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Study Report on Selection and Analysis of Value Chains (Final)

For

North East Region



January 06, 2014

USAID's Climate-Resilient Ecosystems and Livelihoods (CREL)

Component 4: Improve and diversified livelihoods that are environmentally
sustainable and resilient to Climate Change

Winrock International

Acknowledgment

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Abbreviations

Acronym	Abbreviation
AED	Agriculture Extension Department
BADC	Bangladesh Agricultural Development Corporation
BARI	Bangladesh Agricultural Research Institute
BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka
BFRI	Bangladesh Forest Research Institute
BHMOA	Bangladesh Hotel and Motel Owner's Association
BRAC	Bangladesh Rural Advancement Committee
BRDB	Bangladesh Rural Development Board
BSCIC	Bangladesh Small and Cottage Industries Corporation
CCC	Co-Management Committee and Council
CMC	Co-Management Committee
CPG	Community Patrol Group
CREL	Climate-Resilient Ecosystems and Livelihoods
DAE	Department of Agricultural Extension
DFO	District Fisheries Officer
DLO	District Livestock Officer
DOC	Day Old Chick
DOF	Department of Fisheries
ECA	Ecologically Critical Area
ECOTA	Economic Corporation Organization Trade Agreement
EPB	Export Promotion Bureau
FAO	Food and Agriculture Organization
FAOSTAT	Food and Agriculture Organization Statistical Database (United Nations)
GDP	Gross Domestic Product
GI	Geographical Indicator
GOB	Government of Bangladesh
ICS	Improved Cooking Stoves
IDF	Integrated Development Foundation
IGA	Income Generating Activities
IPAC	Integrated Protected Area Co-Management
JDPC	Jute Diversification Promotion Center
MoA	Ministry of Agriculture
MOEF	Ministry of Environment & Forests
MOFL	Ministry of Fisheries & Livestock
MT	Metric Ton
NGO	Non-Government Organization
NP	National Park
NSP	Nishorgo Support Project
PA	Protected Areas
PF	Peoples' Forum
PPI	Pro-Poor Income
R.Ex.	Resource Extractor
RF	Reserve Forest

SHED	Social Health and Education Development
SME	Small and Medium Enterprise
SRDI	Soil Resource Development Institute
SWOT	Strengths, Weaknesses, Opportunities and Threats
TOR	Terms of Reference
ToT	Training of Trainers
TRIPS	Trade Related Intellectual Property Rights (TRIPS) Agreement
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
VC	Value Chain
VCA	Value Chain Analysis
VCF	Village Conservation Forum
WS	Wildlife Sanctuary
WTO	World Trade Organization
Bigha	33 decimal
Kani	40 decimal in Chittagong and Cox's Bazaar, 30 decimal in Sylhet region
Lakh/Lac	100,000
Sadar	Administrative center of a district
Upazila	Sub-District

Executive Summary

Background

USAID Bangladesh's Climate Resilient Ecosystems and Livelihoods (CREL) is a five-year project with the aim to scale up and adapt successful co-management models to conserve and protect ecosystems, improve governance of natural resources and increase resilience to climate change. The objective and mandate of the project is to strengthen the ability of the poor and disadvantaged who rely on forest and wetland resources to adapt to climate change, and to improve and diversify their livelihoods, through environmentally sustainable means. In order to identify the alternative livelihoods on which the project can work on, a value chain selection and assessment was carried out. The main objective of the study was to find out the potential value chains and analyzing the value chains to come up with strategies and interventions to ensure sustainable livelihoods for the project beneficiaries of southwest region that lead to reduce pressure on natural resources. The study was conducted in two phases where in phase-1, three potential value chains were identified that meet the project objectives and in phase-2, in-depth value chain analysis of the selected value chains were done.

