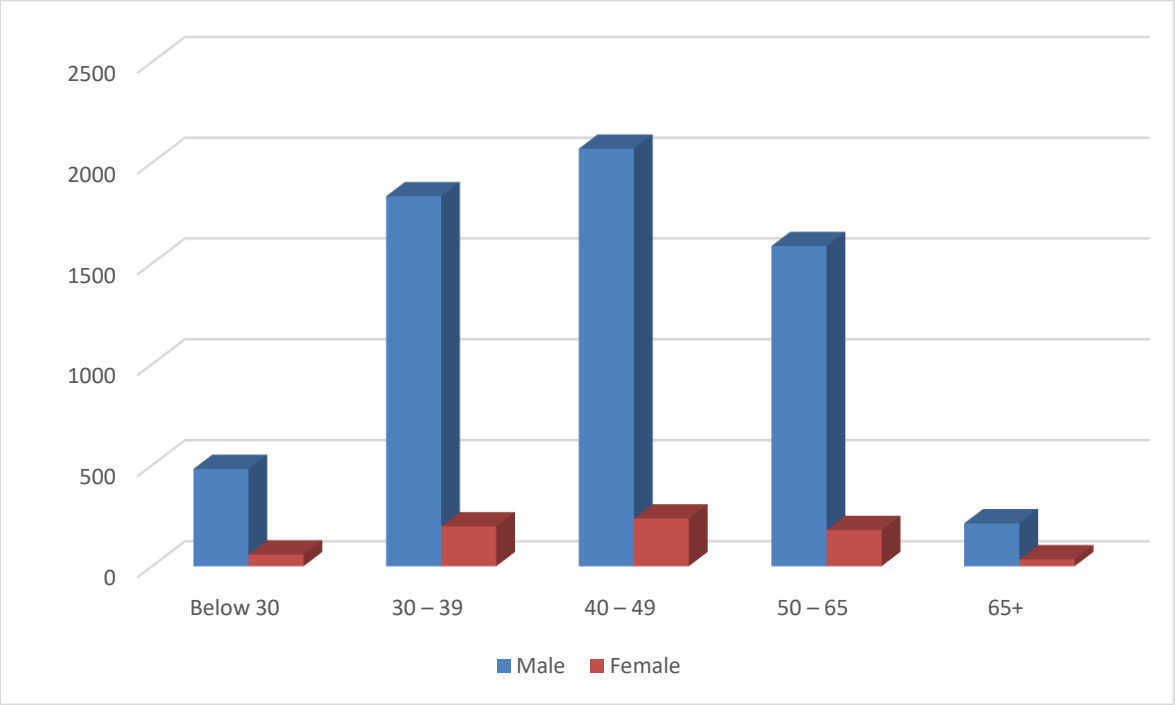


Figure 3.4: Age-Sex Composition of Sample HH heads

Table 3.4/A shows that most of the sample household heads belong to three age groups; 30-39, 40-49 and 50-65. Only about 8% household heads are below 30 years age and also about 4% are 65+ years old. This is true for both male and female household heads. Interestingly, 65+ years old female household heads are in higher proportion (4.8%) than male heads in the same age group (3.4%).

Table 3.4/B: Age-Sex Composition of Enumerated Household Heads (MALE) by District

District		Age <30	Age 30-49	Age 50-65	Age 65+	All Male headed
Sunamganj	F	791	4575	1594	259	7219
	%	10.96	63.37	22.08	3.59	100.00
Hobiganj	F	234	1005	533	108	1880
	%	12.45	53.46	28.35	5.74	100.00
Netrokona	F	200	1392	700	67	2359
	%	8.48	59.01	29.67	2.84	100.00
Kishoreganj	F	329	1539	840	146	2854
	%	11.53	53.92	29.43	5.12	100.00
BrahmanBaria	F	73	1151	371	42	1637
	%	4.46	70.31	22.66	2.57	100.00
Overall	F	1,627	9662	4,038	622	15,949
	%	10.20	60.58	25.32	3.90	100.00

Source: Uthan Boithak

Table 3.4/B shows that 15,949 of the 17,421 enumerated households are male headed (92%) and the remaining 8% are female headed. Number of female headed households interviewed as sample household was 10.2%. About 60.58% of male household heads are 30 to 49 years old and another 25.32% are 50 to 65 years old, about 10.20% are below 30 years old and only 3.9% are above 65 years old. Findings of this table is very similar to that of **Table 3.4/A** meaning that enumerated and sample households provide similar findings, hence high reliability is expected.

Table 3.4/C: Age-Sex Composition of Enumerated Households (FEMALE HEADED) by District

District		Female <30	Female 30-49	Female 50-65	Female 65+	Tot F
Sunamganj	Nu HH	82	485	165	33	765
	%	10.72	63.40	21.57	4.31	100.00
Hobiganj	Nu HH	5	46	23	1	75
	%	6.67	61.33	30.67	1.33	100.00
Netrokona	Nu HH	15	123	101	20	259
	%	5.79	47.49	39.00	7.72	100.00
Kishoreganj	Nu HH	5	94	55	11	165
	%	3.03	56.97	33.33	6.67	100.00
BrahmanBaria	Nu HH	13	161	34	0	208
	%	6.25	77.40	16.35	0.00	100.00
All Districts	Nu HH	120	909	378	65	1472
	%	8.15	61.75	25.68	4.42	100.00

Source: Uthan Boithak

Table 3.4/C shows that 1,472 of the 17,421 enumerated households are female headed (8%) and the remaining. Number of female headed households interviewed as sample household was 10.2%. About 61.75% of the female household heads are 30 to 49 years old and another 25.68% are 50 to 65 years old, about 8.15% are below 30 years old and only 4.42% are above 65 years old. Findings of this table is very similar to that of **Table 3.4/B** meaning that male and female household heads are of similar age except that female heads below 30 years are fewer and that of 56+ years are a bit higher. This should be because younger women do not asasume responsibility unless there is absence of adult male and at old age household head if there is no son or the son(s) are not competent to take responsibility.

Table 3.5A: Size of Household

HH size	Number of Respondents	Male 18+	Female 18+	Boy	Girl	Total
1	114 (2%)	24	90	0	0	114
2	373 (5%)	308	368	34	36	746
4 to 5	1,785 (26%)	1,713	1,772	1,429	1334	6,248
5 to 6	2,815 (41%)	2,790	2,808	4,994	4,891	15,483
7+	1,798 (26%)	2,593	2,683	4,540	4,568	14,384
Total	**6885**	**7,428**	**7,721**	**10,997**	**10,829**	**36,975**

Table 3.5A shows that close to 41% sample households have 5 to 6 members while 26% each has 3 to 4 or 7+ members. The total 6,885 sample households have a total of 36,975 members indicating average household size of 5.37 which is far above national average of 4.4.

Age Structure of Sample Population of 6,885 Respondent Households (Number of HH Members)

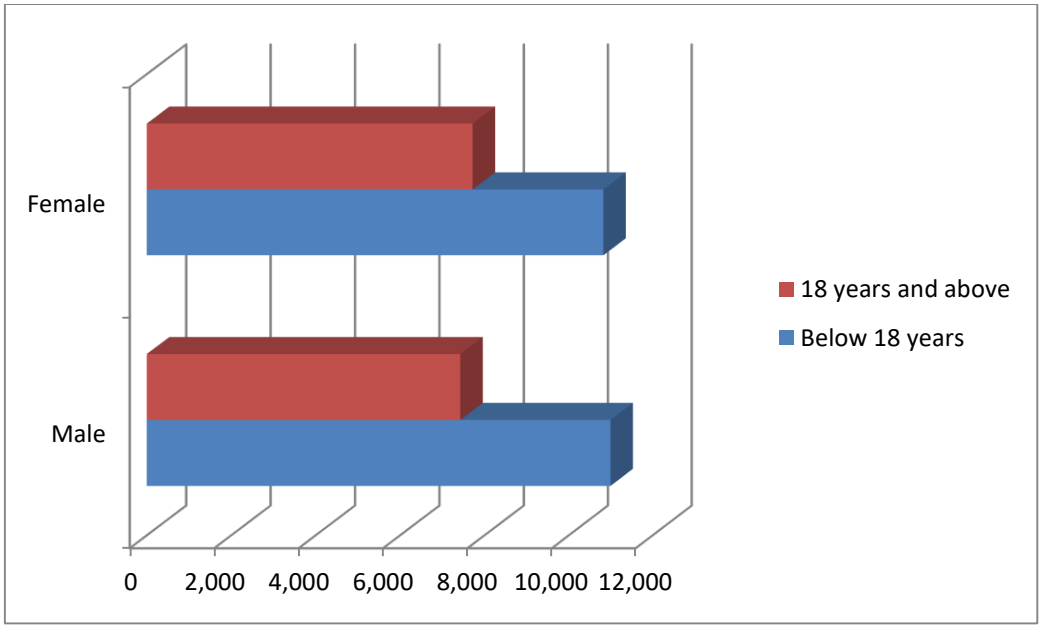


Figure-3.5: Size of Household

In the sample households women slightly outnumber men with average sex ratio of 99 to 100. Both adult women and girls slightly outnumber men and boys possibly for more men than women working outside of the village and boys outnumber girls for the girls having higher possibility to stay home than boys.

The population data obtained by household interview shows similar average size of household 5.6 obtained by enumeration of 17,421 households by uthanboithak provided in **Table 3.5/B**. Of the average 5.6 persons per household, 1.5 are adult males, 1.7 are adult females, 1.2 are boys and 1.2 are girls.

Table 3.5B: Enumerated Population of 17,421 households in five districts

District	Nu HH	Male 18+	Fem 18+	Boy	Girl	Total Population
Sunamganj	1,845	11,762	17,413	10,339	9,679	49,194
Hobiganj	1,955	2,879	2,687	2,431	2,188	10,185
Netrokona	3,019	3,174	3,392	3,109	3,374	13,049
Kishoreganj	2,618	4,132	3,908	3,333	3,132	14,505
Brahmanbaria	7,984	3,294	2,832	2,166	1,952	10,244
Total	17,421	25,241	30,232	21,378	20,325	97,177
% by age and Sex		25.97	31.11	22.00	20.92	100.00
Average per household		1.5	1.7	1.2	1.2	5.6

Source: Utan Boithak

Table 3.6: Level of Education of Household Head

Level of Education	MALE		FE MALE	
	Number of Respondents	%	Number of Respondents	%
Illiterate	3,406	55.10	424	60.23
Can read and write below primary	1,749	28.30	192	27.27
Primary pass	809	13.09	77	10.94
SSC	133	2.15	8	1.14
HSC	41	0.66		
Graduate	26	0.42		
Masters	11	0.18	3	0.43
Koumi Madrasa	5	0.08		
Technical	1	0.02		
Total	6,181	100.00	704	100.00

Table 3.6 shows that 55.1% of the 6,181 male household heads are "illiterate" and another 28.2% have below primary level of education. These two groups combined indicate that about 83% male household heads are "functionally illiterate". Secondary and above level of education is very rare. The same Table shows that of the 704 female household heads 60.2% are "illiterate" and another 27.3% have below primary education; so depicting similar picture that 88% female household heads are "functionally illiterate". Although female literacy is increasing, the project area women are still lagging behind. Functional illiteracy is higher among the sample household heads (both male and female) compared to average literacy of Bangladesh Population (Male 54% Female 49% by Population Census 2011).

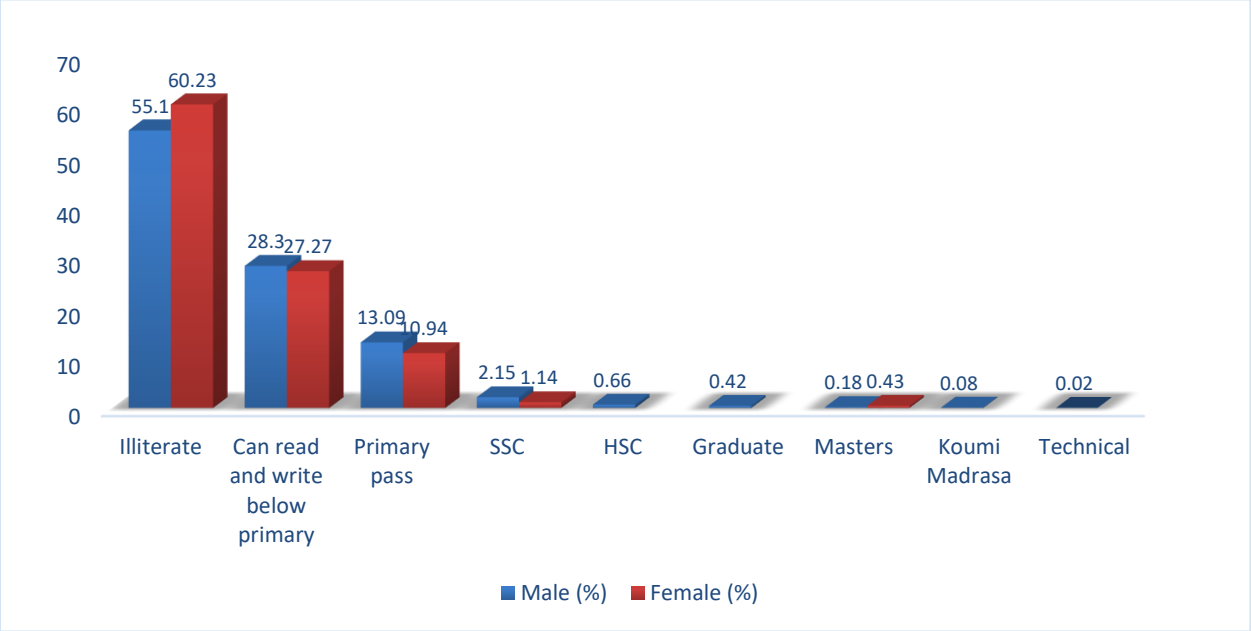


Figure 3.6: Education of Household Head

3.2 Income Sources

Table 3.7A: Main Source of Income of Household Head (Male)

Income Source	Number of Respondents	%
Farming	1,058	17.12
Fishing	703	11.37
Aquaculture	106	1.71
Horticulture	130	2.10
Livestock	221	3.58
Agr Day Lab	1,604	25.95
Non-Agr Lab	1,047	16.94
Paid Household work	29	0.47
Salaried Services	213	3.45
Transport	166	2.69
Business	645	10.44
Cottage industry/ other entrepreneur	11	0.18
Overseas remittance	67	1.08
In-country remittance	9	0.15
Pension	8	0.13
Social Safety Net (VGD etc.)	7	0.11
Rent/ property income	1	0.02
Others	156	2.52
Total	6,181	100.00

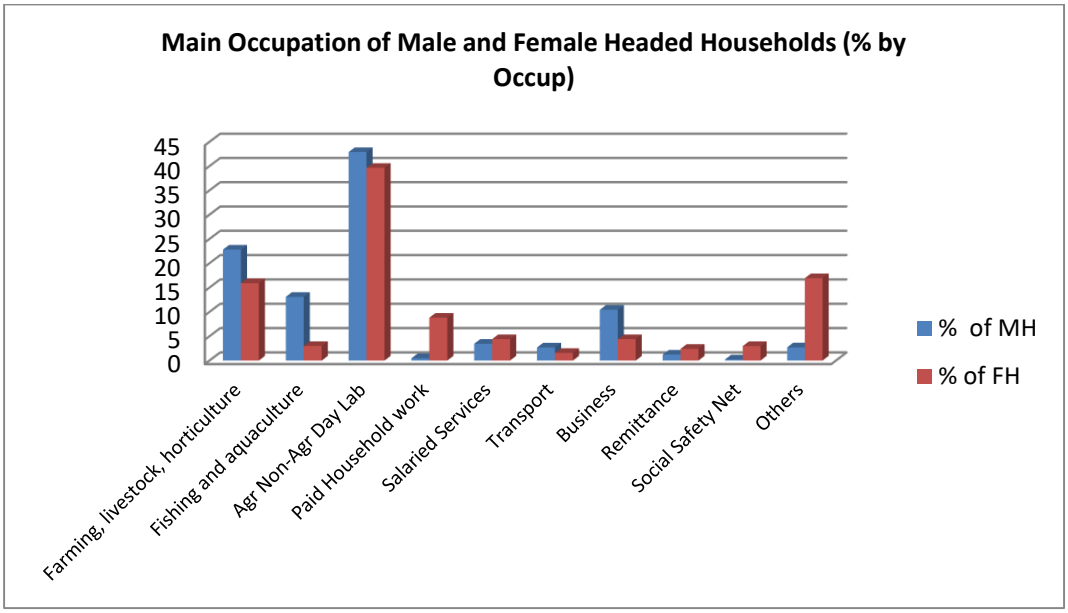


Figure 3.7: Main Income Sources of Sample Households

Table 3.7A shows distribution of 6,181 male-headed households by main source of income. It reveals that only about 17.1% of the male headed households have farming as main source of income. This is far below 26% such households having agricultural wage earning as main source of income and another 17% are engaged in non-agricultural wage employment. Fishing and trading

(petty business) respectively are main income sources of 11.4 and 10.4 percent male headed households. Livestock rearing, salaried services and transport come next each engaging about 3% male-headed households. Horticulture and aquaculture are not very prominent. Also, overseas remittance is main income source for only about 1% male-headed households.

This may be compared with the findings of PPRC showing that agriculture, petty trading and wage laboring were the three main sources of income for 31%, 25% and 24% rural households. Fisheries and Livestock are not shown separately. Another important sector is services (12%) while remittance was main source of income for 5% households. Formal business and professional services were main income source for 1.2% and 1.1% respondent households. These are 2015 data.

Table 3.7B: Main Source of Income of Household Head (Female)

Income Source	Number of Respondents	%
Farming	45	6.39
Fishing	18	2.56
Aquaculture	3	0.43
Horticulture	16	2.27
Livestock	51	7.24
Agr Day Lab	102	14.49
Non-Agr Lab	177	25.14
Paid Household work	62	8.81
Salaried Services	31	4.40
Transport	11	1.56
Business	31	4.40
Cottage industry/ other entrepreneur	1	0.14
Overseas remittance	15	2.13
In-country remittance	2	0.28
Pension	6	0.85
SSN	15	2.13
Others	118	16.76
Total	704	100.00

Table 3.7B shows main income source of 704 female-headed households. It reveals that only about 6% female-headed households have farming as main source of income. Their dominant occupations are non-agricultural and agricultural wage employment followed by paid household work and livestock rearing. Interestingly, higher percentage of female-headed households (2.13%) gets overseas remittance than male-headed households (1%). This may be because of husband or children are working abroad and woman managing household in the country.

Table 3.7C: Main Source of Income of Enumerated Household Heads

Income Source	Male headed Number of HH	Female headed Number of HH	Male Headed % by Source	Female headed % by Source
Farming	3,218	149	20.48	10.35
Fishing	1,484	91	9.44	6.32
Aquaculture	208	8	1.32	0.56
Horticulture	66	11	0.42	0.76
Livestock	99	21	0.63	1.46
Agr Day Lab	4,875	420	31.02	29.19
Non-Agr Lab	2,769	299	17.62	20.78
Paid Household work	113	96	0.72	6.67
Salaried Services	546	59	3.47	4.10
Transport	309	23	1.97	1.60
Business	1,296	53	8.25	3.68
Cottage industry etc	100	11	0.64	0.76
Overseas remittance	360	39	2.29	2.71
In-country remittance	20	9	0.13	0.63
Pension	11	-	0.07	0.00
Social Safety Net (VGD etc)	19	36	0.12	2.50
Rent/ property income	4	1	0.03	0.07
Others	218	113	1.39	7.85
All Sources	**15,715**	**1,439**	**100**	**100**

Of the 15,715 enumerated male headed households, 31 and 18 percent had agricultural and non-agriculture as main income source. Two other dominant sectors are farming and fishing that were main source of income of 20.5 and 9.4 percent households. Business and salaried service come next to these four.

More than one half of the female headed households are working agricultural and non-agricultural wage labor. Farming and fishing appeared less prominently for female than male headed households as most female household heads do not have crop land and women are engaged in fish drying only rather than in fishing which is culturally inappropriate for women. Salaried service, business, remittance and social safety net come next for women. Here again, sample and enumerated data provide similar picture.

Table 3.8A: Second Source of Income of Household Head (Male)

Income Source	Number of Respondents	%
Farming	**428**	**17.09**
Fishing	**545**	**21.76**
Aquaculture	**72**	**2.87**
Horticulture	**119**	**4.75**
Livestock	**206**	**8.22**
Agr Day Lab	**597**	**23.83**
Non-Agr Lab	**223**	**8.90**
Paid Household work	**13**	**0.52**
Salaried Services	**31**	**1.24**
Transport	**31**	**1.24**
Business	**163**	**6.51**
Cottage industry/ other entrepreneur	**8**	**0.32**
Overseas remittance	**21**	**0.84**
In-country remittance	**9**	**0.36**
Pension	**3**	**0.12**
SSN	**13**	**0.52**
Rent/ property income	**2**	**0.08**
Others	**21**	**0.84**
Total	**2,505**	**100.00**

A total of 2,505 (41%) of the 6,181male-headed households have second source of income **(Table 3.8A).** About 24% of the 2,505 households have non-agricultural wage and another 22% have fishing as second important income source. The third highest, about 17% have farming as second income source. This means that fishing is important as second source of income (22% of 41%) together with first income source for 11% male headed households. Non-agricultural wage, livestock rearing and business are three other second source of income.

Table 3.8B: Second Source of Income of Household Head (Female)

Income Source	Number of Respondents	%
Farming	**21**	**10.14**
Fishing	**40**	**19.32**
Aquaculture	**8**	**3.86**
Horticulture	**13**	**6.28**
Livestock	**25**	**12.08**
Agr Day Lab	**36**	**17.39**
Non-Agr Lab	**27**	**13.04**
Paid Household work	**13**	**6.28**
Salaried Services	**2**	**0.97**
Transport	**2**	**0.97**
Business	**4**	**1.93**
Cottage industry/ other entrepreneur	**3**	**1.45**
Overseas remittance	**1**	**0.48**
In-country remittance	**4**	**1.93**
SSN	**2**	**0.97**
Others	**6**	**2.90**
Total	**207**	**100.00**

3.3 Social Attachment of Respondent Households

Table 3.9: Respondent Household is a Member of Community Organization

Membership of organizations	Number of Respondents	%
Yes	6,04	8.77
No	6,281	91.23
Total	6,885	100.00
If Yes, Organization	**Number of Respondents**	**%**
CIG	251	41.56
BUG	70	11.59
LCS	244	40.40
Others	39	6.46
Total	604	100.00

Table 3.9 shows that only 8.77% of 6885 respondent households have some member attached to any community organization, the remaining 91% are no membership of any organization. For those attached to community organizations, the Common Interest Group of the agricultural extension department (DAE, DLS and DOF) and the LCS of the LGED are the dominant ones. The BUG comes next to them. Surprising, the fisheries cooperative society did not appear prominently as the target fishers often lack access to such organizations dominated by power elites.

Table 3.10: Social Identity of Respondent Household Head

Role in Society	Number of Respondents	%
UP member	8	0.55
Matbar	245	16.86
Political activist	6	0.41
Social worker	266	18.31
Did not specify identity	928	63.87
Total	**1,453**	**100.00**

Table 3.10 above shows that 1,453 of the 6,885 respondents informed of their social identity. Others did not say so, as they are the commoners. Of the 1453, the largest number (64%) did not specify their identity while most of the others stated themselves to be social worker or village leader or *matbar*. Surprisingly, only 6 (0.4%) identified them as political activist, seemingly for mass disrespect of unhealthy politics.

3.4 Ownership and Tenancy of Land and Other Asset-holding

Table 3.11: Ownership and Tenancy of Land

Ownership/ Tenancy Type	Number of Respondents	% of sample HH	Total Area (acre)	Av area (dec)
Homestead land Owned	6,361	92.4	556.04	8.74
Cultivable Land Owned	1,562	22.7	1,889.6	120.97
Pond area owned	225	3.3	45.77	20.34
Own Orchard	138	2.0	132.47	95.99
Own land cultivated	1,334	19.4	1,533.93	114.99
Leased-in cultivable land	745	10.8	1,000.24	134.26
Total area cultivated	1,684	24.5	2,534.17	150.49
Leased in aquaculture pond	104	1.5	84.41	81.16
Leased out cultivable land	228	3.3	355.67	156.00
Leased out pond/ aquaculture land	10	0.1	24.81	248.10
Others	16	0.2	6.68	41.75
Total	**6,885**	**100.0**	**2,630.56**	**0.38**

Table 3.11 shows that 92.4% of the 6,885 households own homestead land but only about 22.7% own cultivable land. Average homestead area is 8.74 decimals (354 sqm). About 7.6% sample households however do not own homestead land, they make small hut live on public land or on relatives' land. Average cultivable land owned is 120.97decimals (close to 0.5 ha). Against 22.7% owners of cultivable land, 19.4% cultivate the land, so, they are owner-cultivators. Each owner cultivator farmers operate average 114.99 decimals (0.47 ha). About one fourth (24.5%) of the sample households are farmer (comprising 19.4% owner-cultivator and remaining 5.1% owner cum tenant and tenant farmers). Average farm size is 150.49 decimals (0.61 ha) which is a bit larger than the average cultivable land owned by the sample household. This is possible because the some of the tenant farmers have rented in land of absentee land lords and non-target households not included in the sample.

Table 3.12: Combination of Agricultural Activities

Type of Farming	Number of Farmer
1. Producing crops only	1,151
2. Livestock only	140
3. Fish culture only	112
4. Producing crop, livestock and fish	75
5. Producing both crop and livestock	458
6. Producing livestock and fish without crop	7
7. Total of 1, 4 and 5 Crop producers with or without fish/ livestock	1,684
8. Total: All Types	1,943
% of respondent households	**28.22**

Table 3.12 shows that a total of 1,943 or 28.22% of sample households are engaged in agricultural activities in crop farming, aquaculture and livestock rearing taken together. Of them, 1,684 sample households or 24.5% are engaged in crop farming with or without aquaculture and livestock rearing.

Table 3.13: Type of Land by Number of Crops grown in One Year

Type of land	Number of Respondents	Total Area (acre)	% of Area
Single crop area	1,562	1,857.18	88.6
Double crop area	366	212.09	11.2
Triple crop area	11	3.34	0.2
Total	**1,562**	**1,889.60**	**100**

Table 3.13 shows that 1,562 respondent farmers owned 1,889.60 acres land of which 88.6% is single cropped area, 11.2% is double cropped area and only 0.2% is triple cropped area. Overall cropping intensity is 111 percent.

Table 3.14: Type of Dwelling Houses

Type	Number of Respondents	%	Value Tk.
Brick wall with concrete roof	71	1.03	137,282
Semi pucca: Brick wall and tin roof	807	11.72	81,347
Kutcha Tin Wall and roof	5,691	82.66	35,752
Thatched Kutcha: Shed made of straw/leaves and wall made of bamboo/leaves/jute stick.	316	4.59	21,267
Total	**6,885**	**100.00**	**41,478**

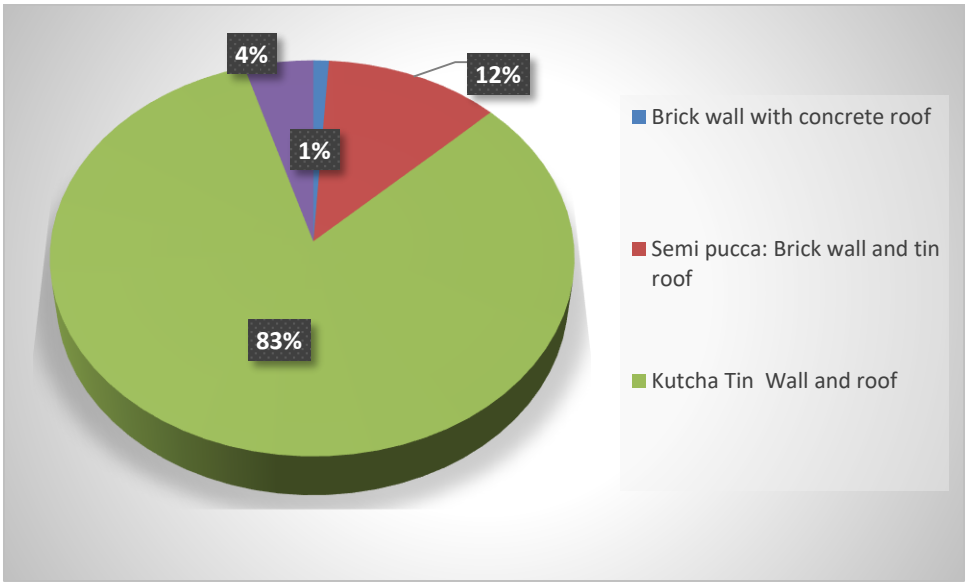


Figure 3.8: Type of Dwelling Houses of Sample Households (%)

Table 3.14 shows type of housing of the sample households. About 82.66% of the sample households live in CI sheet roof houses with bamboo/ CI sheet fencing and average value of such house is Tk. 35,752. Another 11.72% live in brick wall CI sheet roof houses and average value of such house is Tk. 81,347. Only about 1.03% lives in brick wall concrete roof houses and average value of such house is Tk. 137,282. Thatched house which was the dominant type some decades ago is rarely fund and even very poor do not make such house for need for rebuilding the roof every year and availability of CI sheet at low cost.

Table 3.15: Type of Agricultural Equipment Owned

Type of equipment	Number
Power tiller	787
Thresher	136
Shallow tube well	10
Low lift pump	38
Country plough	32
Tractor	32

Table 3.15 shows that, compared to 1,684 sample households involved crop farming (which is about one fourth of sample), 787 (48%) have power tiller including those owning power tiller jointly with other farmers. Second most visible equipment is thresher. Number of shallow tube well and low lift power pump is limited as the irrigation service is usually hired for cash or kind payment from the service provider. Interestingly, country plough has almost disappeared and replaced by power tiller while tractor is coming up. By the time of evaluation, we may see some harvester which is not yet introduced as a different type (boat mounted harvester) is needed for the haor area that can be operated in shallow water areas. Compared to this, 36% PPRC respondents owned agricultural equipment.

Table 3.16: Type of Transport Owned

Type of vehicle	Number
Country boat	964
Mechanized boat	82
Bicycle	390
Rickshaw van	60
Bullock/ horse cart	6
Rickshaw	37
Motorcycle	29
Easy-bike (three wheeler driven by battery operated)	8
Bhotbhoti (three wheeler driven by small diesel engine)	17
Baby Taxi/CNG/Petrol Driven	10
Others	14

Table 3.16 shows that the sample households own a total of 964 country boats indicating that every seventh household owns a country boat. Second most visible transport is bicycle, followed by mechanized boat and rickshaw van. Other transports are limited. It should however be noted that,

the study area has plenty of baby taxi (mostly CNG operated), easy-bike and motorbikes, all providing passenger service, but number is low in the Table as very few sample households own these. Compared to this, 39% of the PPRC respondents in 2015 owned bicycle, 9% owned motor cycle, 5% owned rickshaw and 5% owned auto rickshaw.

Table 3.17: Ownership of Household Items

Type	Number Owners	Number Owned	Total Value Tk	Average number/hh	Av Value Tk
Mobile phone	6,305	8,577	14,813,720	1.4	1,679
Khat/palonk (better wooden bed)	2,539	3,537	14,085,360	1.4	3,963
Chowki (wooden bed)	5,909	9,010	9,450,925	1.5	1,066
Chair	4,299	10,125	4,400,703	2.4	427
Table	3,049	3406	2,828,791	1.1	844
Electric fan	3,894	5,694	7,072,200	1.5	1,211
Radio	44	50	59,200	1.1	1,223
Sewing machine	163	169	857,700	1.0	5,262
TV	704	711	5,290,520	1.0	7,515
Refrigerator	135	135	3,174,600	1.0	23,516

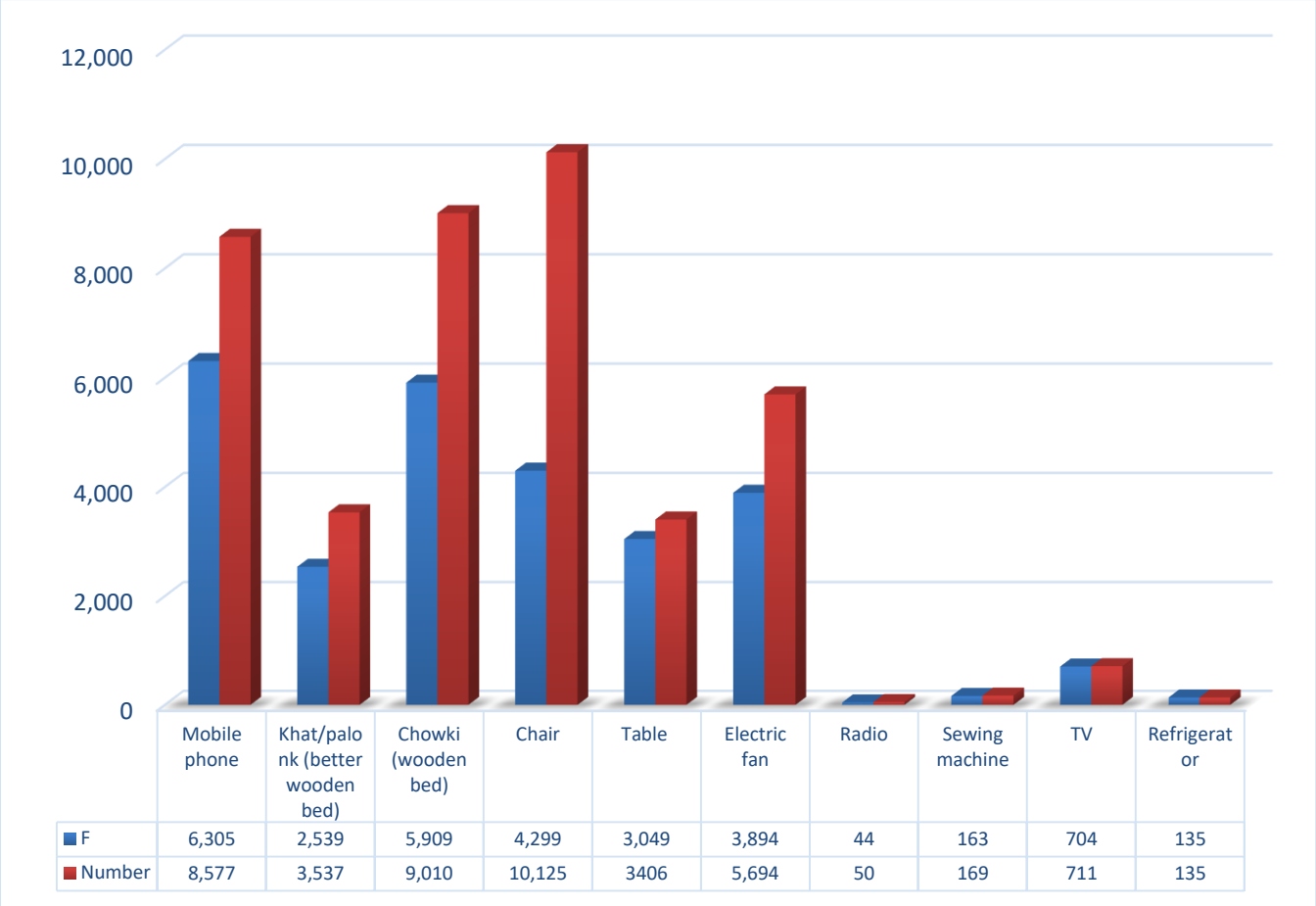


Figure 3.9: Ownership of Household Items (Number of owners and Number owned)

Table 3.17 shows type of various items owned by the sample households. This provides a good indication of the target households' pre-project economic condition. It reveals that about 91% of the households own average 1.4 has cell phones and value of each cell phone is Tk. 1,679. This means that very low-cost cell phones are used by the sample households. Of the PPRC respondents 96% owned furniture (CALIP 85%) and 63% owned electrical equipment (CALIP 57%).

3.5 Household Income, Expenditure and Food Security

Table 3.18: Yearly Income of Household (2015)

Income Source	Number of Respondents	% of household	Value Tk	% of income	Av. Value Tk/HH
Agriculture (crop farming)	2,026	29.43	73,624,308	13.87	36,340
Horticulture	377	5.48	7,843,435	1.48	20,805
Livestock (poultry, duck, got/sheep, cattle, buffaloes)	1,739	25.26	35,560,948	6.70	20,449
Aquaculture	241	3.50	10,061,200	1.90	41,748
Fishing (fish capture)	1,318	19.14	46,054,208	8.67	34,942
Wage/ day labor income	3,675	53.38	212,611,790	40.05	57,854
Handicaft/ weaving/ tailoring etc.	90	1.31	4,105,600	0.77	45,618
Transport operator	185	2.69	13,209,800	2.49	71,404
Salary/ pension	252	3.66	19,137,000	3.60	75,940
Business	900	13.07	76,525,150	14.41	85,028
SSN	97	1.41	15,685,460	2.95	161,706
Remittance- overseas	40	0.58	2,240,000	0.42	56,000
Remittance in-country	21	0.31	294,400	0.06	14,019
Others	318	4.62	13,968,820	2.63	43,927
Total Income	**6,885**	100 (164)	**530,922,119**	100.00	**77,113**

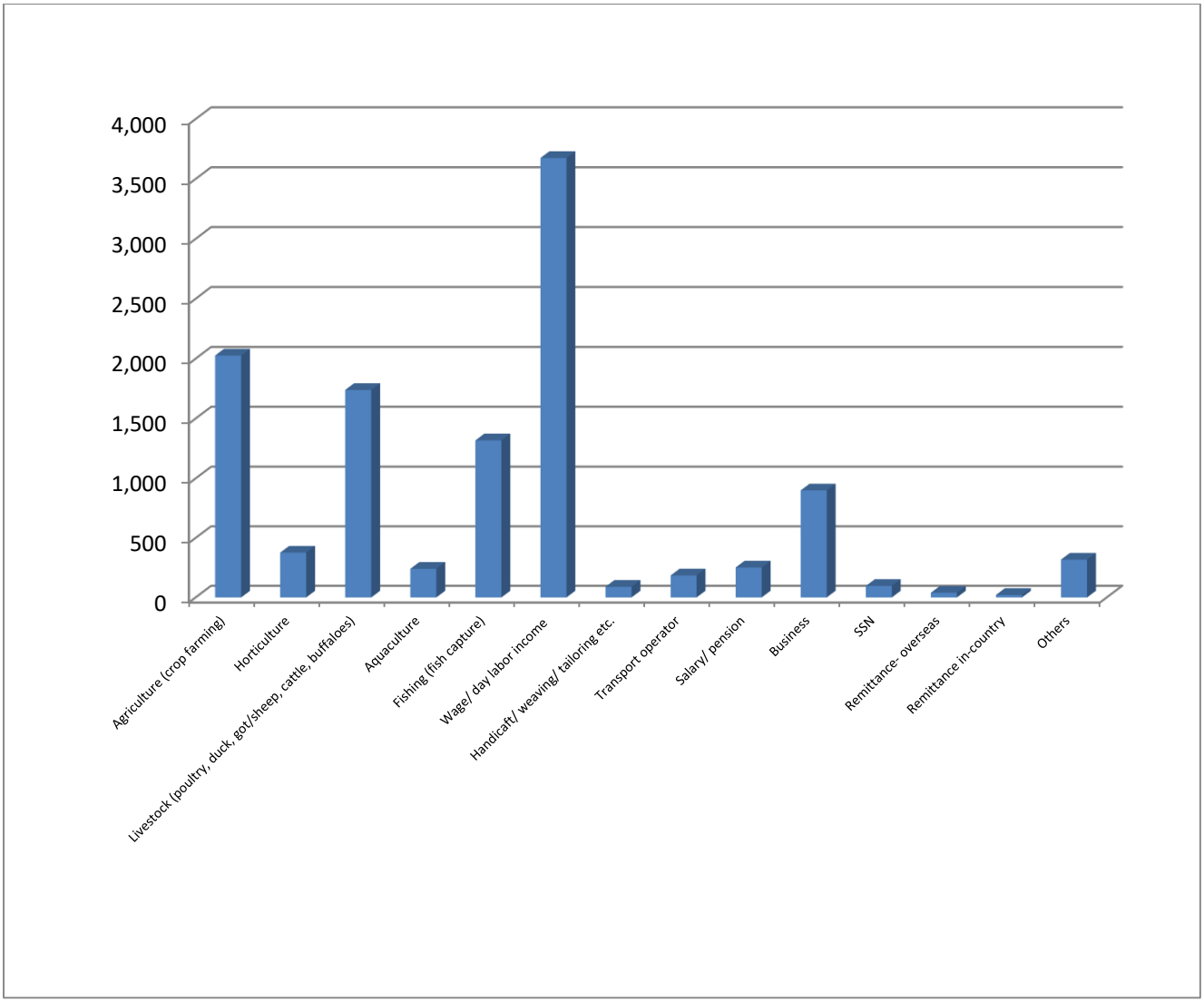


Figure-3.10: Yearly Income of Household (2015)

Table 3.18 shows that 53.38% sample households had income from working as wage labor while 29.43% had income from crop farming. Please note that the column total exceed 100 as average household has 1.64 income sources. Average income of sample households is 77,113 (USD 964). Considering average 4 member household this comes to USD 241per capita per year which is about one fifth of the percapita national income.