Methodology

The study was conducted in line with the USAID guideline for value chain analysis as available on microlinks wiki (<http://microlinks.kdid.org/>) in almost every step. CREL proposed a series of criteria for value chain selection which was adopted by Innovision for the selection exercise. However, due to the special considerations for choosing climate resilient value chains for the project beneficiary who were already selected (listed), slight modifications were made to serve the project's purpose. In the first phase, we used funnel approach to identify and select three potential value chains for the region. The approach used five steps; first, we have reviewed relevant secondary literatures, interviewed CREL staffs and reviewed potential site-wise value chains identified by CREL regional staffs and develop a long list of value chains. Then using cut-off criteria the team has selected 5-10 value chains. The cut off criteria that used was '*Value chains that deplete forest and/or wet land directly will be ineligible for selection*'. Besides cut off criteria 12 more selection criteria were set and weightage assigned against each criterion. Then the team conducted a rapid assessment of the short listed value chains in the field. Overall, 18 in-depth interviews with influential stakeholders along with 7 FGDs with 91 beneficiaries were conducted. In addition, 100 beneficiaries were individually profiled to get a sense of their economic situation and available resources. The findings then were validated with key stakeholders and project staff in a validation workshop. The set of mandates and economic criteria were used to rank the attractiveness of the short listed value chains. Each value chain was given a score against every criterion. Then the highest scored value chains were selected for the region.

The main challenge of the study was to reach all the selected beneficiaries through the selected three value chains which was quite difficult as a significant number of beneficiary do not have minimum resource to engage in any value chain. In this context, consultation with CREL management, the consultants looked at other trades opportunity to the beneficiary for skill development along with the in-depth value chain analysis of the three selected value chains and nature based tourism. A separate report was generated for the nature based tourism.

For Northeast region, the selected value chains were Horticulture, Tilapia with Carp and Ducks (layer). Our estimation is that these value chains and trades will cover majority of the target beneficiaries, if not all of the target beneficiaries of this region. With the list of selected value chains, a team consisting of lead consultant, value chain analyst and research assistant went to the study region again; northeast. To analysis the selected value chains; the consultants followed the USAID microlink guidelines for value chain analysis. The value chain analysis covered end market analysis,

value chain mapping, constraints and opportunities analysis and strategies to address the constraints and utilizing the opportunities. In total, 247 respondents of different type of actors of these three value chains were interviewed in this phase to have in-depth information about the value chains.

Findings

In horticulture, the main focus is on vegetables with supplementary work on citrus. In vegetables, the focus is on year-round tomato, French bean (forash) for its long shelf life, eggplant for its consistent stream of income and other vegetables. Citrus, mainly lemons and in particular jara lebu has high demand nationally and scope for value addition, but is relevant only for acidic soil and takes 3 years for first yield. Tilapia with carp polyculture was chosen due to its high profitability and suitability for haor areas with challenge in addressing knowledge gaps and managing initial investment costs. Duck rearing, especially layer has optimistic outlook among beneficiaries. In addition, haor areas provide ideal conditions and quick income stream.

Sylhet is a region with diverse topography, from high hills to low depressions (haors). Situated next to the Meghalaya Mountains, it is often inundated by heavy rains and flash floods. The beneficiaries are situated close to Protected Areas, thus lacking proper infrastructure. Also, market gaps lie in value chains which would eventually harm the Protected Areas if they are developed – which would go against the Project Goal. They are also relatively less experienced and willing to engage in typical value chain activities due to their generational tendency to depend on natural resource extraction from said protected areas. The lack of skills, constrained resources and hesitant nature to engage in general value chain activities means the end-market gaps is not relevant to these beneficiaries.

For **vegetables**, the region is supply deficient with vegetables from Northern (Bogra and Mymensingh) and Southern (Jessore) regions coming in to fill the demand. However, local vegetables have a higher demand despite the higher price due to their 'freshness' and 'form', which are prime price determinants along with supply. Four vegetables were chosen: Tomatoes (summer tomatoes in focus), Eggplant, Taro (MukhiKochu) and Forash (French Bean). In each of these four vegetables, the project sites have natural competitive edge against outside competition and meeting the local demand alone is sufficient to bring about the desired changes in the beneficiaries' livelihood.