Table 3.19: Distribution of Respondent Household by Yearly Income (2015)

Income Group	Number of Respondents	%	Value Tk	Av Value
Not Above 10,000	347	5.04	606,150	1,747
10,001 - 20,000	173	2.51	2,910,951	16,826
20,001 - 30,000	299	4.34	7,871,740	26,327
30,001 - 50,000	1183	17.18	50,493,123	42,682
50,001 - 100,000	3373	48.99	250,711,699	74,329
100,001 - 200,000	1384	20.10	183,446,408	132,548
200,001 - 300,000	91	1.32	21,295,563	234,017
300,001 and Above	35	0.51	12,866,485	367,614
Total	6885	100.00	530,202,119	77,008

Table 3.19 shows that about one half of the sample households (49%) have yearly income in the range of Tk. 50,001 to 100,000 and another 20% in the range Tk. 100,001 to 200,000. Another 17% falls in the range Tk. 30,001 to 50,000.

Distribution of Sample Households by Income Group

% of HH in the Y axis (vertically) and income groups in the X axis (horizontally)

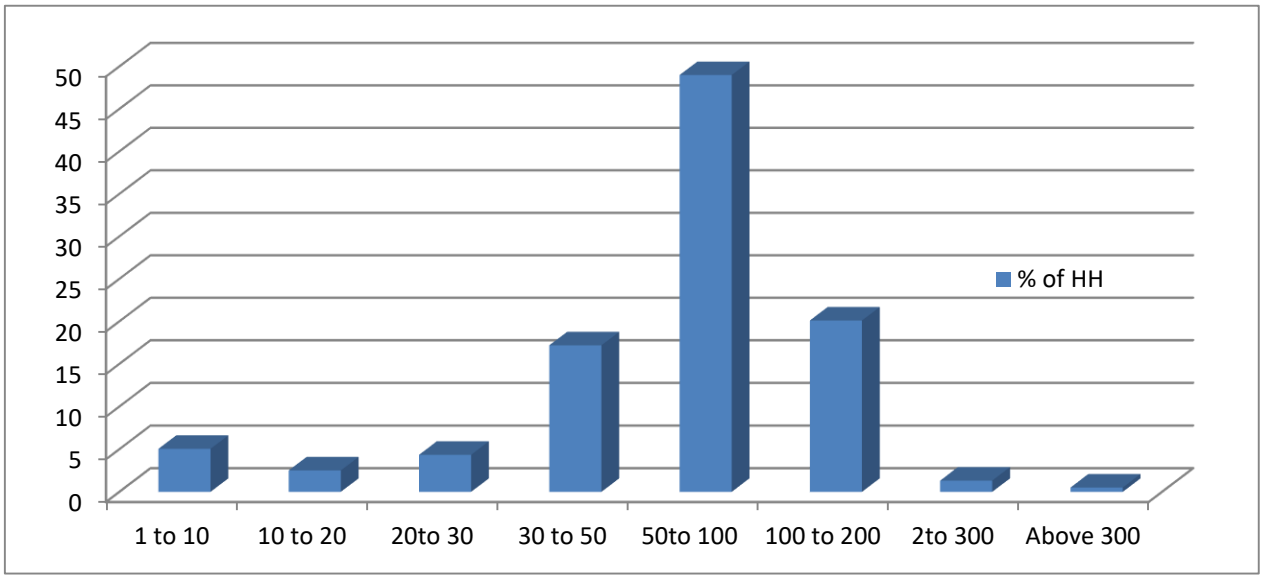


Figure 3.11: Distribution of Sample Households by yearly Income Groups (000 Tk.)

Compare to above, yearly monthly income of PPRC respondents was 14,156 where bottom 20% had 4% share and top 10% had 35% share. So, middle 50% had 61% share.

Table 3.20: Monthly Food Expenditure of Household (2015)

Food items	Number of Respondents	Value Tk.	Av. Value Tk. of hh
Rice	6,885	17,661,218	2,565
Wheat flour	3,194	877,045	275
Fish	6,321	5,883,932	931
Meat	4,014	2,403,803	599
Egg	4,385	577,624	132
Milk	1,537	418,557	272
Potato	6,527	1,420,539	218
Pulses	6,197	1,134,234	183
Edible oil	6,510	1,836,500	282
Vegetables	6,268	2,221,402	354
Fruits	1,237	341,415	276
Others	1,460	601,315	412
Total	6,885	35,377,584	5,138

Table 3.20 shows that average monthly food expenditure of household in 2015 was Tk. 5,138 compared to monthly income of Tk. 6,426 (yearly 77,113). This means that about 80% of the income had to be spent on food only indicating very high incidence of poverty. Head Count Ratio by

Upper Poverty Line was 31.5% in Bangladesh which has declined to 24.3% in 2015. During the same period, extreme poverty declined from 18% in 2010 to 13% in 2015.

Table 3.21/A: Yearly Expenditure of Household

Heads of Expenditure	Number of Respondents	Value Tk	Av. Value Tk / hh
Food	6,885	424,531,008	61,660
Clothing	6,747	26,976,456	3,998
Housing/ house repair/ utility	4,757	12,367,054	2,600
Healthcare	6,545	21,797,509	3,330
Education	4,791	18,129,475	3,784
Transport	6,059	10,457,239	1,726
Communication	5,949	8,643,428	1,453
Festival	6,183	23,480,510	3,798
Others	2,280	7,187,810	3,153
Total	6,885	553,570,489	80,402

Table 3.21/A shows that average yearly expenditure of sample households in all items was Tk. 80,402 compared to yearly average income of Tk. 77,113. This means overspending of 4% despite postponing most expenses for too low income. This was the case in 2015 when crop damage was about 40%. Overspending should be much higher in 2017 when crop damage was 80 to 100% and also income from fisheries, livestock was severely affected.

Table 3.21/B: Comparison of Expenditure Pattern of CALIP and PPRC Respondents 2015

Heads of Expenditure	% of Exp CALIP 2015	% of Exp PPRC 2015
Food	76.7	40.7
Clothing	4.9	3.8
Fuel		3.0
Housing/ house repair/ utility	2.2	16.0
Healthcare	3.9	10.0
Education	3.3	6.8
Transport	1.9	4.7
Communication	1.6	2.7
Festival/ Gift/Recreation	4.2	6.8
Others/ furniture/ durables	1.3	5.5
	100	100

Comparison of Expenditure Pattern of CALIP Baseline and PPRC respondents
(Percentage share by heads of expenditure)

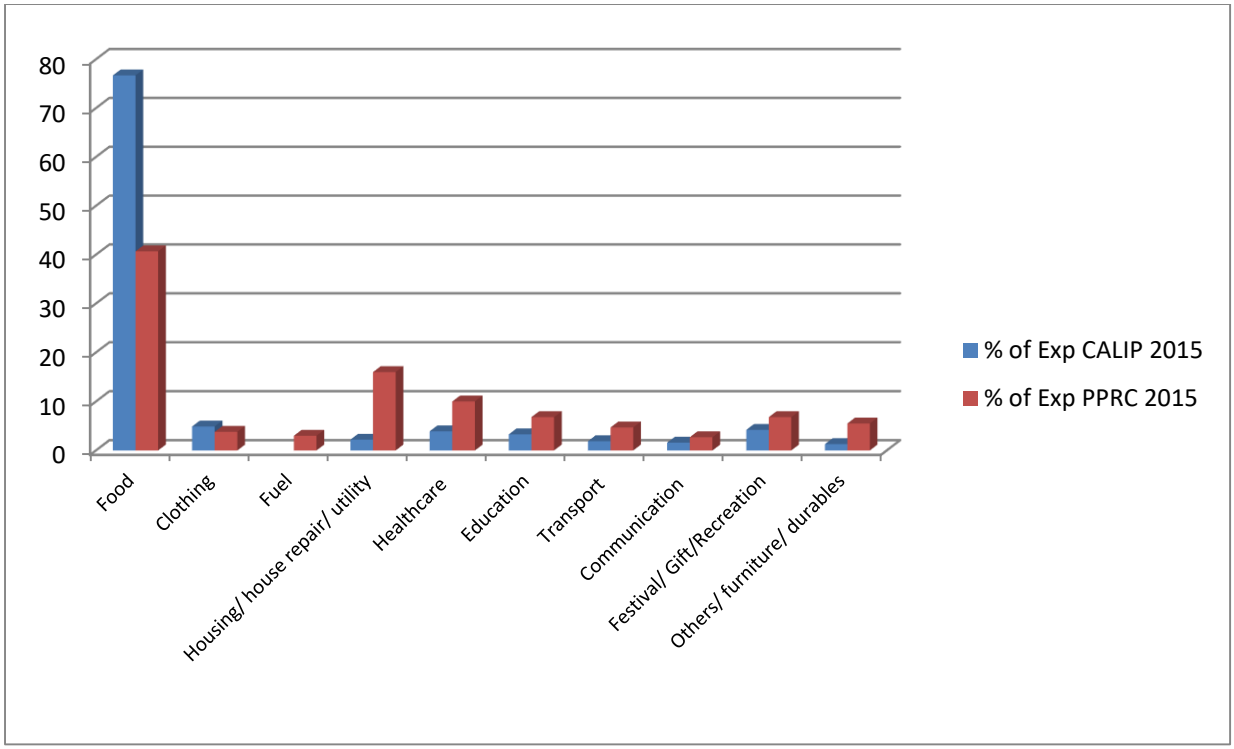


Fig 3.12: Comparison of Expenditure Pattern of CALIP and PPRC Respondents 2015

Comparison of expenditure pattern of CALIP Baseline and PPRC survey respondents, both 2015 (Table 3.21/B and Fig 3.12) data reveal that CALIP respondents spent about 77% of the expenditure on food only leaving very little for other necessities. PPRC respondents spent much lower on food, about 41 percent. A World Bank Study shows that average households in developing countries spend 44% of the income on food (https://www.hindustantimes.com/interactives/how-do-people-in-developing-countries-spend-money/), varying across countries are India 45%, Pakistan 50% and Bangladesh 55%. Lower half of the developing country people spend about 68.5% of the income on food. This means that CALIP area is poorer than the average poor of the developing countries.

Table 3.21/C: Food Security Status

Producer/ Non-producer	Number	Av Prod Kg	Consumption	Surplus/Deficit
Food Producers	1709 (25%)	1,950	1,643	307
Non producers	5176	-	1,095	(1,095)
Purchase 730	5176 (75%)			(365)
Overall Surplus/ Deficit	6885	484	1,231	747
Food Security of non-producers				8 months

Table 3.21/C shows food security status of sample households. It shows that 1709 food producers reported to have produced average 1,950 kg rice (about 3,000 kg paddy) but had very little surplus

of average 307 kg rice. This was because of too small holding and producing one crop per year. The 5176 non-producers required average 1,095 kg rice annually and whole of it was deficit. But the non-producers purchased average 730 kg from the market. Still they had deficit of average one kg rice per day per household which is equivalent to 4 month's demand hence they had food security of 8 months. The 6885 sample households had overall deficit of 747 kg rice. Net deficit is observed because majority of the sample households are landless or marginal farmers.

Table 3.21/D: Food Security Status of Enumerated Household Heads

Food Secure Months	Male headed households	Female headed households	% Male headed	% female headed
12	4948	366	31.02	24.86
9 to 11	3181	239	19.94	16.24
6 to 8	4641	391	29.10	26.56
3 to 5	1683	196	10.55	13.32
1 to 2	627	101	3.93	6.86
0	869	179	5.45	12.16
All Responses	**15,949**	**14,72**	**100**	**100**

Table 3.21/D shows that 31% of the 15,949 male-headed are food secure for the whole year and another 20% are food secure for 9 to 11 months. In total 80% are food-secure for 6 months and above. The female-headed households are less food-secure, 42% have less than 6 month's food security and about 40% have food security for 9 months and above. This implies high incidence of poverty in the female headed households.

3.6 Access to Drinking Water, Sanitation, Use of Cooking Fuel and Energy Sources for Lighting

Table 3.22: Source of Drinking Water

Source	Number of Respondents	%
Tube well	6,809	98.90
Piped water supply	15	0.22
Pond-Sand Filter	1	0.01
Cylinder filter	1	0.01
Rain water harvest	10	0.15
Pond	345	5.01
Beel/ River	298	4.33
Indira/ well	7	0.10
Others	2	0.03

Table 3.22 shows that 98.90% sample household accesses tube well for drinking water. Surprisingly, 5.01 and 4.33 percent households are reportedly using water pond and river/beel as drinking water. Sum exceeds 100% which means that some are using multiple source and pond, river/ beel might be used when tube well sites are flooded or cannot be accessed during the monsoon.

Table 3.23: Availability of Sanitation Facility

Type	Number of Respondents	%
Open Space	1,095	15.90
Hanging or Pit Latrine	816	11.85
Ring slab sanitary latrine (tin/ bamboo fenced)	4,564	66.29
Sanitary Latrine non-attached (with brick wall/ tin roof)	319	4.63
Sanitary Latrine attached to room/ inside room (brick wall concrete/tin roof)	90	1.31
Others	1	0.01
Total	6,885	100.00

Table 3.23 shows that about 72.23% sample households have sanitary latrine, mostly the ring-slab larine (66.29%). About 16 and 12 percent are reportedly using open space or pit/hanging latrine which are unhygienic.

Table 3.24: Source of Lighting in the Household

Source	Number of Respondents	%
Electricity	5,766	83.75
Solar Energy	689	10.01
Generator	427	6.20
Kerosene	3	0.04
Total	6,885	100.00

Table 3.24 shows that 83.75% have electricity connection to from the national grid. Another10.01% has solar electricity and 6.20% have connection to local generator service. Kerosene lamp has almost disappeared except for using during load shedding. This data should be read with caution because almost 100% households using electricity as lighting source seems unrealistic. This might have happened for interviewing households living in the villages well connected by road network. To have a more realistic picture, it was compared with the percentage of households reported to have at least one electric fan which is about 57% of the sample households

(Table 3.17 above). To have further refinement and have a picture of remote area, three remote tribal communities were asked how any of them have electricity connection from national grid or by solar system. It revealed that the remote tribal communities do not have electricity from the national grid and only about 20% have solar system. The remaining 80% use kerosene lamp. G This may be compared with GOB report titled power sector at a glance in 2016 showing 76% of the villages having electricity from the REB.

Table 3.25: Source of Cooking Fuel

Type	Number of Respondents	%
Fuel wood normal Chula	6503	94.45
Cow dung	313	4.55
Fuel wood improved Chula	34	0.49
Kerosene	3	0.04
LPG/ Cylinder gas	10	0.15
Natural gas	1	0.01
Others	21	0.31
Total	6885	100.00

Table 3.25 above shows that 94% respondent households are using fuel wood for cooking and only 5% are using cow dung. This data should be read with caution as about two third of the households particularly the poor use both fuel wood and cow dung. One information from FGD revealed that about 50% of the cow dung is used as fuel and the other half used to produce manure. This means that use of cow dung is quite high particularly during the winter and pre-monsoon months.

3.7 Agricultural Activities

Table 3.26: Number of Respondent Farmers Producing Various Crops (2015)

Name of Crop	Number of Farmer	Avg. Area (dec)	Yield kg per acre	Value of production per acre Tk	Cost per acre Tk	Income per acre Tk
Boro paddy	1717	98	2,352	35,273	11,604	23,669
Aman paddy	231	47	2,315	41,670	8,803	32,867
Aus paddy	91	27	1,630	26,084	5,426	20,658
Wheat	57	13	2,281	45,620	7,934	37,686
Maize	12	184	108	2,705	1,637	1,068
Pulses	0	0				
Potato	46	31	1,627	16,273	8,447	7,826
S. potato	10	110	578	6,938	5,280	1,658
Oilseed	0	0				
Spices	2	23	189	9,444	1,907	7,538
Vegetables	47	8	575	6,904	2,122	4,782
Fruits	1	21	952	38,095	629	37,467
Others	16	37	1,310	19,657	7,863	11,794

Table 3.26 shows that 1,717 sample households planted boro paddy while only 231 and 91 had aman and aus paddy farming indication that just one crop is produced. Average area cultivated was 0.98 acres or about three bigha per farmer for paddy and yield per acre was 2,352 kg paddy and at average price of Tk. 15 per kg value of boro paddy produced per acre was Tk. 35,273. With cost of production of boro paddy of Tk. 11,604 per acre, gross income of owner farmer was Tk. 23,669. This does not include cost of family labor and rent paid to landlord. For tenant farmers, rent would be about 10,000 per acre which is one third of total value of harvest cost. With the exclusion of rent, tenant farmer has very little income only about 13,000 Taka per acre. Effectively, the tenant farmer is compensated for hired labor and input cost but not for the family labor used in farming. This should however be deflated assuming 20% crop damage experienced in 2015. So, income from boro paddy comes down to about Tk, 17,000 for owner farmer and Tk. 9,000 for tenant farmer.

In-depth interview with farmers revealed that yield of *boro* paddy per *bigha* varied from 540 kg to 880 kg or 1620 kg to2640 kg per acre. Usually the yield is 1800 kg paddy per acre. This is equivalent to 2.4 MT rice per ha compared average yield of HYV *boro*in the country of 3.9 MT/ha. Value of paddy production per acre was about Tk. 27,000 and income to farmer 15,000 after deducting input cost (Tk 3000 for fertilizer, see, pesticide etc), Tk 6,000 for hired labor and Tk. 3,000 irrigation cost but not the cost of family labor. This is the income to owner farmer but after paying rent to owner, tenant farmer would earn Tk. 7,000 only. Until 2018, only 30% farmers used BR 28 variety seed for boro which is suitable for haor area and less vulnerable to damage by early flash flood. Others used mainly BR 29 or hybrid seed for higher yield without considering higher risk. This has reversed in 2018 as BADC does not supply above 10% BR 29 seed to encourage low-risk BR 28.

Table 3.27: Crop Damage (2015)

Crop	Number of Respondents	Up to 20%	21 - 40%	41 - 60%	61 - 80%	81% +
Boro paddy	1,263	1,104	34	30	51	44
Aman paddy	72	66	0	3	0	3
Aus paddy	27	27	0	0	0	0
Wheat	40	40	0	0	0	0
Maize	3	3	0	0	0	0
Pulses	0	0	0	0	0	0
Potato	36	36	0	0	0	0
S. potato	8	8	0	0	0	0
Oilseed	0	0	0	0	0	0
Spices	2	2	0	0	0	0
Vegetables	38	38	0	0	0	0
Fruits	0	0	0	0	0	0
Others	4	4	0	0	0	0

Table 3.27 shows that a total of 1263 producers of boro paddy reported to have faced crop damage in 2015. For most of them, crop damage was 20% or lower which was nearly 100% in 2017 as revealed from FGDs. If crop damage were higher in 2015, income from crop production shown in

Table 3.26 would be much lower or even negative.

Table 3.28: Coping Strategy in the Event of Crop Damage (2015)

Source of help	Number of Respondents	%
Spend past Saving/ crops	336	64.74
Takes MFI/ Bank loan	6	1.16
Takes Informal loan	66	12.72
Receives assistance of government agencies	9	1.73
Receives assistance of NGO	95	18.30
Helped by Relatives	78	15.03
Helped by Private sector (business men, elites)	23	4.43
Others	1	0.19

Table 3.28 shows that in the event of crop damage in 2015, 64.74% respondent farmers spent past savings or consumed crops produced earlier. This was possible as crop production and farmers' income was good in the preceding year. About 18.30% received assistance of NGOs and another 15.03% was helped by relatives. Informal loan comes next for 12.72% respondents but formal bank loan and MFI loan did not appear prominently in crisis coping. However NGO/MFI loan was more frequent as source of loan for all purposes access to formal banking loan was limited.

FGD findings reveal that in the lean period or for crisis coping, the target households are involved in fishing and temporarily migrate for work to other districts like Dhaka, Sylhet, Chittagong and Mymensingh. Within Sylhet, many temporarily migrate to Jaflong and Bholaganj for stone crushing and stone/sand mining work. Along the Indian bordering areas of Sunamganj district, many are engaged in extracting stone/ sand from the riverbed. Many target households work to load and unload stone for local construction work or for transporting to distant places like Dhaka. The small and marginal farmers who do not usually work as wage labor also work as wage labor in the crisis period and many are engaged as rickshaw/ van/ easy-bike driver. Overseas migration is still low but the project wishes to enhance through providing training in driving and mechanical work. The project wishes to further enhance livelihoods support through introducing new training courses in driving and mechanical which may also include plumbing, masonry, welding and repairing agricultural and transport equipment.

Table 3.29: Farming of Livestock (2015)

Type of animal/ bird	Nu of farmers	Avg. Number	Gross Income (Avg.)	Cost (Avg.)	Average Income per household	Avg. Mortality Number (disease)	Avg. Mortality Number (disaster)
Duck	852	9	3,884	1,188	2,696	10%	6%
Poultry	967	6	2,714	561	2,153	16%	3%
Goat/ Sheep	289	3	11,777	2,496	9,281	8%	4%
Cattle	1,074	2	31,330	10,493	20,837	5%	2%
Buffalo	5	3	25,502	7,143	18,359	2%	0

Table 3.29 shows that a total of 1,074 sample households reported to have faced disease of cattle, 967 and 852 faced death of poultry and duck respectively in disease or disaster. Mortality was 2 to 16 percent in diseases and 0 to 6 percent in disaster depending on type of animal/bird. In terms of number of animal/ bird (multiple of first two columns) duck ranks first followed by poultry, goat/sheep and cattle. But in terms of loss for diseases and disaster related mortality cattle ranks first followed by duck, poultry and goat/sheep.

Table 3.30: Vaccination to Prevent Livestock Disease

Type of animal/ bird	Regular	Occasional	Rare
Duck	179	393	137
Poultry	155	386	238
Goat/ Sheep	76	161	31
Cattle	225	469	239
Buffalo	3	1	0
Others	0	0	4

Since mortality in disease is quite high, the respondents were asked whether preventive vaccination is in practice and if whether it is regular, occasional or rare.

Table 3.30 reveals that vaccination is provided occasionally rather than regularly. Also, in many cases it is rarely provided. Veterinary practitioners remarked that occasional vaccination does not yield good result. Specific dose is needed in specified frequencies. Damage to livestock includes death in diseases of loss such as duck when sudden flood take them far away and disrupts return way.

Table 3.31: Source of Vaccination

Type of animal/ bird	DLS	NGO	Private Veterinarian	Others Community Vaccinator)
Duck	64	31	142	414
Poultry	52	31	130	467
Goat/ Sheep	12	2	22	221
Cattle	99	35	94	620
Buffalo	0	0	1	2
Others	0	0	0	1

Table 3.31 shows that livestock vaccination service by the DLS and NGOs is limited as DLS has limited field staff and very few NGOs lave livestock program with vaccination support. Community vaccinators mostly trained by DLS and private veterinarians are providing the support but without proper monitoring of quality.

Table 3.32: Coping Strategy in the Event of Livestock Death/ Loss

Source of Assistance	Number of Respondents	%
Spend past Saving/ crops	247	86.36
Takes MFI/ Bank loan	3	1.05
Takes Informal loan	51	17.83
Receives assistance of government agencies	11	3.85
Receives assistance of NGO	6	2.10
Helped by Relatives	10	3.50
Helped by Private sector (business men, elites)	6	2.10
Others	10	3.50

Table 3.32 shows that a total of 247 affected farmers or 86% of those providing definite answer spent past savings to face the loss due to livestock diseases and disasters. Second important source of assistance was informal loan. Other sources are not very important. Please note that the sum of the last column exceed 100% meaning that some availed assistance from more than one sources.

3.8 Marketing of Agricultural Produces

Table 3.33: Type of Marketing Facility

Place of selling	Number of Respondents	%
Farmer's house/farm	1,530	34.48
Local Market	2,834	63.87
Regional/district Market	72	1.62
As Contract Grower to buyer in the nearby outlet	1	0.02
Total	**4437**	**100.00**

Respondents were asked about the marketing facility of their produced in the study area. Of the 4437 respondents, highest 63.87% (2,834) opined that they sold their produce in the local market while 34.48% (1,530) sold their produced at farmer's house/farm gate and only 1.62% informed that they sold it in the regional/district market

(Table 3.33). This denotes that farmers are not interested to move for away. So it would be wise to develop internal/local commination and local markets rather than spending huge amount of money to develop higher order markets. CALP strategy of supporting Village Internal Service and local markets can help in this regard.

Table 3.34: Buyer of the agricultural produces from Farmer

Buyer	Number of Respondents	%
Consumer	1,538	37.04
Faria/paiker	2,520	60.69
Aratdar	73	1.76
Others	21	0.51
Total	**4,152**	**100.00**

Buyer of the crops from farmers in the study area was also investigated.

Table-3.34 reveals that 60.69% buyer of the crop from farmers are Faria/Paiker while 37.04% buyers are direct consumers and only 1.76% are Aratdar. This also supports the view of improving facilities in the local markets.

Table 3.35: Mode of transport used for marketing agricultural produces

Mode of transport	Number of Respondents	%
Bullock Cart	199	4.76
Rickshaw/Van	2,248	53.82
Power Van	220	5.27
Boat	1,059	25.35
Pushcart	101	2.42
Cycle	224	5.36
Others	126	3.02
Total	**4,177**	**100.00**

Mode of transport used for marketing agricultural produces in the study area was investigated. The finding presented in

Table 3.35 reveals that Rickshaw/Van was the most frequently used (53.82%) mode of transport for marketing of agricultural produces. This was followed by boat (25.35), bicycle (5.36), power van (5.27), bullock cart (4.76) and pushcart 2.42%. However, lack of paved road, lack of good transportation system in the haor area might be the reasons for the absence of modern transport like truck and pick-up. Further the target households are very small producers not requiring large transport.

Table 3.36: Method of Getting Market Information

Method	Number of Respondents	%
Mobile phone	931	23.93
Lead farmers	508	13.06
Traders	550	14.14
Visit markets	1,865	47.94
Others	36	0.93
Total	**3,890**	**100.00**

Respondents were asked about the way/method of getting market information. Field data in

Table 3.36 revealed that direct visit to market was the main way of getting market information as local market is very near the village. About 23.93% respondents informed that they use mobile phone to receive market information which is expected to increase rapidly. Another 14.14% respondents got information from traders and 13.06% respondents also informed that lead farmers were the source of getting market information. Farmer's community based information may promote it further.

Table 3.37: Distance of Nearest Market

Distance	Number of Respondents	%
Upto 1 km	1587	48.98
1.1 - 2 km	792	24.44
2.1 - 4 km	683	21.08
4.1 - 6 km	90	2.78
Above 6 km	88	2.72
Total	**3240**	**100.00**

Respondents were asked about the distance of the nearest market in the study area. The data in

Table 3.37shows that among the respondents highest 48.98% respondents have nearest market within one km, and another 24.44% have market within 1-2 kms of house. Only about 5.5% have to travel above 4kms to access market.

Table 3.38: Problem of Marketing

Reported problems	Number of Respondents	%
Market located for a way farm the village	838	19.99
No place for farmers to get in the market	953	22.73
Aratdar/Faria control of the market	447	10.66
Influential people central the market	536	12.78
Transport problem	2,041	48.68
Long monsoon/flood	2,589	61.75
Dry season-boats con not move	1,203	28.69
Traders do not come to market in time or in good number	533	12.71
Market syndicate creating monopoly/ oligopoly	134	3.20
Others	23	0.55

The respondents were asked regarding the problems of marketing in the survey area.

Table 3.38 shows the causes of problem in marketing. Highest number (61.75%) opined that long monsoon and flood was main problem of marketing, followed by transport problem (48.68%), dry season making boat movement difficult or stopped (28.69%), no place for farmers to get selling place in the market (22.73%), market located away from the village (19.99%), traders not coming to market when needed and in good number (12.71%) and influential people controlling the market (12.78%). Some remarked that the Aratdar/Faria control of the market (10.66%) and finally market syndication as a problem was reported by 3.20% respondents.

3.9 Awareness of Climate Change Adversities and Mitigation

Information related to awareness of target area people on climate change adversities was obtained by FGD and KII. The FGD and KII information both revealed that the knowledge of the target area people on climate change symptoms/ adversities are following:

a. Longer and wormer summer, temperature rising
b. Early rain
c. Prolonged monsoon- monsoon started in April and continued to November in 2017 river was full even in December and boro paddy area did not dry even in early January 2018.
d. High nor Westar rain – river full and causes flash flood in one-day rain
e. Cooler winter in some years- boro paddy saplings die
f. Six seasons of Bangladesh now converted to two/three seasons- summer, monsoon and winter.
g. Thunder storms are more frequent now than decades ago. Now, thunder storm causes death and injury of humans as well as of animals.

Many participants know that global worming cause climate change and this is caused by deforestation. Some has stated mistakenly that siltation is a cause of climate change which is partially caused by deforestation in the upper riparian region. Some stated that not having proper embankment along the river bank causes climate change which is incorrect. Absence of embankment causes damage to crop and contributes to climate change adversities but does not directly cause climate change. KII data added that shrinkage of water bodies cause worming of weather in the summer and cooling of weather in the winter. This remark follows from the experience that water bodies help maintaining summer temperature low and winter temperature not cooling too much. Some participants remarked that keeping the entire *haor* area full of water (8 months by monsoon and remaining 4 months by irrigation) may have contributed to increased production of water vapor and thus increasing rainfall and prolonging monsoon.

To reduce adverse effects of climate change the FGD and KII participants suggested to increase awareness and training, enhance plantation, irrigation, construct embankment, submergible CC road, provide slope protection, Killa, VIS road and livelihoods protection (training and market linkage).

3.10 Type of Disaster Faced and Disaster Coping

While chapter 3.9 is based on the FGD and KII findings, chapter 3.10 is based on the findings of household interview.

Table 3.39: Type of Hazards Faced by the Respondents Household

Hazards	Number of Respondents	%
Flash Flood	3,544	67.53
Monsoon Flood	2,624	50.00
Hailstorm	745	14.20
Cool weather	702	13.38
Wave action	1,673	31.88
Afal	1,111	21.17

Table 3.39 describes the types of disaster faced by the respondent households. The filed data found that flash flood was reported as a main hazard by 67.53% respondents while monsoon flood was reported as a main hazard by 50% respondents. Wave action, Afal (strong wave in the haor that makes plying of boat risky), hail storm and cool weather (damaging boro paddy saplings) were reported as main hazards by 31.88%, 21.17%, 14.20% and 13.38% respondents respectively. Some of these hazards like flash flood and monsoon floods may turn to disaster in terms of severity in some years.

While **Table 3.39** shows in quantitative term what percent of sample households what hazards as most common and severe ones, similar picture was found from the FGD findings. The FGD findings also revealed that flash flood, monsoon flood and hail storm as most common hazards in the *haor* area, since *boro* paddy is the most important crop, flash flood and hail storm affect the area more severely than the monsoon flood. To this was added thunder storm. For Wave action causing erosion of road, embankment or homestead area is another severe hazard and *afal or* strong wave is a great threat to plying of boat in vast *haor* areas that look like ocean during the monsoon. Afal also severely slopes of roads, dykes and homestead area. Thunder storm was mentioned as another hazard often causing death of humans and domestic animals and sometimes destroying property by electrification.

Flash flood and hail storm are more damaging and devastating to the lone important crop of the region, *boro* paddy if such hazards occur in late March to early April (Bengali calendar month *Chaitra*). Indian state of Meghalaya having highest rainfall in the world is very near the *haor* region. Massive onrush of water from the Indian Hills of Assam, Meghalaya, Monipur and Tripura states flowing through the rivers of Surma, Kushiara, Monu, Khuai, Titas and many other tributaries of the Meghna cause flash food in the *haor* region, usually in late April to early May (Bengali calendar month *Baishakh*) but occasionally in late March to early April (Bengali calendar month *Chaitra*). Traditional *boro* paddy grown in the region was harvested before end April hence was less vulnerable to crop failure but some of the high yielding varieties like BR-29 are more vulnerable for late maturing. However, some other modern varieties like BR-28 are harvested earlier hence less vulnerable.

Table 3.40: Status of Disaster Management

	Yes	No	No %
Land/ house protected by Embankment	274	6,051	95.7
Benefited by Village Protection	245	6,126	96.2
Training for climate change adaptation, or disaster reduction, etc.	189	6,184	97.0

Status of disaster management in the haor area was also investigated. **Table 3.40** shows that 95.7% respondents said that land and houses in the village were protected by embankment. Similarly, 96.2% respondents said that village protection would benefit them while 97% said that they would benefit from climate change adaptation and disaster reduction mitigation training.

Table 3.41: Access to Finance Status

Particulars	Number of Respondents	%
Have Loan	2,680	38.93
Have No Loan	4,205	61.07
Total	6,885	100.00
Sources of Loan		
NGO/Coop/ CBO	894	33.36
Bank	184	6.87
Friend/ Relative	1,285	47.95
Dadan	34	1.27
Money Lender	442	16.49
Other	18	0.67
Loan Amount (Avg.) Tk		3,7462
Use of Loan		
Business	195	7.28
Agriculture	1053	39.29
Land purchase	57	2.13
Food	1505	56.16
Health	513	19.14
Marriage	209	7.80
Education	140	5.22
Others	262	9.78
Have any Bank Account (Yes)		
Yes	46	0.67
No	6839	99.33
Total	6885	100.00
Have any Insurance (Yes)	314	4.56

In the project area respondents were asked about access to finance and Source of loan.

Table 3.41 shows that 61.07% respondents had loan and 47.95% of them to friends/relative, 33.36% from NGOs/ Cooperatives/ CBOs. About 16.49% borrowed from moneylenders but only 6.87% could access banks indicating that the haor area people still depend heavily on informal sources. In-depth interview with the respondents revealed that they are unable to pay weekly or monthly installments of NGO loan, hence cannot access this source. This may be compared with PPRC finding 2015 showing that 37.9% rural households had loan from NGOs, 10% had loan from banks, 5.1% from moneylenders, 15% from relatives/ friends and 2.1% from cooperatives.

About 56.29% of CALIP sample households used the loan to carry on agricultural activities, 19.14% spent it on healthcare, 7.80% on wedding, 7.28% on business, 5.22% on education and 2.13% on land purchase. It is very interesting that 99.33% respondents don't have any bank account. Compared to this, PPRC data reveal that about 20% of the loan was used for business, 8.8% for agriculture, 8% on land lease or purchase, 9.7% for consumption, 9.5% for housing, 7.3% for healthcare, 7.6% for wedding, 4.1% for overseas employment, 3.6% on transport and only 3.3% on education. Land purchase/ lease and business appeared less prominently while agricultural inputs activities and healthcare appeared more prominently in CALIP area higher incidence and dimension of poverty.

In the CALIP area, only 4.56% have some insurance and that too with very unreliable agencies often fleeing from the area after collecting premium and rarely compensating for losses.

Table 3.42: Access to Disaster Coping and Livelihoods Training

Type of Training	All Districts	
	Male	Female
Bamboo/ morta production	52	21
Hizal/ Koros production	14	20
Vitiver production	80	1
Medicinal/ fruits planting/ nursery	3	6
Pond fishery	13	2
Electrical/ Electronics	4	
Mobile servicing	1	
Wood/ bamboo/ cane morta products	13	1
Jute craft/ handicrafts	3	1
Bock/boutique	0	1
Weaving/ textile	1	
Tailoring	1	8
Plumbing	0	1
Computer repair	1	
Others	0	1
TOTAL	**186**	**45**

The respondents in the project area were also asked regarding access to training. Among the respondents 186 male and only 45 female opined that they received training on different subject

like bamboo/morta production, Hizal/Koros production, vitiver production, medicinal/fruits planting/nursery, pond fishery, wood/bamboo products, tailoring etc. Details of number of trainee by trade are provided in **Table 3.42**

3.11 Climate-Smart Agriculture and Biodiversity

Crop farming

Elderly respondents in the FGDs talked about traditional varieties of boro paddy like JagliBoro, Tepiboro, Kali Boro and Pasu Sail. They also talked about Banshful, Guda, Khama, and Ashamita varieties of local aman. Other participants talked about BR 28 and BR 29 HYV Boro, Planting/ sowing and harvesting time of various crops, expected average yield and seed source are presented below.

Table 3.43: Haor area Crop Varieties, sowing/ planting and harvest time and expected yield

Crop variety	Harvest time	Expected yield maund/ bigha	Seed Source	Remark
JagliBoro	Early Chaitra	10-12	Derai/ Sulla farmer	Very rare
TepiBoro	Early Baisakh	12-14	Derai/ Sulla farmer	Very rare
Kali Boro	Mid Chaitra	10-12	Derai/ Sulla farmer	Very rare
Pasu Sail	Early Baisakh	12		Long stem, abandoned
Banshful	Agrahayan		Dhormapasa farmer	Very rare
Guda	Kartik	8-9	Farmer Mohanganj	Very rare
Khama	Kartik	6-8	Farmer Mohanganj	Very rare
Ashamita	Kartik	8-9	Farmer Mohanganj	Very rare
Biroi	Agrahayan	8-10	Dhormapasa farmer	Rare
Kalijira	Agrahayan	7-8	Netrokona farmer	Very rare
Tulshimala	Agrahayan	7-8	Netrokona farmer	Very rare
BR 28	Early Baisakhh Less Vulnerable	12-15	BADC dealer	BADC encourages it now but not so seriously in 2015
BR 29	End Baisakh-Joishta Highly Vulnerable	18-20 upto 25-30	BADC dealer	BADC discourages it now but not so seriously in 2015
Mustard	Magh	7-8	BADC dealer	Very rare
Wheat	Falgun-Chaitra	8-10	BADC dealer	Very rare
Maskkolai (Black pulse)	Falgun-Chaitra	12-14	BADC dealer	Very rare
Potato	Falgun-Chaitra	25-30	BADC dealer	Very rare

Fisheries

Household interview data shows that 9% of male headed and 6% of of female headed households have their income from open water fisheries as main income source and another 22% male headed and 19% female headed households have fishing as second source of income. So, about 31% male headed and 25% female headed households are involved in fishing. But only about 9% of the

income of all households is derived from fishing indicating very low income-earning. Despite the area being rich in fisheries resources, it does not yield good income to fishers partly for the larger share captured by the rich power-elites (ijaradar etc) and partly for gradual resource depletion due to destructive fishing and lack proper implementation of resource conservation strategies.