For **fishery**, the region is also supply deficient, despite abundant water bodies in Haor areas, homestead ponds and national market recognition of fishes from Sylhet. The aim is to develop both Carp and Tilapia poly-culture among the beneficiaries, especially those living in haor areas. Carp has national demand, is higher priced than Tilapia and has relatively less market-risk. Tilapia, on the other hand, has a quicker turnover, with 2/3 cycles per year, is more resilient with lower mortality rate, and requires less water to farm – making it ideal for farming in homestead ponds prevalent among beneficiaries especially in haor areas.

Duck eggs is an untapped market with strong local demand, giving steady income, is easy to maintain as ducks are resilient against diseases and beneficiaries can use untapped resources in low lands and haor areas.

The overall constraints lie in access to finance and lack of technical knowledge in production which prevents scaling up their homestead practices to commercial production. Also, challenging geography and lack of infrastructure support, like roads, increases transportation cost which makes reaching out to larger markets difficult. For vegetables, dependence on traditional cultivation technique prevents commercialization while in fisheries; a strong misperception persists that cultured fish cannot get market due to abundance of haor-caught fishes. In duck eggs, the product still serves niche market compared to chicken eggs and has not yet developed into a full value chain, rather a fragmented supply chain. Thus, beneficiaries have almost no idea about commercial duck (layer) farming.

Our strategies for addressing the constraints are centered on building the beneficiaries knowledge base on modern practices through training and generating willingness to commercialize through demonstration and exposure visits. In addition, access to finance is a cross-cutting issue which would require project-level initiatives to connect with financing institutions to develop loan packages matching the production cycles of the selected value chain. In addition, duck (layer) farming, cannot be developed into a full business with primary income-generating potential from its current stage within project duration. Thus, it is our recommendation to develop it as a secondary income source to vegetable farming or aquaculture.

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Part I: Introduction

1. Background and Context of the Study

Bangladesh is a country with dispersed scenic beauty throughout the country. Natural resources are abundant, especially in the rural areas. While maintaining a critical mass of forests, wetlands and other natural resources are critically important for the very survival of a nation, the reality is that a large segment of the rural inhabitants of Bangladesh depends heavily on extraction of forests, wetlands, rivers, and sea for their livelihoods. The poor, especially, those having limited or no access to land is dependent on these resources. High rate of population increase over last few decades has put an additional pressure on these ever depleting natural resources of the country. The current rate of extraction is already very high and unsustainable. The growing depletion of natural resources has been playing as a catalyst to unleash growing ordeal of climate change by many folds. The situation will almost certainly get worse unless a set of pragmatic interventions are undertaken to stop this extraction and facilitate reversing the process.

From March 2013, Winrock International and the partners have started implementing the Climate-Resilient Ecosystems and Livelihoods (CREL) project to conserve ecosystems and protected areas (PAs) in Bangladesh, to improve governance of natural resources and biodiversity, and to increase resilience towards climate change through improved planning and livelihoods diversification. CREL has targeted five broad geographic areas in Bangladesh to work in. The target beneficiaries are disadvantaged, poor / ultra-poor, women and youth who are highly dependent on natural resources. To achieve the broad goals, CREL intends to develop value chains in the target areas that can potentially reduce pressure on natural resources through enhancing livelihood of the target beneficiaries from alternative income sources. Consequently, Innovision Consulting Private Limited was assigned to execute the proposed study for value chain selection and Analysis for CREL.

2. Objectives

The objectives of the study are:

Phase 1: Analyze all potential Value Chains and select 4 Value Chains (including Nature based tourism which is preselected) for full analysis of the region according to the criteria mentioned below;

- Climate Resilient – Value Chains that are climate resilient and/or has the potential to reduce risk from climate change threats.
- Potential to reduce extraction of natural resources
- Ensured Market Demand and/or Opportunity to link with markets
- Potential to increase income of the marginal and vulnerable populations who have small amount of land or totally landless
- Potential to create employment throughout the value chain
- Potential to incorporate women and youth
- Potential to involve MSMEs
- Potential for growth
- Potential to be benefited from the available support services
- Suitable for the economically disadvantaged area particularly in the landscape/wetland area of CREL regions

Phase 2: A detail analysis of the selected value chains to get a vivid picture of each value chain and to formulate the strategy/interventions to strengthen the value chains and create scope for sustainable livelihoods.