According to the GOB policy, public water bodies called khas jolmohal should be leased to registered cooperative societies of genuine fishers. But the fisheries cooperatives are often captured by the power-elite who make their allies leaders of such cooperatives, get lease in the name of such fisheries cooperatives, finances capital to get the lease and manage fishing (as the genuine fishers are poor and insolvent to invest) and takes lion share of the sale proceed of the captured fish providing the fishers only wages and the cooperative leaders receive some little share of the profit.

For the monsoon season, the full time as well as occasional fishers are provided fishing license based on nepotism rather than considerations like social exclusion, poverty and biodiversity conservation. The power elites tend to allocate fishing license to non-fisher as well as non-poor as patron to favor their people depriving others.

This is however different for the Beel User Groups established under the HILIP project which is continued under CALIP. Here, genuine fishers are Beel Use Group members. But, they are allocated very small water bodies, not economically attractive unless re-excavated and managed as sustainable fisheries resources. Also, the BUGs are very limited in number. Household interview revealed that only about 9% of the 6885 sample households have membership of some organization and 12% of them are BUG members. This means that only about 1% households are BUG member which has potential to increase ten folds to accommodate the full time fishers only.

While access to water bodies is controlled by the ijaradar and power elites, women's access is restricted further by social barriers treating it culturally inappropriate for fishing in the water. However, they are allowed to work on the riverbank or in dry land beside the haor. In such area they are engaged in making dry fish or cooking for the fishers. The case is different in tribal communities where there is no social restriction for women to catch fish in the haor or river. Women in such communities are traditionally engaged in fishing and other work also outside of own village.

Taking control of water bodies by non-fishers make fisheries management unsustainable as they want to extract resources and earn profit rather than sustainable management of fisheries resources.

Slope protection

FGD and KII data demonstrated good awareness among the target area people as well as of the concerned officials (LGED DAE, DLS, DOF, weather forecast and HILIP project staff) local body representatives (UP Chairmen and Members) and community workers (community facilitators of HILIP). It was learnt from them, particularly the FGD participants that the following grasses, trees are grown and various other measures taken both traditionally and institutionally to prevent soil erosion and provide slope protection of internal roads, dykes and homesteads.

- Plant chaila ghash, bhaisha ghash, dholkolmi and vetiber or vinnaghash
- Korach is now planted along the roads and embankments to provide slope protection
- Hijal, Tomal and Sewra trees were plenty throughout the haor area but now these are seen very rarely
- Planting of hijal started again by the government agencies as well as on private initiative. Mr. Sohel Mian of Bhati Dhol (Derai Upazila) planted 250 hijal plants and 100 of them survived and grew over the last three years.
- Cultivation of dhoincha in the marginal land surrounding the haor area protects crops from damage by water hyacinth and strong wave. This also helps slope protection and is a good source of fuel for cooking and fencing homesteads and crop land.
- Bamboo fencing and dumping of water hyacinth prevents erosion
- Previously vinna grass grew naturally in the pasture land or elevated land along the river and canal banks and this is now promoted by CALIP.
- Traditionally, sand full of sacks were used to prevent erosion of land of homestead area. Now, Geo Tex bag is used for this purpose by various government agencies including LGED.
- CC block is used by LGED to provide slope protection. In the holes of CC block vinna grass sapling is planted and this tremendously enhances strength of slope protection.
- As better alternative to geo-tex, introducing geo-jute bag is considered on environmental ground.

3.12 Agricultural Technology

Crop Variety

Special FGD with farmers revealed that only HYV boro of BR 28 variety was produced in the area. BR 29 was another important variety grown in in the past few years, 2015, 2016 and 2017 but from 2018 this variety has gone down for late harvest leading to high risk of crop failure as was experienced in 2017. Local boro varieties were popular some decades ago but now almost eliminated with the coming of HYV and hybrid varieties. Aus paddy is almost non-existent as land remains under water during the aus season (May to July). Traditional and improved local variety aman is also rare but still seen in relatively highland areas of Netokona and Brahman Baria. Mustard, chili and oil seeds are found in relatively highland areas of Netrokona, Kishoreganj and Brahman Baria. These are both HYV and local varieties.

Tillage

Special FGD with farmers revealed that of bullock/ buffaloes and country plough for tillage is almost eliminated. Use of power tiller is the norm as evident from 80% responses and use of tractor appeared prominently from the remaining 20% responses.

Planting and Sowing

Use of drum seeder for sowing is not yet in practice and planting in line was reported in three out of 33 responses, meaning that planting in line is rare. It happens so, for the need for planting in very short period about the end of winter but it must be ended in one or two weeks earlier so that harvest time is not pushed to flash flood season.

Mulching

In one third of the responses mulching is done mechanically to apply fertilizer and softening but cleaning of weeds is avoided to save labor cost and instead herbicide is used which causes destruction aquatic biodiversity and natural fertility of soil.

Harvesting

Harvesting of all types of crops is done manually as appeared from all responses. Although use of harvester has already been introduced in the country particularly for aman paddy and wheat harvested in the dry season, use of harvestor in wetland condition or in shallow water is yet to be introduced for not having proper equipmement. For pulces, oilseds, spices, vegetables and potato etc. hand picking is continued.

Threshing

For threashing, use of diesel or electricity operated power thresher is the norm for paddy crops. For other crops threshing is done manually.

3.13 Volume of Trade and Transport

Special FGDs were held in 15 market places with a total of 154 participants. Ninety of them are traders Average .armers and fishers using these marketsand 46 are transport operators. Others are day labour, f are not leased and the remaining 10 area of the 15 markets is 24 bigha or 8.00 acre. Five of the 15 markets have average yearly lease value of Tk. 340,000. The markets have average haat day users of 3357 and MT rice. Average 32 paddy and MT 120 ding ofAverage haat day tra .979 haat day users of-average non Average volume of fish traded per haat day is 450 kg and on .haat day is 2 MT-non trading of rice each haat -Average volume of trade of meat is 75 kg on haat days and 20 kg on non .haat days is 252 kgs-non haat days. Volume of -ch on nondays, meaning one cattle per haat day and a couple of goats or sheep ea Volume of trade of eggs .haat days-numbers per haat day and 44 numbers per non 271 trade of poultry is .haat days-is average 1576 per haat days and 660 per non

Table 3.44: Number of Transport Operating in the Selected Markets

Table below provides a glance look of the public transport vehicles operating in the selected markets.

Type of vehicle	Average Number on haat-days	Average Number on non-haat days	**Total Trips per haat day**	**Total Trips per non-haat day**
Truck	4 Nos	3 Nos	4	3
Pick-up	13 Nos	8 Nos	13	8
Micro Bus	5 Nos	7 Nos	5	7
Car/ Jeep	4 Nos	5 Nos	4	5
CNG/ Baby Taxi	53 Trips	25 Trips	53	25
Tempo/ Bhotbhoti	16 Trips	10 Trips	16	10
Easybike (Auto)	20 X 10 Trips	9X8 Trips	200	72
Motor Cycle	20X10 Trips	10X8 Trips	200	80
Rickshaw/ Van	30X10 Trips	20X7 Trips	300	140
Country Boat	20 NosX1 trip	5 Nos	20	5
Engine Boat	17 X3 Trips	13X2 Trips	51	25

The **Table 3.44** shows that highest number of vehicle passing an average of 15 markets is rickshaw/ rickshaw van followed by motor cycle and easy bike. CNG Baby taxi and engine boat come next. Country boats are few and all others can be counted by fingers. But in terms of number of passengers engine boat comes within top three with rickshaw and easy bike.

3.14 Gender Roles

Role and status of women in Bangladesh is improving from traditional household chores to a mix of household chores to household decision making as well as contributing to household income earning. The Quarterly Labor force survey of Bangladesh 2015-16 revealed 37.6% labor force participation rate of rural women compared to 51% for rural men. Country average is 48% for male 33% for rural women. This means that despite recent improvement, 62.4% rural women of age 15+ are still outside of labor force participation compare to 49% rural men of same age group. Women labor force participation is however under estimated in the national LFS as evident from Mymensingh villages study indication that 88% women contribute to household income earning such as by homestead agriculture (horticulture, livestock, poultry, fishery, handicraft, and expenditure saving by collection of animal feed, vegetables or house repair materials and also by wage employment, although financial amount may be low, hence not counted).

Of the total employed women in rural area 72.6% was engaged in agriculture, 10% in manufacturing, 1.4% in construction 1% in transport, 2.7% in trade, 3.2% in education and 9% in other services. This is compared to 41.9% employed rural men engaged in agriculture, 12% in manufacturing, 7.1% in construction, 11% in transport, 16.1% in trade, 2.7% in education and 8.8% in other services. So, women are still considered non-earner and this is reflected in **Table 3.45** below.

Table 3.45: Role of Women and men in Household Income Earning and Taking Other Responsibilities

Roles	Men's responsibility	Women's responsibility
1. Household breadwinner/ meal provider	6,182	2,195
2. Cooking	37	6,562
3. Fetching water	76	6,513
4. Collecting fuel wood/ cow dung	148	6,424
5. Childcare	287	6,424
6. Elderly members' care	176	6,281
7. Collecting wild vegetables etc.	2,359	4,045
8. House cleaning	557	6,039
9. Shopping/Marketing	6,280	186
10. Migration for work	6,169	411
11. Collecting grass/ morta/ cane from haor	3,069	2,768

Table 3.45 confirms very traditionalist view of women's and men's responsibility in the household- all household chores and collecting fuel and wild vegetables from 2 to 8 are considered women's responsibility and last three as men's responsibility. In contrast, the society assigns the

responsibility of household breadwinner, marketing farm produces, migrating for employment, shopping in the market place and even grass or cane from the haor. A study in Mymensingh Sadar Upazila indicated that women's participation rate was higher in cleaning house, child care, cooking and preparation of meal etc. but low even in horticulture, livestock and poultry farming.

Although the local communities considered income earning a responsibility of men, at least 32% respondents considered it as a responsibility of women as well. Going to market for shopping or selling goods and migration for work were treated almost entirely the men's responsibility. Only 3% and 6% considered them responsibility of women as well. Household chores are still considered women's responsibility. This reflects some positive change but not enough yet as all household chores are still treated as women's responsibility.

Table 3.46: Role of Women in Decision Making

Type of Decision	By Male	By Female	Jointly
Family financial management	2,958	155	3,676
Children education	395	3,573	2,795
Family Member's health care matter	435	2,558	3,769
Ownership of land/resources	3,769	231	2,732
Agricultural production (crop, livestock, fish) strategies	3,808	259	2,334
Cooking/ childcare	213	6,368	141

Table 3.46 shows society's view of the decision making role in the family where women are accorded decision making authority only in childcare and cooking and also prominently in children's education. Men's role appeared dominantly in agricultural production only. In family level financial management and family members' health care joint decision appeared prominently. This seems a positive change where women's role in decision making and the need for joint decision is highly recognized. In Mymensingh, male members dominated in household decision making while role of women in many decisions making process such as marriage, education of sons and daughters, buying health care facilities, use of contraceptive and participating NGOs were very low. This implies that CALIP area had better role for women in household level decision making.

Table 3.47: Barriers to Women's Activities

Type of Barriers	Yes, there is strong barrier	No barrier imposed	Depends on approval by men
Employment/Work/IGA at home or outside	1410	3476	1886
Allowed to work outside/sending children to school	1952	3419	1403
Social/Cultural restriction for going out	1518	3875	1371
Insecurity in movement by transport	2407	3674	692
Taking responsibility within household	1071	5251	382
Restriction to participate in training	1448	2253	3072
Going to market	1431	2693	2589

Table 3.47 shows whether there are barriers to women's activities imposed by the society and the extent of such barriers. It is revealed that more respondents believe that there is no barrier imposed

while minority view shows presence of strong barriers. The second highest number believes that women's participation in various activities outside of the house depends on the approval by men.

A study on gender inequality and its impact on socio-economic development of rural households in Bangladesh in conducted in 5 villages of Mymensingh Sadar Upazila in 2015 from 900 rural households. It indicated that women had no or low share in income/ earnings of the family, that there was no equal status of women, female were not allowed to work outside home, women were more vulnerable to poverty, women share more burden of productive and household work. The women's participation rate was higher in cleaning house, child care, cooking and preparation of meal and lowest in case of tree plantation, dairy farming, poultry rearing etc. About 88 per cent women contributed to increase their family income. Male members dominated in household decision, there was no equal opportunity in higher education, physical and mental health for women, and women were facing difficulties in labor market. The participation rate of women in many decisions making process such as marriage, education of sons and daughters, buying health care facilities, use of contraceptive and participating NGOs were very low. Gender inequality increases maternal mortality (92 per cent agree), increase fertility (88 per cent agree), increase dowry (88 per cent agree) and domestic violence (89 per cent agree). Social norms and values restricted women to participate in development activities.

[Gender inequality in Bangladesh. Available from: https://www.researchgate.net/publication/309425557_Gender_inequality_in_Bangladesh accessed on Sep 05 2018].

Table 3.48: Right to own assets by woman

Right	Women has right to property	No such right	Socially encouraged	It's probable but not definitely yes
Inheritance of property	5121	1345	15	280
Inheritance of husband property	5258	1113	16	384
Owning assets by self-purchase	6053	348	290	73
Spending/managing earned income	5510	344	637	197

Table 3.48 shows that the majority view is in favor of women owning and managing property by inheritance and purchase and approves spending of income earned by women by the earner. But the reality is different. Although Muslim women inherit property at the rate of one half of brother's share, brothers rarely give such right to sisters. Widows are entitled to inherit husband's property and that too is often captured by husband's family. In Hindu society daughters do not have inheritance right. Property right is important because it determines women's status, position and role in the household as well as in the community level. A woman with having own property or control over inherited property has stronger role such as influence the family to educate children including daughters and matrimony etc.

Indian writer Kamla Bashin wrote that women's emancipation from the clutches of men is hardly to come by without women's access to assets, wealth and property. It will not be from words but wealth. Women of rich segments, in a row with husbands, tend to get material protection from parents but the poor have to send back the daughter to the abusing husband as they cannot support an additional member in the household. She intones: beti dilmey, beti willmey - daughter in the heart must be the daughter in the will of properties of parents.

CHAPTER – 4: ESTIMATES OF BASELINE VALUES IN TERMS OF SELECTED INDICATORS

4.1 The Project Design and Selected Indicators

Overall objective of the study is determining pre-project or benchmark condition against which achievements as to project goal, development objectives and outcomes can be evaluated with respect to targets specified in the project design using a set of indicators further precisely shown in this report under chapter 1.2.1.

The specific tasks of the baseline survey include:

- To assess household socio-economic status, gender dynamics and participation in climate smart agriculture including factor such as differences in status, roles, constrains, opportunities, access to and control over resources of women and men,
- To identify and describe agro-ecological diversity and endogenous adaptation and mitigation strategy to climate change in the intervention area.

The above study objectives have been set to assess improved living standards, reduced and vulnerability and improved awareness, capacity and knowledge of the poor living in the project areas to contend with the climate change impacts. The study will also make an initial assessment of the cost effective and equitable use of project resources by stakeholders. The Baseline survey has been conducted in all 5 district covering all Upazilas of the project area where landless, small and marginal farmers families (HHs) including LCS members are the major respondents.

The study used a set of 15 indicators drawn on the basis of the project design and are detailed in **Table 4.1** below:

4.2 Baseline Values Revealed From the Survey

Table 4.1: The Indicators Used in the Study and the Baseline Values

Goal/ Outcome/ Output as per Logframe	Relevant Indicators	Baseline Value	Table Number in Chapter 3
Project Goal:	Indicators	Baseline Values	Reference Table Number
Contribute to the reduction of poverty in the Haor Basin	1. Number of households reporting improvement in asset ownership	Homestead land 92.5% respondents AV 9 DEC. National average 8 decimals and 91.7% HH owned homestead land in 2011, Agr land 22.7% av 121 dec (CAIP sample). Nationally 59% Agr census households owned cultivable and av area owned was 126 decimals. So, fewer households owned	11, 14, 17

Goal/ Outcome/ Output as per Logframe	Relevant Indicators	Baseline Value	Table Number in Chapter 3
		agr land in CALIP sample than national average. Housing: tin roof kutcha 83%, Semi8-pucca 11.7%, pucca 1%, thatched (Sunamganj 2011 kutcha 78%, semi-pucca 12%, pucca 6% and jhupri 4%) Cell phone 92%, Electric fan 57%, TV 10%, Ref 2%, sewing machine 2.4%. Mobile phone subscriber 128 million in BD Jan 2017. PPRC study shows that in 2015 that 63% had electrical/ electronic appliances.	
	2. Reduction (in %) the prevalence of child mortality	Under 5 mortality M 49, F 44 Av 46	BBS Vital Statistics, 2016 p 53
Project Development Objectives:	3. Increase income (of 30% households) from a range of on-farm and non-farm activities desegregated by gender (of household head).	29% Not above Tk 50,000, 49% 50-100 T, 20% 100-200 T, 2% above 200,000. PPRC 2015 data shows that bottom 40% earned Tk. 8342 per month or about Tk 100,000 per year while bottom 30% CALIP sample households earn about one fourth of it.	19
Living standards and vulnerability of the poor in the Haor area directly benefiting 115,000 poor households. In addition, the CALIP will strengthen the community and ecological resilience in climate change	4. Reduction in losses for damages caused by flood, wave action and diseases (of crops, livestock, fish etc.)	87%, 6% and 7% experienced up to 20%, 20-60% and above 60% crop damage in 2015	21 B, C
	5. Number of beneficiary household heads/ respondents reporting improved food security (male & female headed households separately)	31% male headed and 25% female headed households were food secure in 2015.	27
	6. Number of beneficiary households/respondents made resilient from hazards	0	
Outcome: Enhance village level mobility, protection against extreme weather events	7. Traffic volume increase by 200% (in selected market centers)	Top three types of vehicle passing an average market are rickshaw/ rickshaw van, easy bike and engine boat in terms of number of passengers carried. Next ones are motor cycle and auto rickshaw.	Number of trips by type of transport provided in Table 43.
	8. Volume of goods marketed increase by 100% (in selected market centers)	Av haat day trading is 120 MT paddy, 32 MT rice, 450 kg fish, 75 kg meat, 271 nos poultry and 1576 nos eggs. On non-haat days corresponding figures are no paddy, 2 MT rice, 252 kg fish, 20 kg meat, 44 nos poultry and 660 egs.	Chapter 3.13
	9. Number of homesteads damaged by wave action reduced by 70%	0%	

Goal/ Outcome/ Output as per Logframe	Relevant Indicators	Baseline Value	Table Number in Chapter 3
Outcome: Enhanced access of the poor men and women to sustainable water bodies with increased production capacity and biodiversity	10. Income of 20,000 fisher households increase by 50% segregated by gender of household head	1318 fishing households (19%) Av income 35,000/yr 2.56% female headed households are engaged in fishing as main source of income and another 19.32% as second source. FGD with Fisher, Female LCS groups and ethnic women group reveal that all are engaged in fishing either for subsistence, selling or as fishing labor.	Table 18 Table 5/B
	11. 200 fishing ponds remain operation after three years	0	
	12. 500 Beel User Group established (300 new, 200 existing) with combined membership of 20000 fishers	0	
	13. Number of sanctuaries established and sustained (Target 200 sanctuaries)	0	
	14. Area covered by swamp forestry – acre	0	
Output: Enhanced production, diversification and marketing of crop and livestock produces and pond fish	15. Number of farmers reporting increased production/ yield (Target 30% increased yield)	2.4 MT rice/ha national av 3.9 HYV Boro rice	Chapter 3.7 FGD with farmers
	16. Number of farmers accepting recommended technology including variety (Target 70% acceptors)	30% used BR 28 variety suitable for haor area, others used mainly BR 29 and hybrid	Chapter 3.7 FGD with farmers
	17. 50% target group households diversify income sources, self-employment	16% of all sample households have income from horticulture, aquaculture, handicraft, services and remittance.	Table 18
	18. 137,844 target group members trained in various production vocational courses	249 trained (3.6%)	
Output: Enhanced capacity and knowledge to contend with climate change	19. Number of villages adopted CALIP tested low-cost village protection technology	0	
	20. Number of people reached by agro-meteorology, weather forecast	0	

CHAPTER 5: OVERALL STUDY FINDINGS AND RECOMMENDATIONS

5.1 Overall Observations

The purpose of the study is to determine pre-project or benchmark condition against which achievements as to project goal, objectives and outcomes can be compared. The study will determine baseline values in terms of about 15 indicators noted. The study result will be used to:

i. Provide a set of baseline values and adjust performance targets against which progress can be tracked; and

ii. Fine-tune the critical areas of interventions to ensure gender inclusiveness in relation to local/ indigenous adaptation and mitigation strategies to climate change.

The study has provided baseline values as required which are summarized in Chapter 4 above.

The study findings reveal that the CALIP project area falls far behind other rural areas of the country by most indicators described throughout the report and this justifies taking up of the project for this dis advantaged part of the country. The reasons for the haor region to fall behind are described in the introduction chapter.

However, it can be mentioned here that:

- The haor area is low-lying floodplain areas in the extreme northwest of the country but is hardly a few meter above sea level;
- It is surrounded by hills and mountains in three sides, Assam Meghalaya in the north which has highest rainfall of the world, Monipur in the east and Tripura in the southeast;
- Because of its geographical location and topographic condition, it suffers from several natural calamities and hazards like early flash flood, hail storm, monsoon flood, afal and thunder storm often devastated as disasters;
- The haor region produces mainly one crop – Boro paddy can be produced and that too is highly vulnerable to early flash flood and hail storm. Rest of the time, the land remains under water. So no crop can be produced;
- Haor area is rich in fisheries but access to public water bodies is controlled by the power elite and is determined by nepotism. And, productivity of water bodies is declining for over fishing, destructive fishing and not conserving aquatic resources;
- For poor transport network, marketing opportunity is low constraining production in all economic sectors and sub sectors – crop farming, horticulture, livestock, fisheries, value chains, off farm activities – handicraft, trade and other livelihoods.

From the above study findings shown in Chapter 4, it may be concluded that:

a. Although about 92% sample households owing homestead land in 2015, roughly same of the national average in 2011, only about 23% had cultivable and compare to 59% nationally.

b. Housing condition was poorer of the sample households in 2015 even compared to Sunamganj average in 2011 population census data.

c. Among the sample households, 92% had own cell phone compared which is about one fourth of the from country average as evident from 128 million cell phone subscribers (Jan 2017), almost everybody, not every household having a cell phone.

d. 57% of the sample households had electric fan (all households with electricity connection is likely to have an electric fan) compared to 63% PPRC sample households having electrical appliances like fan, TV, ref etc) in 2015.

e. Considering average 5 member households per capita income of sample households was USD 200 per year which is about one sixth of the per capita national income and about one third PPRC sample rural households.

f. PPRC 2015 data shows that bottom 40% earned Tk. 8342 per month or about Tk 100,000 per year while bottom 30% CALIP sample households earned about one fourth of it.

g. 87% of the farming households experienced 20% crop loss (Boro paddy) due to early flash flood.

h. 31% male headed and 25% female headed households were food secure in 2015.

i. Family size appeared higher in the study area. CALIP sample households had average 5.37 members compared average household size of 4.4 in the country. This means that number of benefited persons will be higher than expected and it justifies higher and more intensive interventions.

j. Literacy rate of male and female household heads in the baseline survey was 45% and 40% compared to national average literacy rate of 54% and 49% in 2011. So, the CALIP area seems lagging behind national average even after 5 years of the last census. Women are further behind in the race.

k. CALIP area male headed households were mainly wage labor (43%) followed by agriculture including horticulture, livestock and aquaculture (25% only crop farming 17%), fisher (11%), petty trader

5.2 Recommendations

Baseline Values

The study has determined some baseline values as indicated in chapter 4. In addition the Tabular data in chapter 3 has provided baseline values in descriptive Tables. These will help project implementation, mid-term review and evaluation.

Apart from quantitative data, the report contains considerable amount of qualitative information and views of the various levels of stakeholders obtained by Key Informant Interview and FGDs.

Opportunities

The project has scope to modify project interventions in some respect and some initiatives have already been initiated such as providing training on vehicle driving and road safety measures so that the trainees can have secure job opportunity within country and more importantly avail

overseas employment. BRTC is providing such training under the livelihood component as vocational training.

Climate Smart Agriculture

The baseline survey has collected information on traditional crop varieties particularly of Boro Paddy and Aus Paddy. It revealed that several decades ago, various indigenous varieties of paddy were produced in the area that could be harvested in late Chaitro to early Baisakh. So, these were less vulnerable to flash flood and hailstorm. However yield per acre was lower than modern variety but farmers had less risk of crop failure.

Among modern varieties, BR 28 can be harvested earlier in mid-Baisakh and this is less vulnerable than BR 29 which is highly vulnerable as it is harvested in Joishta hence early flash flood affects it very frequently.

Crop diversification:

Haor area produces only one crop- boro paddy. Cropping Intensity is as low was 111% in 2015 in the baseline survey area which was 152% in Sylhet Division, 173% in Kishoreganj district average was 194% in 2015-16 and national average of 194%. Although haor area remains flooded more than half of the year, production of some other crops can be promoted in moderately highland areas in several upazilas in the peripheries (Chattak, Dowara Bazar, Biswamvarpur, Mohanganj, Bancharampur and Nabinara etc.) and also in riverside elevated lands in other Upazilas. Aman paddy (also Aus paddy), wheat, maize, pulses (lentil, maskolai, mugbean), spices (summer chili, ginger, garlic) summer tomato, oilseeds (mustard, sesame), vegetables (beans, cucumber, bitter gourd, sweet gourd, water gourd, bottle gourd etc.) fruits (banana, papaya) and plant nurseries have good prospect. In addition, floating garden of vegetables like bottle gourd and sweet gourd has prospect hence can be promoted in the haor area asit is largely practiced in the southern districts of the country. Plant nursery also has prospect as floating garden.

Homestead agriculture:

Although only about 23% of the baseline survey households own compared to 59% of BBS Agr Census Households 2008, 92% of the sample households own homestead of average 9 decimals compared to national average of 8 decimals. The homestead land reported includes bushes and ditches around the ijmali (jointly owned) vita land. Such lands are often left fallow and considered unproductive. Such land can be used to make mini pond for aquaculture, produce grass (napier/para/ German grass) for sheep, goat and cattle rearing; planting bamboo, cane, morta etc for cottage craft; duck and poultry rearing, and production kolmi sak.

Community forestry:

Haor area being flood-prone has little scope to plant trees. Hence this area has little tree cover and therefore fruits production is very low. To compensate for this plantation of trees along the river and canal bank, pond side and beside homestead area can be promoted further. Plantation of koros is highly visible along the Upazila roads but hijal, tomal, sewra have become extinct. In the haor and beel area hijal should be promoted. Along the main roads, river bank and in the homestead area or pond side plantation of fruit trees and various eco-friendly trees like bot and medicinal plants like

neem, arjun, basak, tulshi, bashok, ashwagondha, and shotomuli etc. deserves higher priority than timber trees and ornamental trees. Since thunder storm emerged as a hazard plantation of palm tree should be promoted that can save life of both humans and animals.

Pond fishery:

Pond fishery is very limited in the haor area. CALIP supports pond fishery as part of livelihood protection component. Only about 4.6% male-headed and 4.3% female-headed households (178 male headed and 11 female headed) had income from pond fishery in 2015. It is worth noting that aquaculture fish particularly of hybrid varieties of non-local species has low price than local species of fish. Therefore, indigenous species like chital, pabda, tengra, chingri, mohasoil, ruhu, katla, mrigel, kali baus, deshi koi shing and magur etc. should be promoted. Farming of Thai pangas, African magur and piraha etc. should be discouraged.

Haor Area Biodiversity Conservation

Fisheries resource conservation by community based fisheries management which includes establishment and operation of sanctuaries, declaring and enforcing fishing ban period (March-April when fish of most species enters beel and haor from the rivers and breed in new flowing water and October when fish of most species return to deep water breeding grounds from the shallow water areas. It also includes excavation and re-excavation of silted canals and small beel to retain water for longer period to produce more fish by the poor and women groups and provide safe route for the mobility of fish in the spawning period. Further, it includes banning and restriction of destructive gears like current jal and destructive methods like dewatering or complete drying that kills all fish leaving no parent stock to breed in the next season. Massive use of fishing traps like chai is also a destructive method that blocks migration routes of fishes and kill them on the way which could multiply in the next season.

Livelihoods Protection

CALIP focuses village forestry with emphasis to bamboo, morta, hijal, koroch and vetiver (binna ghas) which serve dual purpose of promoting ecosystem conservation and slope protection of village level common infrastructure like roads, small sub-village level homestead area called haatis on the one side and providing local raw materials for enhancing livelihoods opportunities. To enhance livelihood opportunities for the poor and vulnerable men and women, particularly the unemployed youths CALIP supports pond fisheries. CALIP intends to follow a value chain approach to design intervention in each product. This include for example promoting bamboo, cane and morta will help increasing handicraft production and this will include supporting market linkage for inputs as well as for outputs.

CALIP's main focus in livelihood protection is vocational training. It emphasizes training in various non-farm activities in order to reduce dependence on farming and fishing and thus reducing too much and unsustainable exploitation of natural resource base. A number of trades for vocational training have been identified that includes motor cycle driving, repair of various engines, carpentry, boat building, brick making, curing bamboo (and cane) and seedling nurseries etc.

Although not specifically mentioned in the design report, CALIP has taken initiative provide training on motor vehicle driving, motor mechanics and road safety measures by engaging Bangladesh Road

Transport Corporation as trainer. This is included mainly targeting overseas market but also has good demand in the local job market. CALIP may also include language training (English and Arabic in particular so that they can communicate with the employer that will help target people finding more secured overseas job.

Killa:

Under village protection one important activity is building 4 killa which has later been increased to 5 to locate one in each project district. As of 2015 none was developed but later one in Baniachong of Hobiganj has been developed. This has made tremendous impact in reducing crop loss and also protecting life of humans as well as of domestic animals. This deserves high emphasis during implementation.

To conclude, we may say confidently that the study has been able to determine baseline values for the desired indicators. Also, it has provided good number of descriptive tables and data analysis for 6,885 sample households with confidence level 0.95 and margin of error of maximum 2.5%. In addition the study has provided huge amounts of qualitative data obtained by FGD and KII and it includes views and insights of the stakeholders that enriched the study findings. In addition it has collected summary information of about 17,000 households by community level meeting in the homesteads (uthan boithak) that met up the target of covering 10% of the project beneficiaries. It has been a good that the uthan boithak and sample household interview provided similar information.

APPENDIX-1:

Terms of Reference (TOR)

Section 6. Terms of Reference

for Baseline Study
Climate Adaptation and Livelihood Protection (CALIP)

Introduction:

The Climate Adaptation and Livelihood Protection (CALIP) is a supplementary project integrated with IFAD's Haor Infrastructure and Livelihood Improvement Project (HILIP) launched in 2012 by the President of IFAD and currently under implementation. CALIP is being financed from IFAD's Adaptation for Smallholder Agriculture Programme (ASAP) with USD15 million, and the combined total financing of HILIP and CALIP amounts to USD134.84 million including GoB contribution of USD33.84 million. HILIP was designed for scaling-up a number of successful innovations piloted under IFAD's Sunamganj Community Resource Management Project (SCBRMP) – a project initiated in 2003, which was completed in June 2014. Several of the SCBRMP innovations are being scaled up by HILIP, and those that have proven to be useful climate change adaptation responses will be scaled up by CALIP. CALIP will also introduce a number of new innovations, which together, help to build a comprehensive response in building community and ecological resilience to climate change.

LGED has been implementing CALIP in five haor districts: (i) Kishoreganj, (ii) Hobiganj, (iii) Sunamganj, (iv) Netrokona, and (v) Brahmanbaria from July 2014 and will continue through June 2019. The goal of which is to contribute to the reduction of poverty in the Haor Basin.

Target Population:

The target population of HILIP and CALIP will include small and marginal farmers, fisher-folk, landless people, poor women (key focus group) and small traders and micro-entrepreneurs. The direct beneficiaries are: (i) members of Labour Contracting Societies (LCS) (15,660); (ii) 19,800 households (HHs) with village protection and/or common internal services (87,120); and (iii) participants of value chain subsectors and vocational training (137,844). The total number of direct beneficiaries is 240,564.In addition, it is anticipated that approximately 3 million (688,000 HHs) farmers will benefit from agro-meteorologicaland flash flood forecasts for improving crop management

Target Districts and Upazilas under the Project:

The target Upazilas under the five districts are given below:

Project District Map ato

District (5)	Name of Upazilas (28) Union: 176
Sunamganj	SunamganjSadar, DakshinSunamganj, Dherai, Bishwambarpur, Tahirpur, Jamalganj, Sulla, Dowarabazar, Dharmapasha, Chhatak, Jagannathpur
Habiganj	Azmiriganj, Lakhali, Baniachong
Netrokona	Khaliajuri, Kolmakanda, Modon, Mohanganj
Kishorganj	Itna, Mithamoin, Astagram, Nikli
Brahmanbaria	Nisirnagar, Nibinagar, Sarail, Ashuganj,BrahmanbariaSadar, Bancharampur

Office of the Project Director * Local Government Engineering Department * LGED HQ, Dhaka * Haor Infrastructure & Livelihood Improvement Project

Indicators of CALIP by Subject Measurement:

Subject of Measurement	Indicators
Status of crop production	• Rice yield per acre • Input costs for growing of rice • Number of rice crop grown in a year • Variety of rice grown • Loss of rice crop due to flooding • Use of modern agro-technology
Storing of rice	• How rice is stored? • Reason/s for the damage of rice, if happens
Rice cropping practices	• Use of high quality rice • Maintaining proper spaces • Use of recommended seed storage methods • Pest control • Proper use of fertilizer
Homestead Gardening	• Type of vegetables grown
Access to markets	• Distance of the nearest market • Usual mode and cost of transportation to the market • Whether wholesaler coming to the growing areas? • If not, what are the problems do the farmrs face
Education of farmers	• Highest class passed
Members with BUG	• Whether anybody from the family is the member of BUG • Whether any member of the family raise/catch fish • Where the fish is grown (own pond/on leas pond) • Types of fish grown • Where fish is harvested (canal/beel/river) • Types of fish caught • Whether authorized to catch fish from these water bodies • Advantage of becoming BUG member
Employment status of women	• Whether engaged in any income earning activity
Access to information and technology	• Awareness of sources of information and support for agriculture, livestock rearing, gardening or pond/fish management • Whether received any information or support from any of the sources • If received, what kind of information/support was received
Types of assistance needed for farming	• Indicators to be determined in consultation with PMU
Role of women in decision making	• Making purchases of daily household need • Making purchases/sales of major household assets (such as land) • Spending money that women earn

	• Arranging marriage of children • Obtaining health care for women and children
Livestock mortality and vaccination	• Reasons for mortality • Number of animals die, how and why • Number of animals per household • Number of animals vaccinated and frequency of vaccination • Source of vaccination (free or at cost)
Wealth	• Status of household assets/ownership
Income	• Household annual income (main income and subsidiary income) • Annual Savings of the household.
Essential services	• Access of essential services (Gas, Electricity, health card, FP materials etc.)
Communication	• Status of village internal communication
Health	• Rate of Child mortality • Rate of Maternal Mortality
Nutrition	• Rate of underweight children of the household
Sanitation	• Source of drinking water • Status of latrine
Awareness/knowledge	• Level of awareness/knowledge on FFEWS
Capacity	• Present Capacity to protect the FFEWS
Production	• Use of modern production technology for agriculture, livestock & fisheries
Housing	• Type of house and its cost
Weather and Flash Flood Forecasting	• Means of receiving agro meteorological weather and flash flood forecasting • No. of people and institute receiving agro meteorological weather and flash flood forecasting

Purpose:

The main purpose of the assignment is to design and carry out a comprehensive baseline data consistent with the goal and purpose of the project through collection and analysis of gender and social diversity to determine the specific needs and roles of small holder farmers particularly women and youth in context of climate change. The study result will be used to: (i) set baseline values and adjust the performance targets against which progress can be tracked, (ii) to fine tune the critical areas of interventions to ensure gender inclusiveness in relation with local/indigenous adaption and mitigation strategies to climate change.

The program baseline is aimed at generating information/data that will prove a basis upon which changes in the conditions of the rights holders (women, men, girls and boys) will be measured during and after the program implementation in line with program intervention Results Targets. The program baseline will act as

benchmark of the conditions or performance start point for measuring progress, outcomes and impact of the program's interventions.

Objectives of the assignment:

The specific objectives include:

- To provide benchmark data against which achievements can be evaluated especially with respect to the set indicators identified in the program proposal.
- To assess households' socio-economic status, gender dynamics and participation in climate smart agriculture including factors such as differences in status, roles, constraints, opportunities, access to and control over resources of women and men, as farmers.
- identify and describe agro-ecological diversity and endogenous adaptation and mitigation strategy to climate change in the intervention areas
- To identify and describe social diversity in the intervention areas in relation with climate-smart agriculture including the needs and roles of women and youth.

The following development objectives have been set to improve the living standards and reduce the vulnerability of the poor living in the project areas:

- Enhance access to markets, livelihood opportunities and social services;
- Enhance village mobility, reduction in production losses and protection against extreme weather events;
- Enhance access to fishery resources and improved conservation of biodiversity;
- Enhance production, diversification and marketing of crop and livestock products;
- Efficient, cost effective and equitable use of project resources by stakeholders.
- Enhance awareness, capacity and knowledge to contend with climate change impacts.

Scope of work:

The baseline study is expected to establish the current levels of some critical performance indicators related to program beneficiaries in the five districts in North East part of Bangladesh that includes Netrokona, Hobiganj, Brahmanbaria, Kishoreganj and Sunamganj districts having a total of 28 Upazilasand 165 Unions. The areas of focus will include (but not limited to):

A. District level

- Agro-ecologies
- Social diversity and the need and role of women and youth in climate-smart agriculture
- Indigenous adaptation and mitigation strategy to climate change
- Policy environment for climate-smart agriculture
- Level of infrastructure such as roads that would hinder access to markets
- Access to services (government, private sector and civil society)

B. Household level:

a) Demographic information on household

- Structure, activities and sources of income of households and the level of assets by households for the target districts including women and youth.
- Gender dynamics
- Food security status, poverty

b) Access and use of agricultural inputs and climate-smart agricultural practices

- Use and tenure of agricultural land
- Knowledge (on), attitude (towards) and use of agricultural inputs (improved seed, fertilizer, herbicides/pesticides, climate smart agricultural practices

- Use of labor

c) The management and the use of agricultural output

- Agricultural productivity and production of key crops
- Post-harvest management and losses
- Access to output markets and credit
- Access and use of market information system
- Access and use of warehouse receipt system
- Marketable produce
- Buyers available
- Levels of access to finance

d) Agro-dealers, aggregators, warehouse operators, wholesalers, etc.

- Supply
- Marketing arrangement
- Access to credit
- Training needs

e) Farmers organizations

- Level of development and structures of farmers organizations
- Organizational capacity of farmer organizations
- Access to structured market
- Membership

f) Access to information

- Mobile penetration
- Sensitization to climate change

g) Sample size (All from beneficiaries)

- Members from LCS: 1,566
- Member of village protection and/or common internal services: 8,712 of 1,988 HHs
- Members of value chain subsectors and vocational training: 13,784
- Focus Group Discussion (2 from each district):

1. LCS: 10
2. Agriculture (Crop): 10
3. Fisheries: 10
4. Livestock: 10
5. Gender (Women): 10
6. Vocational trained beneficiaries: 10

The target population of HILIP and CALIP will include small and marginal farmers, fisher-folk, landless people, poor women (key focus group) and small traders and micro-entrepreneurs. The direct beneficiaries are: a) members of Labour Contracting Societies (LCS) (15,660); b) 19,800 households (HHs) with village protection and/or common internal services (87,120); and c) participants of value chain subsectors and vocational training (137,844). The total number of direct beneficiaries is 240,564.In addition, it is anticipated that approximately 3 million (688,000 HHs) farmers will benefit from agro-meteorologicaland flash flood forecasts for improving crop management.