3. Scope of Work

3.1 Geographic Scope

The assignment was carried out in the protected areas, core zones and buffer zones of the forests and wetlands in the following specific geographic locations:

Table 1: Geographic distribution of study areas¹

Regions	Districts	Upazilas	Sites
Northeast Region	Habiganj	Chunarughat and Madhabpur Chunarughat	Satchari NP Rama Khalenga WS
	Maulavibazar	Maulavibazar Sadar and Sreemangal Kamalganj and Sreemongol Kularua, Juri, Baralekha, Fenchuganj and Golapganj	Hali Haor Lawachara NP Hakaluki Haor ECA
	Sunamganj	Dharmapasha, Tahirpur	Tanguar Haor ECA
	Sylhet	Sylhet Sadar, Goainghat	Kadimnagar NP

3.2 Demographic Scope

We understood that the target beneficiaries for the project are disadvantaged poor/ ultra-poor households, including women and unemployed youth, dependent on natural resource extraction for their livelihood. To analyze the prospect for inclusion of these communities in formal value chains, it was essential that all existing actors in the prospective and selected value chains are interviewed as respondents in addition to the target beneficiaries. Therefore, the scope of the study included all value chain actors irrespective of their social and economic conditions, in addition to the core target beneficiaries of the CREL project.

3.3 Methodological Scope

3.3.1 The changing face of poverty

The general understanding of poverty has changed in the past two decades. It is now widely accepted that poverty is dynamic (people move in and out of poverty) and multidimensional (limited access to services and social networks are as important as insufficient incomes). Vulnerability is an important concept in understanding poverty. It relates to risk and people are vulnerable to poverty when they are more at risk than others, due to factors at household level (e.g. ill health), community/ regional level (e.g. drought) and national level (e.g. policies which affect the costs of goods and services).

3.3.2 Need for market-based approach

Establishing a new value chain or entering an existing value chain are both challenging endeavors for smallholder marginalized groups. Even if a market opportunity is recognized, smallholders still require entrepreneurship, business skills, education, and a range of other assets to start an enterprise to commercially compete with the market actors. Business and entrepreneurship skills and orientations are usually challenging to acquire in the rural areas particularly for the smallholder marginalized groups. There is often a high degree of illiteracy, poor understanding of market dynamics and market

¹ Terms of reference

interface, inadequate access to capital and finance, lack of appropriate resources such as land, tools and equipment, as well as poor negotiating skills and poor economy of scale that increases the difficulties faced by smallholders in starting up a value-adding enterprise. Thus, one-time solutions to the current problems facing these individuals lack lasting impact as the market dynamics change, bringing new challenges and new problems. Consequently, there rose a need for market-based approach which, instead of providing direct assistance to these individuals for immediate solutions; provides technical and facilitating assistance to enable the individuals to solve their current problems as well as future ones for a more sustainable impact.

3.3.3 Market-based approach: Challenges and opportunities

Although the focus of CREL has been to increase the participation of smallholder marginalized groups in higher-valued product value chains, a particular emphasis has been on the promotion of market-oriented, often of specialized products, with support from either the private sector or public sector, and facilitated through NGO's and other international development agencies. However, in such high-value product value chains, the targeted smallholders have limited control. Power is often concentrated among one or a few chain participants that coordinate market activity. As the high-value product is based on consumer assurance, high standards for quality and safety, competitive price, and reliability of supply, lead actors in retail or export often coordinate the value chain members. The ability of smallholder farmers to take the lead is limited, as is their ability to maximize economies of scale. The market is also constantly changing, requiring rural farms and firms to respond and innovate by, for example, switching market channels, changing how they are organized, or investing in equipment. Such value chains may thus be less appropriate for many smallholder actors, who may lack the ability to handle dynamic markets and comply with their increasing amount of cultures, customs, regulations and standards.

The focus is on identifying the potentials of local value chain development through in-depth analysis of successful smallholders.