Methodology:

- The Consultant will design and conduct a gender sensitive multi-dimensional baseline study. The study will include qualitative and quantitative approaches with a variety of primary and secondary data sources including participatory methods. The study will include the following methodology (not exclusively): desk-top analysis of relevant documents, survey of households and other actors of the value chains, focus groups, key informant interviews, etc.
- The Consultant should elaborate on the methodology to be used, and ensure that sample sizes and the structure for quantitative surveys will generate statistically acceptable information. The overall sample size calculation and sample selection should follow acceptable statistical procedures to help achieve the objectives of the study. Qualitative information should be accorded equal importance. It is important that the study is designed taking into account the program objectives, strategy, activities, outputs and outcomes as spelled out in the program document.
- Whilst HILIP and the key partners will maintain some involvement in the study design and development of the data collection tools to ensure compliance with research/study standards; there will be limited interference in the data collection, analysis and report writing to ensure.

Reporting:

The Consultant shall deliver the following reports to the Client:

(1) Inception Report: Two (2) copies of the report within 10 days of signing of the Contract
(2) Progress Report: Two (2) copies of the report within 2 months of signing of the Contract
(3) Draft Report: Three (3) copies of the report within 3 months of signing of the Contract
(4) Final Report: Ten (10) copies of the report including soft copy and all dataset within 4 months of signing of the Contract

The dataset should include all data collected throughout the assignment period and must be submitted with the final report.

Mode of Payment:

The payment will be made in four instalments:

Installments	Percentage	Timeline
First installment	20%	Within 30 days aftersubmission of Inception Report
Secondinstallment	30%	Within 30 days after submission of Progress Report
Third installment	30%	Within 30 days after submission of Draft Report
Final installment	20%	Within 45 days after acceptance of Final Report

Required Qualification and Experience of the Experts:

Position	Number of Person	Required Staff Month	Academic qualification	Specific experience

Office of the Project Director ★ Haor Infrastructure & Livelihood Improvement Project ★ Local Government Engineering Department ★ LGED HQ, Dhaka ★

Team Leader	1	2	Post Graduate Degree in any branch of Social Sciencesor relevant discipline	The Team Leader must have at least 15 years of experience, out of which at least 5 years' experience in relevant study or completed 3 similar baseline studies with national or international development agency. The Team Leader should be strong in computer and communication skills (oral, writing and presentational). The Team Leader should have process skill in developing tools for various studies.
Agriculture Expert	1	2	Post Graduate Degree in Agriculture	The Agriculture Expert must have at least 10 years of experience, out of which at least 3 years in relevant study or completed at least 2 similar baseline studies with national or international agency. S/he should have the ability to produce report with actual data from the beneficiaries.
Coordinator	1	2	Bachelor degree in any discipline	The Coordinator must have at least 5 years of experience. S/he must have experience of completing at least 2 studies as Coordinator or Supervisor.
Environment/ Climate/Water resource Expert	1	2	B.Sc in Environmental Science/Engineering/Water Resource/Social Science	The Environment/ Climate/Water Resource Expert must have at least 5 years of experience. S/he must have experience of completing at least 2 similar assignments. He should have the ability to produce report with actual data from the beneficiaries.
Statistician	1	1	Masters in Statistics	The Statistician must have at least 10 years of experience. S/he must have experience of designing of questionnaire and analysis of statistical data in appropriate software. S/de should have sufficient experience in computer operation.
Enumerator	14	28	Bachelor degree in any discipline	Each Enumerator should have at least 3 years' experience in surveying of the change in the growth of livelihood and carrying out of an enumeration consisting of the counting and listing of people or assisting respondents in answering the questions and in completing the questionnaire.
Data Entry Operator	1	2	Bachelor degree in any discipline	Data Entry Operator will have 3 years' experience in data entry of large statistical data. They must have knowledge of Excel and/ or database.

The consultants/Firm will work independently with his/her team in Haor area for the assignment, to finalize methodologies and approaches, and undertaking fieldwork. HILIP, LGED will not facilitate any transport, accommodation and food for the consultants in the field but the consultant may be assisted with information if required.

Duration of the contract: 4 (four) months from the date of the signing of the contract.

APPENDIX-2:

Household Survey Instruments

Appendix 2

Checklist Sl. No.

Data Collection Instrument # 1

Household Survey Instrument for Conducting Baseline Survey of CALIP under
Haor Infrastructure and Livelihood Improvement Project

This format will be filled-in for respondents likely to be benefited by the CALIP interventions (LCS, Village Protection and Livelihood Protection)

First identify UP/ village where the above interventions will be implemented but the works not yet started as of July 2017.

Respondent Identification:

District: 1. Sunamganj, 2. Hobiganj, 3. Netrokona 4. Kishoreganj 5. Brahman Baria

Upazila Name …….. Code | | |

Union Name …….. Code | | |

Household Identity Code: | | | |

Respondent No									

Date of interview			

Name of Respondent …….. Age…….. Sex 1. Male 2. Female 3. Third Sex

Respondent's NID Number: ……

Respondent's Cell Phone Number: ……

Is the respondent's household a beneficiary of CALIP Project Answer 1. Yes 2. No

Format 1.1: Identification of the Respondent

Respondents are household head or senior/adult member of the household but the information will be about the household. .

Demographic Information					
1. Name of Household head: …… (If household head is not found, then write name of respondent): …… Relationship with the Household head: (1 Spouse 2. Son 3. Daughter 4. Father 5. Mother 6. Others					
2. Name of Father/husband of HH head					
3. Address	Village:		Para :		
4. Marital Status of HH head	Married: 1	Unmarried: 2	Divorced: 3	Widow /widower 4	
5. Sex of HH head		Male: 1	Female: 2	Third Sex: 3	
6.	Religion (Muslim=1, Hindu=2, Christian=3, Buddhist=4)				
7.	Age (Years)				
8.	Education (Illiterate=1, Can read and write below primary=2, Primary pass=3, SSC=4, HSC=5, Graduate=6, Masters =7, Koumi Madrasa=8, Technical=9)				

9.	HH Income Source: 1, Farming, 2. Fishing 3. Aquaculture, 4. Horticulture, 5. Livestock, 6. Agr Day Lab, 7. Non-Agr Lab, 8. Paid Household work 9. Salaried Services 10. Transport 11. Business 12. Cottage industry/ other entrepreneur 13. Overseas remittance, 14. In-country remittance, 15. Pension 16. SSN 17. Rent/ property income 18. Others (Specify)-----				Main Source of Income (code)	Second Source of Income (code)
10.	Ethnicity (Bangalee =1, Tribal=2)					
11.	Family Size	Number of Adult Family Members (male)	Number of Adult Family Members (Female)		Boy <18	Girl <18
12.	Membership of development organization 1 Yes, 2 No If t=yes Tick relevant ones		1. CIG	2. BUG	3. LCS	4. Others ……..
13.	Social Identity	1. UP member, 2. Matbar 3. Political activist 4. Social worker 5. Others …..				

Format 1.2: Ownership of Land of Tenancy of Sample HH/ respondent

Code	Particulars of land	Land area (decimal)
1.	Homestead land Owned	
2.*	Cultivable Land Owned	
3.	Pond area owned	
4.	Own Orchard	
5.	Leased-in cultivable land	
6.	Leased in aquaculture pond	
7.	Leased out cultivable land	
8.	Leased out pond/ aquaculture land	
9.	Others (Specify)	

Format 1.3: Farming Systems (Tick appropriate one)

Code	Farming system	
1.	Producing crops only	
2.	Livestock only	
3.	Fish culture only	
4.	Producing crop, livestock and fish	
5.	Producing both crop and livestock	
6.	Producing livestock and fish without crop	

1.4: Land Area Type: (2016)

Code	Description	Area
1.	Single crop area	
2.	Double crop area	
3.	Triple crop area	

Format 1.5: Type of Living House

Code	Particulars of house	Type Code*	Value (Tk)
	Living house		

Type of house: Pacca: 1. Brick wall with concrete roof, 2. Semi pucca: Brick wall and tin roof, 3. Kutcha Tin Wall and roof, 4. Thatched Kutcha: Shed made of straw/leaves and wall made of bamboo/leaves/jute stick.

Format 1.6: Ownership of Livestock Resources

Code	Types of livestock resources	Number - adult animals	Value (TK)
1.	Duck		
2.	Poultry		
3.	Goat/sheep		
4.	Cattle		
5.	Buffalo		
6.	Others (Pigeon/Koel etc.) Specify		

Format 1.7: Ownership of Selected Farm Equipment

Code	Particulars of farm equipment	Number
1.	Power tiller	
2.	Thresher	
3.	Shallow tube well	
4.	Low lift pump	
5.	Country plough	
6.	Tractor	
7.	Others	

Format 1.8: Ownership of Transport

Code	Particulars of transport	Number
1.	Country boat	
2.	Mechanized boat	
3.	Bi-cycle	
4.	Rickshaw van	
5.	Bullock/ horse cart	
6.	Rickshaw	
7.	Motorcycle	
8.	Easy-bike	
9.	Bhotbhoti	
10.	Baby Taxi/CNG/Petrol Draven	
11.	Others (Specify)	

Format 1.9: Ownership of Household Items

Code	Type of household items	Number	Total value (Taka)
1.	Mobile phone		
2.	Khat/ palonk		
3.	Chowki		
4.	Chair		
5.	Table		
6.	Electric fan		
7.	Radio		
8.	Sewing machine		
9.	TV		
10.	Refrigerator		
11	Others		

Format 1.10: Annual income by Sources (2015)

Code	Sources of income	Total amount (Taka)
1.	Agriculture (crop farming)*	
2.	Horticulture	
3.	Livestock (poultry, duck, got/sheep, cattle, buffaloes)*	
4.	Aquaculture*	
5.	Fishing (fish capture)	
6.	Wage/ day labor income	
7.	Handicaft/ weaving/ tailoring etc.	
8.	Transport operator	
9.	Salary/ pension	
10.	Business	
11.	Salary/ pension	
12.	Remittance- overseas	
13.	Remittance in-country	
14.	Others ……	

*Note: Value of Gross Income minus cost of production from Q 1.18

Format 1.11: Monthly Food Consumption (Last month)

Code	Food item consumed	Total consumed (Kg/Number)	Value TTh
1.	Rice (Kg)		
2.	Wheat flour (Kg)		
3.	Fish (Kg)		
4.	Meat (Kg)		
5.	Egg (Number)		
6.	Milk (Liter)		
7.	Potato (Kg)		
8.	Pulses (Kg)		
9.	Edible oil (liter)		
10.	Vegetables (kg)		
11.	Fruits (Kg)		
12.	Others ……..		
	TOTAL (leave for computer)		

Format 1.12: Annual Expenditure by Category of Items (2016)

Code	Particulars of expenditures	Total amount (Taka)
1.	Food (copy from 1.11)	
2.	Clothing	
3.	Housing/ house repair/ utility	
4.	Healthcare	
5.	Education	
6.	Transport	
7.	Communication	
8.	Others	
	TOTAL	

Format 1.13: Status of Food Security

Quantity of food grain produced, consumed, surplus/deficit	Kg/HH
a. Total household paddy production (rice equivalent 66%% of paddy produced)	
b. Total household rice consumption	
c. Total annual surplus (a-b)	+
Total annual shortage rice (a-b)	-
Total purchased from market to makeup for deficit	
If there is still shortage compared to HH consumption need	

Format 1.14: Sources of Drinking Water

Code	Sources of Drinking Water	Distance from house (meter)
1.	Tube well	
2.	Piped water supply	
3.	Pond-Sand Filter	
4.	Cylinder filter	
5	Rain water harvest	
6	Pond	
7.	Beel/ River	
8	Indira/ well	
9	Others	

Format 1.15: Sanitation Facilities (Tick one)

Code	Types of Sanitation Facilities
1.	Open Space
2.	Hanging Latrine
3.	Ring slab Latrine
4.	Sanitary Latrine non-attached
5	Sanitary Latrine attached to room/ inside room
6.	Others

Format 1.16: Power Source for Lighting

Code	Types of lighting. cooking Facilities
1	Electricity
2	Solar Energy
3	Generator
4	Kerosine
5	Bio-gas
6	Other (Specify)

Format 1.17: Energy Source / method used for Cooking

Code	Types of Sanitation Facilities
1	Fuel wood normal Chula
2	Cow dung
3	Fuel wood improved Chula
4	Kerosine
5	LPG/ Cylinder gas
6	Natural gas
6	Bio-gas
7	Others

Format 1.18: Crop Production and Crop Damage

Area and production of major crops grown by HH and crop damage – Ask if crop farmer

Name of crop with code	Response of participants on crops grown in 2015									Disaster coping 1 saving 2 MFI/ Bank 3 Informal loan 4 GO 5 NGO 6 Relatives 7 Private sector 8 Others Specify
	Name of Variety cultivated	variety Code	Area cultivated (dec)	Production (Kg) per Bigha/33 dec.	Sale Price (Tk/kg)	Gross Income (Tk/HH)	Production cost/dec (Tk) per HH	Pre-harvest loss (%)	Post-harvest loss (%)	
1Boro paddy										

2 Aman paddy										
3 Aus paddy										
4 Wheat										
5 Maize										
6 Pulses										
7 Potato										
8 S. potato										
9 Oilseed										
10 Spices										
11 Vegetables										
12 Fruits										
13 Others										

Variety code: 1 LV, 2 LIV, 3. HYV, 4 Hybrid

* Estimated income per HH concerning yield/bigha, production/bigha and per & post harvesting loss

Format 1.19: Livestock Production and Loss in disease/ disaster

Code	Animal	Number*	Gross Income (Tk)/ Yr	Cost (Tk)/ Yr	Mortality Number/ Yr (disease)	Mortality Number/ Yr (disaster)	Vaccination 1 regular 2 Occasional 3 Rare	Vaccine source 1 DLS 2 NGO 3 Priv 4 Other	Disaster coping 1 saving 2 MFI/ Bank 3 Informal loan 4 GO 5 NGO 6 Relatives 7 Private sector 8 Others Specify
1	Duck								
2	Poultry								
3	Goat/ Sheep								
4	Cattle								
5	Buffalo								
6	Others …								

Note:* Mention number of adult animals only.

Format 1.20: Fish pond Production and Loss in disease/ disaster

Code	Major Fish Species	Pond Area (dec)	Gross Income (Tk)/ Yr	Cost (Tk)/ Yr	Mortality % of expected harvest (disease)	Mortality % of expected harvest (disaster)	Extension Advice 1 regular 2 Occasional 3 Rare	Service source 1 DOF 2 NGO 3 Priv 4 Other	Disaster coping 1 saving 2 MFI/ Bank 3 Informal loan 4 GO 5 NGO 6 Relatives 7 Private sector 8 Others Specify
1	Rui/katla/ mrigel								
2	S. carp								
3	Talapia								
4	Sharputhi								
5	Pangas								
6	Koi								
7	Other ((Specify)								

Format 1.21: Suggestions to Minimize the from Flash Flood/Cool weather/ Hailstorm

1. _____

2. _____

3. _____

Format-1.22: Access to the Market (Tick)

Code	Access to the Market	Response					
1.	Where do you sell your product?	Farmer's house/farm-1	Local Market-2	Regional/district Market-3	As Contract Grower-4		
2.	Sell to who?	1 consumer	2 Faria/paiker	3 Aratdar	4 Others ----		
3.	Mode of transport	Bullock Cart -1	Rickshaw/Van-2	Power Van (Mention Name)-3			
		Boat-4	Pushcart -5	Cycle- 6	Others -7		
4.	How do you avail market information	Mobile-1	Lead farmers-2 Farmers Group	Traders-3	Visit-4	Others -5	
5.	Mention the Distance of your Nearest Market	KM: _____					
6.	Mention the Problem you face in Marketing	1) Market located for a way farm the village 2) No place for farmers to get in the market 3) Aratdar/Faria control of the market 4) Influential people central the market 5) Transport problem 6) Long monsoon/flood 7) Dry season-boats con not move 8) Traders do not come to market in time or in good number 9) market syndicate 10) Other (Specify)					

Format-1.23: Disaster Management

Code	Disaster Management	Response		
1.	Types of hazards you face every year	Flash Food-1	Monsoon Flood-2	3 Hailstorm 4 Cool weather 5 Wave action 6 Afal 7. Other
2.	Is your land/ house protected by Embankment?	Yes -1	No -2	
3.	Are you benefited by VP?	Yes -1	No -2	
4.	Do you have any training for climate change adaptation, or disaster reduction, etc.?	Yes -1	No -2	
5.	Do you receive and are benefited by flood forecast?	Yes -1	No -2	

Format 1.24: Access to Finance

No.	Parameters	Response					
1.	Do You Have any Loan?	Yes -1	No -2				
2.	Sources of Loan	**NGO/Coop / CBO-1**	Bank-2	Friend/ Relative-3	Dadan-4	Money Lender -5	Other -6
4.	Amount Borrowed 2016-17	TK.					
5.	Uses of loan	Business-1	Agriculture-2	Land purchase-3	Food-4		
		Health-5	Marriage-6	Education-7	Others-8		
6.	Do you have any Bank Account?	Yes -1	No -2	If yes, Balance Tk			
7.	Do you have any Insurance? If yes	Life- 1	Livestock -2	Crop-3	Others-4		

Format 1.25: Access to Training

Have any member of the household receive any formal skill training such as following?

1. Yes 2. No If Yes then

Code	Type of Training	Who received training (Tick)	
		Male member	Female member
1	Bamboo/ morta production		
2	Hizal/ Koros production		
3	Vitiver production		
4	Medicinal/ fruits planting/ nursery		
5	Pond fishery		
6	Electrical/ Electronics		
7	Mobile servicing		
8	Wood/ bamboo/ cane morta products		
9	Jute craft/ handicrafts		
10	Bock/boutique		
11	Weaving/ textile		
12	Tailoring		
13	Plumbing		
14	Diesel Engine/Motorcycle repair		
15	Computer repair		
16	Others (specify)		

Format 1.26: Interest in Training/Training Need

Do you have demand for other training that can help getting job soon or start viable business/ enterprise?

1. Yes 2. No If Yes then

Code	Type of Training	Who to receive training (Tick)	
		Male member	Female member
1			
2			
3			
4			
5			

Format 1.27: Role of Women and men in Household Income Earning and Taking Other Responsibilities

Who takes responsibility of the following? (Tick for each under men/ women)

SL	Activity/ Responsibility	Women's responsibility	Men's Responsibility
1	Household breadwinner/ meal provider		
2	Cooking		
3	Fetching water		
4	Collecting fuel wood/ cow dung		
5	Childcare		
6	Elderly members' care		
7	Collecting grass/ morta/ cane from haor		
8	Collecting wild vegetables etc.		
9	Shopping/Marketing		
10	House cleaning		
11	Migration for work		
12	Others (Specify)		

Format 1.28: Role of Women in Decision Making

No.	Decision making Process/Decision maker	Who (Male=1, Female=2, Jointly=3)
1.	Family financial management	
2.	Children education	
3.	Family Member's health care matter	
4.	Ownership of land/resources	
5.	Agricultural production (crop, livestock, fish) strategies	
6.	Cooking/ childcare	
7.	Others (Specify)	

Format 1.29: Barriers to Women's Activities

No.	Type of Activities	1. Yes 2. No 3. Subject to approval
1.	Employment/Work/IGA at home or outside	
2.	Allowed to work outside/sending children to school	
3.	Social/Cultural restriction for going out	
4.	Insecurity in movement by transport	
5.	Showing/taking responsibility within household	
6.	Restriction to participate in training	
7.	Age outside of home	
8.	Going to market	
9.	Others (Specify)	

Format 1.30: Right to own assets by woman

No.	Type of Right	1. Yes, 2. No, 3. Probable
1.	Inheritance of property	
2.	Inheritance of husband property	
3.	Owning assets by self purchase	
4.	Spending/managing earned income	
5.	Others (specify)	

_____ _____

Signatures of the Enumerators Signatures of the Supervisor

Date: Date:

_____ _____

Name of Enumerators Name of Supervisor

APPENDIX-3:

Checklist for Key Informant Interview (KII)

Appendix 3

Sl. No. _____

Data Collection Instrument #2

Haor Infrastructure and Livelihood Improvement Project

Checklist for Key Informant Interview (KII)

Respondents will include
LGED district (5)/ Upazila level engineer (10), DAE (5), DLS (5) DOF (5) BFRI (1), FFWC (1)

Name of Respondent:_____ Designation: _____

Organization:_____ District:_____

Phone:_____ Cell:_____ email: _____

1. Are you aware of CALIP project?

2. How are you involved in it?

3. What are the CALIP activities in your area of jurisdiction (District/ Upazila)?

4. Can you provide a list of UP, village and beneficiary person/ household list of CALIP in your area? Please provide photo copy (most important for LGED)

5. What are the types of hazards common in this area?

6. Have you noticed effects of climate change in your area such as weather getting wormer, summer getting longer, monsoon longer/ shorter, monsoon and norwester rain increasing, winter getting shorter etc?

7. In your assessment, what are the causes of above?

8. In your opinion, what can be done by CALIP to minimize adverse effects of the climate changes in a few years? What can be effective adaptation measures

9. What are the program you have for assisting the vulnerable people in their attempt to resilient before the disaster such as early forecasting/ rescue/ prepare to save life, crops, assets, fish, livestock? What experience do you have in this regard?

10. What are the program you have for assisting the vulnerable people in their attempt to resilient after the disaster? What experience do you have in this regard?

11. What are the indigenous knowledge/ technology now available or can be promoted to overcome climate change adversities and how?

12. What are the Strength (S), Weakness (W), Opportunities (O) and the Threat (T) of CALIP to help local communities to overcome the adverse effects of climate change and for adaptation to climate change?

13. How can your organization contribute in enhancing Strength and Opportunities of these communities?

14. What can be done to protect haor area people from flash flood adversities?

15. How can flash flood early forecasting system effectively be disseminated to vulnerable areas for specific haor likely to be affected?

16. What are the probable activities in conserving haor area bio-diversity? How effectively are these implemented presently and benefit the target group people (poor, vulnerable, women, landless, marginal farmer, small farmer, medium farmer, fisher etc)?

17. Do you think that any of the CALIP interventions will be helpful to conserve haor area bio-diversity for the poor and vulnerable?

18. Any additional comments?

19. Any suggestions for CALIP?

_____

Signatures of the Interviewer
Date:

_____

Signatures of the Supervisor
Date:

_____

Name of Interviewer

_____

Name of Supervisor

APPENDIX-4:

Checklist for FGDs

Appendix 4

Sl. No. _____

Data Collection Instrument #3

Haor Infrastructure and Livelihood Improvement Project

Checklist for FGDs

Number of FGDs: LCS (10), Crop farmer (10), Livestock farmer (10), Pond fishery farmers (4), Fishermen/ women groups (6), Women groups (10), Vocational Training (10)
Location:

Upazila: _____ Union: _____

CALIP Component: (1) Community Intrastrnctane (2) Village protection (3) Livelihood

Protection. Haor: _____ Village _____

List of Participants

Sl. No.	Name of participant	Sex (M or F)	Age (year)	**Level of Education**	Land owned (dec)	Main Occupation	Position
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

1. What are the types of hazards common in this area Flush Flood/Monsoon Flood/High Strom /AFAL
2. By what river and source of water cross boundary internal rain at flood time River..... Haor.....
3. What you do when there is no crop in the field/flood time

4. Was your area affected by flood in 2015 and 2010? 1. Yes 2. No

SL	**Particulars**	**2015 (Month)**		**2010 (Month)**	
		From	**To**	**From**	**To**
1	First flush flood				
2	Second flush flood				
3	Monsoon flood				

5. Have you noticed effects of climate change in your area such as weather getting wormer, summer is longer, monsoon longer/ shorter, monsoon and norwester rain increasing, winter getting shorter etc?

6. In your assessment, what are the causes of above?

7. In your opinion, what can be done by CALIP to minimize adverse effects of the climate changes in a few years?

8. Are you aware of any CALIP activities that help better preparing before flush flood/ rehabilitee after flood? 1. Yes 2. No

9. If Yes, what are the activities?

10. Do you receive flash flood early warning presently, 1. Yes 2. No was if received in 2015? 1Yes 2 No

    Is the warning haor specific? 1 Yes 2 No

    Is the warning timely? 1 Yes 2 No

    Is it currently helping to save crop/ livestock/property effectively 1 Yes 2 No

11. How the CALIP activities will be helpful to you as household member?

    1 Working as LCS group member

    2 Working for wage other than LCS member

    3 BUG member

    4 Livelihoods support: IGA Training in

    41. Crop farming

    42. Horticulture

    43. SWAMP fishery/ Natural Resource Management Sanctuary.

    44. Aquaculture

    45. Cottage Craft/ Small Business/ Transport

    5. Others (Specify)

12. How the CALIP activities will be helpful to you as a community member?

    1 Protecting village: canal digging or killa Construction

    2 Beel bank protection

    3 Protecting road slope

    4 Model Village

    5 Common Internal Service

    6. Others ……..

13. What are the important rivers/
    khal/beel/haor that are accessed by people of your village for fishing?

    1 River

    2 Khal

    3 Haor

    4 Beel

14. Do people of your village access open water bodies 1. Yes 2. No? If yes for what purpose mainly to sell……..% to consume ……..% as employee ……..%

15. What are the constraints to access them for the poor fishermen and women?

1 Ijaradar control

2 genuine fisher group do not get fishing right/ lease

3 BUG/ similar group controlled by power elite

4 Others ……..

16. Are women involved in fishing there? 1 Yes 2 No If no, Why not?

1 cultural tradition/purda

2 dignity of women

3 male domination may be affected

4. others

17. What are the traditional/ LIV/ HYV boro rice varieties that can be harvested before flush flood, other hazards and what varieties are flash flood tolerant, Cool weather tolerant?

Sl.	Season	Variety	Tolerance Type	Planting	Harvesting time	Yield maund/acre	Source of seed

Availability of Speed?

1 BRRI 2 BADC 3 NGO 4 Local farmer 5 Other UZ farmer

18. Are you aware of any slope protection practices applied traditionally

1. Yes 2. No (If Yes state usefulness of)

1 Vetiver planting
2 Dholkolmi planting
3 Other grass
4 Other plants

19. Is LGED promoting slope protection them in your area? 1. Yes 2. No 3. Don't know If Yes, How?

20. Are you aware of traditional practices in conserving haor area biodiversity? 1. Yes 2. No, (If Yes)

What are such practices and their benefits?

1 Hijal Benefits
2 Tomal Benefits
3 Koroj Benefits
4 Cane Benefits
5 Morta Benefits
6 Other plants Benefits
7 Other grass Benefits
8 Other trees Benefits
9. Geotex
10. CC Block
11. Sanctuary for fisheries conservation/ implement fish act
12. What traditional/ cultural practices are prevalent/ was practiced in the past to conserve fisheries?

21. Is CALIP promoting them? 1. Yes 2. No 3. Don't know If Yes, How?

22. What more can be done to conserve haor area biodiversity?

1

2

3

_____

Signatures of the Interviewer
Date:

_____

Signatures of the Supervisor
Date:

_____

Name of Interviewer

_____

Name of Supervisor

APPENDIX-5:

FGD with Transport Operator and Traders

Appendix 5

Data Collection Instrument #4

Haor Infrastructure and Livelihood Improvement Project

Checklist for FGDs with Transport Operator/ Trader in selected markets

Location: _____

Upazila_____ Union_____ Market _____

Haor_____Village _____

Sl #	Name of participant	Sex (M or F)	Age (year)	**Level of Education**	Land owned (dec)	Main Occupation	**Social Identity Organization**	Position
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

1. Area of Market (acre) Khas area Private area
2. Yearly Lease Tk (2015)
3. Total market user Haat day- 1 Haat day- 2 Non-haat- 3
4. Haat Time Morning 1 Afternoon- 2 While day- 3
5. Main commodity traded by whole-sale going out of the market and volume of trade

SL	Commodity	Unit	Haat day	Each Non-haat day
1	Paddy	Kg		
2	Rice	Kg		
3	Jute	Kg		
4	Oilseed	Kg		
5	Pulses	Kg		
6	Spices	Kg		
7	Vegetables	Kg		
8	Fruits	Kg		
9	Fish	Kg		
10	Duck/ poultry	Nos		
11	Egg	Nos		
11	Bamboo/ Cane/ Morta	Ati		
12	Others			

6. Type of transport and number of vehicles operated (Number of vehicle movement in a day)

SL	Type of vehicle	Haat day	Each Non-haat day
1	Bus		
2	Truck 3 tons+		
3	Mini truck/ pickup		
4	Minibus		
5	Micro Bus		
6	Jeep/ Car		
7	CNG/ Baby Taxi		
8	Tempo		
9	Bhotbhoti		
10	Easy bike		
11	Motor Cycle		
12	Rickshaw/ Van		
13	Animal cart		
14	Country Boat		
15	Engine Boat		
16	Motor Launch		
17	Berge/ Cargo		

_____ _____

Signatures of the Enumerator Signatures of the Supervisor

Date: Date:

_____ _____

Name of Enumerator Name of Supervisor

APPENDIX-6:

In-Depth Interview on Technology, Input Use, Yield and Cost of Production

Appendix 6

Data Collection Instrument #5

Haor Infrastructure and Livelihood Improvement Project

In-depth Interview on Technology, Input Use, Yield and Cost of Production

Location:_____

Upazila _____ Union_____

Haor name: _____ Village _____

1. Main Crops

SL	Name of Crop*	Name variety	Variety Type**	Typical average plot size (dec)	Typical average yield (maund/acre)	Crop damage for flood % 2015	Crop damage for flood % 2010

*Crop Code: 1. Paddy Boro, 2. Paddy Aman, 3. Paddy Aus. 4. Jute 5. Vegetables 6. Fruits 7. Other cereals, 8. Tubers 9. Spices, 10. Pulses, 11. Oilseeds, 12. Others (specify)

* Variety Code: 1. Traditional 2. LIV 3, HYV 4. Hibrid

2. Technology applied in each crop as above

SL	Name of Crop*	Name variety	Variety Type**	Tillage 1. Animal 2. Power Tiller 3. Tractor	Sowing 1. hand, 2. drum seeder	Planting in line 1. No 2. Yes	Mulching/ wedding 1. Hand 2. Mech	Harvesting 1. Hand 2. Mech	Threshing 1. Animal 2. Pedal Th 3. Power

3. Cost of Production (Tk. per acre)

a. Own Labor/ family labor

SL	Name of Crop*	Name variety	Variety Type**	Own Labor (days) in Tillage	Own Labor (days) in sowing/ planting	Own Labor (days) in wedding/ mulching	Own Labor (days) in harvesting	Own Labor (days) in Threshing	Own Labor (days) in drying/ storing

Note % Female Lab in each % child labor (if any) in each

b. Hired Labor

SL	Name of Crop*	Name variety	Variety Type**	Labor (days) in Tillage	Labor (days) in sowing/ planting	Labor (days) in wedding/ mulching	Labor (days) in harvesting	Labor (days) in Threshing	Labor (days) in drying/ storing

Note % Female Lab in each % child labor (if any) in each

c. Hired Labor Wage Rate Tk/day (convert if paid in kind)

SL	Name of Crop*	Name variety	Variety Type**	Labor (days) in Tillage	Labor (days) in sowing/ planting	Labor (days) in wedding/ mulching	Labor (days) in harvesting	Labor (days) in Threshing	Labor (days) in drying/ storing

Note % Female Lab in each % child labor (if any) in each

d. Crop share to Irrigation Service Provider and landlord % of crop

SL	Name of Crop*	Name variety	Variety Type**	% Landlord	Input cost provided by landlord, what and money value per acre	Irrigation Service Provider Share % of crop	Harvesting Labor Share (% of crop)	Irrigation cost if farmer bears the cost (Tk/ acre)	Remarks

e. Input Cost (Tk/ acre)

SL	Crop/acre	Variety Tk/acre	Urea kg/Bigha	TSP Kg.	MP Kg.	DAP/ Others kg.	Manure kg.	Pesticide Tk.	Others, if any, Tk.

Price of Fertilizer Tk./kg.

Urea ..... TSP .....

MP ..... DAP .....

Summary Information of CALIP Eligible Households

District ..... Upazila ..... Union .....

Village ..... Para ..... Bari .....

SL	Name of HHH	Sex HHH	Age HHH	Adult Male age 18+		Age below 18 years		HH income source**	Day labor Nos		Food Security (month)
				Wor	N W	Boy	Gir		M	Fem	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

* 1, Farming, 2. Fishing, 3. Aquaculture, 5. Livestock 4. Horticulture, 6. Agr Day Lab, 7. Non-Agr Lab, 8. Paid Household work 9. Salaried Services 10. Transport, 11. Business, 12. Cottage industry/ other entrepreneur, 13. Overseas remittance, 14. In-country remittance, 15. Pension, 16. SSN, 17. Rent/ property income 18 Others -----

*** Format training Types: 1. Bamboo/ morta production, 2. Hizal/ koros prod, 3. Viti ver prod, 4. Medicinal/ fruits planting/ nursery, 5. Pond fishery, 6. Wood/ bamboo/ cane morta products 7. Jute craft/ handicrafts 8. Bock/boutique 9. Weaving/ textile 10. Electrical 11. Electronics 12. Mobile servicing 13. Tailoring 14. Plumbing 15. Other

Informant 1 name ..... Cell phone .....

Informant 2 name ..... Cell phone .....

_____

Signatures/Name of the Enumerator

_____

Signatures/Name of the Supervisor

APPENDIX-7:

Pictures of Field Activities by the Project and Study Team

Appendix 7

Pictures of Field Activities by the Project and Study Team

Demonstration plot of Snake Gourd at Suhair union under Netrakona district.

Construction of road from Gaglor Bazar to Mandarbari Union (1 k.m.) under HILIP at Netrakona district

Construction of 800 meter long irrigation drain at Suyail

Appendix 7

Construction of 900 meter long irrigation drain at Korchapur village, Gaglajore union.

800 meter Internal Road at Boramtor under Gaglajore union.

Internal Road side Tube well & Toilet at Boramtor under Gaglajore union.

Demonstration of duck rearing at Borkapon union, Kalmakanda.

Demonstration plot of HYV Bottle Gourd (local) at Suyail, Mohongong.

Gopal Chandra Sarker , PD, CALIP & Umme Salma, DS, Ministry of Finance visit Feromen Trap at Monkandia village under Kolmakanda upazila .

Appendix 7

Demonstration of Sheep rearing at Kishtopur village, Kolmakanda.

Parul Daring, beneficiary of Demonstration of Sonali poultry at Kalapani village, Lengura , Kolmakanda.

Canal excavation under HILIP component-3 at Putika Gumai river Khal

Margaret Sangma received demonstration for Koel bird rearing.

Appendix 7

Morning Jambil harvested sweet gourd from his demo plot at Jagannathpur, Lengura.

Papri Daring, taking care of her Bitter Gourd demonstration plot at Jagannathpur, Lengura.

Fish Culture under HILIP at Borkapon union, Kolmakandha Upazila, Netrakona.

Mr. Md. Arifuzzaman, UNO, Kalmkanda & Dr. ARM Momtajuddin, Consultant Baseline Study team are seen during KII session.

Appendix 7

Construction of palestineblock at Gagrajore under Borkapon union.

Dr. ARM Momtajuddin, Consultant of EADS, Base line Study team discuss with Md. Shorab Ali, DPC, Netrakona regarding activities of CALIP at Netrakona district.

Joysree Debi, DLC, Ntrakona describes progress of HILIP & CALIP activities at Netrakona.

Construction of Village protection block at Ranagaon under Borkapon union.

Dr. ARM Momtajuddin, Consultant of Baseline Study team conducting FGD with female Indigenous group at Jagannathpur village at Lengura, Kalmakanda.

Female members of Indigenous group during FGD session at Jagannathpur village at Lengura, Kalmakanda.

Dr. ARM Momtajuddin, Consultant of Baseline Study team conducting FGD with male Indigenous group at Jagannathpur village at Lengura.

Mr. Shah Md. Wadud, UE, Dharmapasha describes status of CALIP activities at this area.

Members of indigenous beneficiary group at Laxmipur, Uttar Banshi Kunda, Dharmapasha.

Appendix 7


Dr. ARM Momtajuddin, Consultant of Baseline Study team, conducting FGD with female Indigenous group at Laxmipur village at Uttar Banshi Kunda, Dharmapasha.


Members of indigenous beneficiary group at Laxmipur, Uttar Banshi Kunda, Dharmapasha.


Market shed constructed at Bholagonj Bazar, Uttat Banshi Kunda, Dharmapasha.

Appendix 7

Internal Road construction work is in progress at Bholagonj Bazar, Uttat Banshi Kunda, Dharmapasha.

Md. Mehedi Akond, UNO, Mohonganj, sharing views with consultant of Baseline Study

Md. Shoyeb Ahmed, UAO, Dharmapasha, with consultant of Baseline Study team during KII session.

Appendix 7

Consultants of the baseline survey sharing views with CALIP field level officials at Nasirnagar, Brahmanbaria.

Dr. M. Maniruzzaman, Team Leader of Baseline Survey discussed with a farmer at Nasirnagar, Brahmanbaria.

During field visit Consultants of the Baseline Survey discussed with field officials at Lakhai, Habiganj.

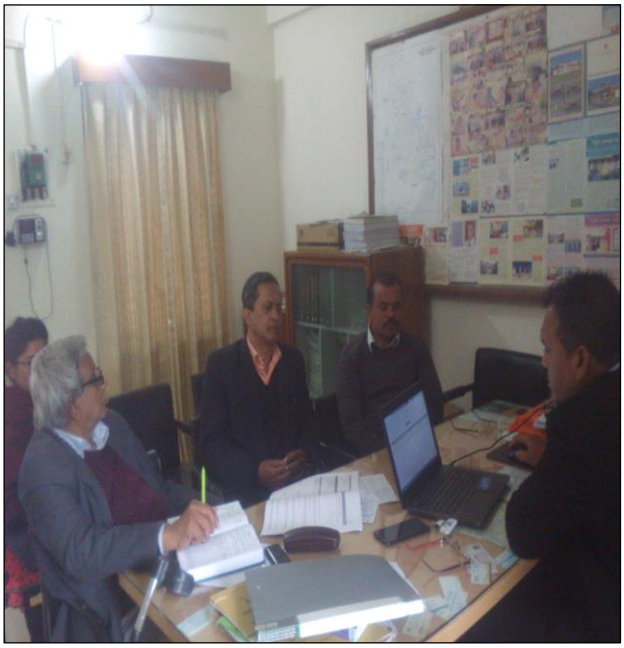
Upazilla Engineer briefed the Consultant about CALIP activities at Tahirpur, Sunamganj.


Md. Fajle Habib, XEN, Brahmanbaria discussing about CALIP activities with Consultants of Baseline Survey.


FGD secession with villagers at Barkapon, Kalmakanda, Netrakona.

Appendix 7

Dr. M. Maniruzzaman and Dr. ARM Momtazuddin, Consultant of EADS discussing with UE, Mohonganj, Netrakona.



Upazilla Engineer, Dharmapasha briefed the consultant team regarding CALIP activities.

Dr. M. Maniruzzaman, Team Leader of Baseline Survey interviewing AAO at Nikli, Kishoreganj.

Partial view of FGD at Nikli, Kishoreganj.