Local value chains that meet growing local demand might be more within the reach of smallholders. Local markets may also be characterized by new consumer demands due to changing lifestyles and increased knowledge of the benefits of a more diversified products. Recently local value chain development has been advocated by environmentally conscious consumers demanding local farm products that they perceive as being of higher quality, leading to a rise in the number of specialty and local markets. Many producers have taken advantage of this trend by selling their produce at the growing number of local farmers' markets and/or directly to customers, thus creating local product value chains. The present study primarily focuses on identifying the potentials of local value chain development in the CREL working areas through an in-depth analysis of successful smallholder initiatives in local value chains that could give valuable insights on how to develop value chains based on local resources and context.

3.3.4 Need for Value Chain Analysis

Although Bangladesh presents a story of decline in rural poverty during recent times, coupled with expansion of the non-farm sector, a stagnant agriculture output (and also low productivity) as well as low growth in wages, the expansion of workers in the non-farm sector, though an encouraging trend about the potential of the sector in terms of employment, has however not demonstrated the capacity of the sector to provide growing wages and incomes to the workers. There is thus pressing need for looking more closely at the possibilities of promoting rural livelihoods in specific regions such as the working areas of CREL. The present study may thus be seen within the above larger canvas of poverty, livelihoods and employment.

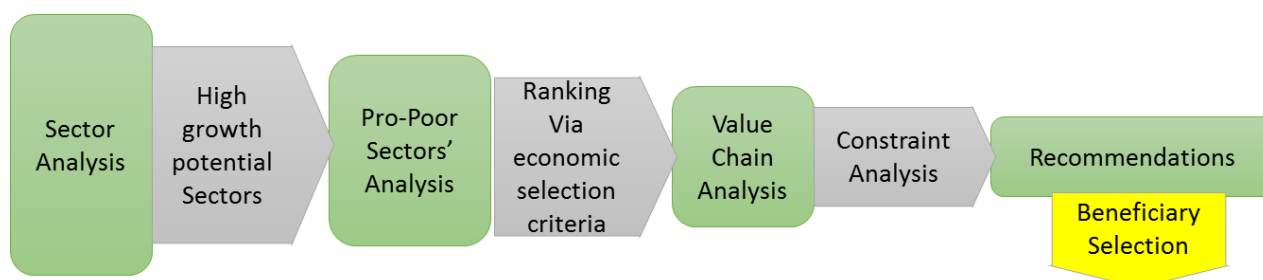
3.3.5 Climate Resilient Value Chain Analysis

The objective of the project is to strengthen the ability of the poor and disadvantaged who rely on forest and wetland resources to adapt to climate change, and to improve and diversify their

livelihoods, through environmentally sustainable means. The study was aim to identify three potential value chains that have significant income increase and employment opportunity for the CREL targeted beneficiaries who are already listed by the project.

In traditional value chain analysis process we start at the end-market to find the most lucrative pro-poor value chains and then work backward through the value chain to reach the beneficiaries of the selected value chains, wherever they may be. The process is summarized below:

Figure 1: Normal Value Chain Process



However, this process is not perfectly suited to VCA for Climate Resilient Value Chains due to the following reasons:

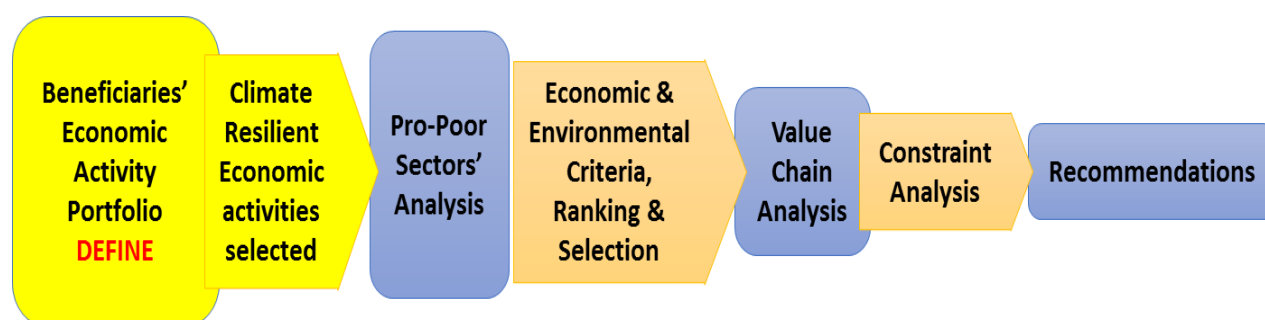
1. The beneficiaries of CREL have already been selected, limited to specific areas.
2. They live within Protected Areas, which due to infrastructural challenges and special institutional constraints mean that the identified end-market is often completely irrelevant to their current economic situation.
3. The project has diversified and wide range of working areas (4 regions with 23 sites, 1000 Village conservation forum, 45 Co-management committee, 8 RMOs) adjacent to protected and wetland area.
4. Location and beneficiary of the project are preselected and their capabilities well known
5. The selected value chains should have climate resilience and supportive to the natural resource management
6. The value chains should have year round income opportunity with a minimum market facilities and support to better NRM
7. Most disaster prone and vulnerable location VS functional market
8. Sustainability VS local practice and behavior
9. Value of Natural resources VS opportunity of exiting localized market
10. Many of the constraints are known like- commercial practice, private sector interest, volume of production, scale of production, assets, access to support market, vulnerability extent, survival condition, existence of market player and infrastructure, stakeholders
11. Region specific target beneficiaries to reach through value chains
12. The project will not provide any direct subsidy to the beneficiaries
13. The project has a provision of skill based capacity building

So we have limited scope to look at the community level rather look at the specific households who are listed as CREL beneficiary. We have kept our lens on the beneficiary of the project not to the region. In this context, we had to have preliminary idea about the CREL beneficiary's economic activities, experience in different income generating activities, existing resources and their demographic status. But in the traditional value chain analysis we need to start from the sectors where we identify the value chains that have maximum participations of the project target people who are not identified initially. Besides, if we follow the normal value chain analysis approach there might be a chance to select a value chain that have higher growth potential but low participation of the CREL targeted beneficiaries. For example, in Southwest region, Shrimp value chain has highest income increase opportunity and also has good growth potentiality but no participation of the CREL beneficiaries. This value chain is not suitable for them as well as its need high investment and

improved technical know how for cultivation. The geographic dispersion of the project sites and dissimilarities of the project beneficiary interms of available resources and skill in potential value chains guide us to do the clubbing of potential value chains where multiple value chains were clubbed together to ensure maximum participation of the beneficiaries. For example, under vegetable value chain we clubbed different vegetables like raddish, okra, chili etc. that ensured maximum outreach for the project.

This approach was slightly modified in the value chain selection phase considering the special features of CREL project. The study began by looking into the beneficiaries' economic activities first and then narrowing down the choices based on both economic potential and climate resilience to few VCs for deeper analysis via a rigorous selection process. The process is summarized below:

Figure 2: Climate Resilient Value Chain Process



3.3.6 Advantages of Livelihoods Development with Value Chain Approach

The key advantages of combining livelihoods and value chain analyses are summarized as follows:

- Livelihoods analysis goes beyond costs and prices, income and consumption to provide complementary information to assess (rather than measure) the choices that people make in particular contexts. It helps in explaining what is sometimes termed “weak supply responses” to trade liberalization, for example, when farmers have not responded to higher prices on one crop by producing more of it. It recognizes that other outcomes besides increased incomes are important to people – for example, food security, or more secure rather than higher incomes, or a more sustainable use of natural resources. It allows an assessment of possible trade-offs between outcomes.
- Value chain analysis, provides an essential picture of how the local smallholders interacts with the large markets and the way in which some firms may influence the workings of actors in other parts of the chain. The way in which pressure on prices and costs are often transmitted from retailers to producers has a critical bearing on the potential for enhancing livelihoods through supply chains for particular products.
- As a result both livelihoods and value chain analyses were combined and at the same time the entire assessment was conducted in a participatory way – either in the sense of generating data and understanding with different stakeholders or more powerfully, facilitating learning and action by people who are targeted by particular economic and trade issues based on the market dynamics. It was observed that increasing the involvement of different stakeholders, particularly those who are usually marginalized, contributed more in effectively in the process of designing interventions for income generation.

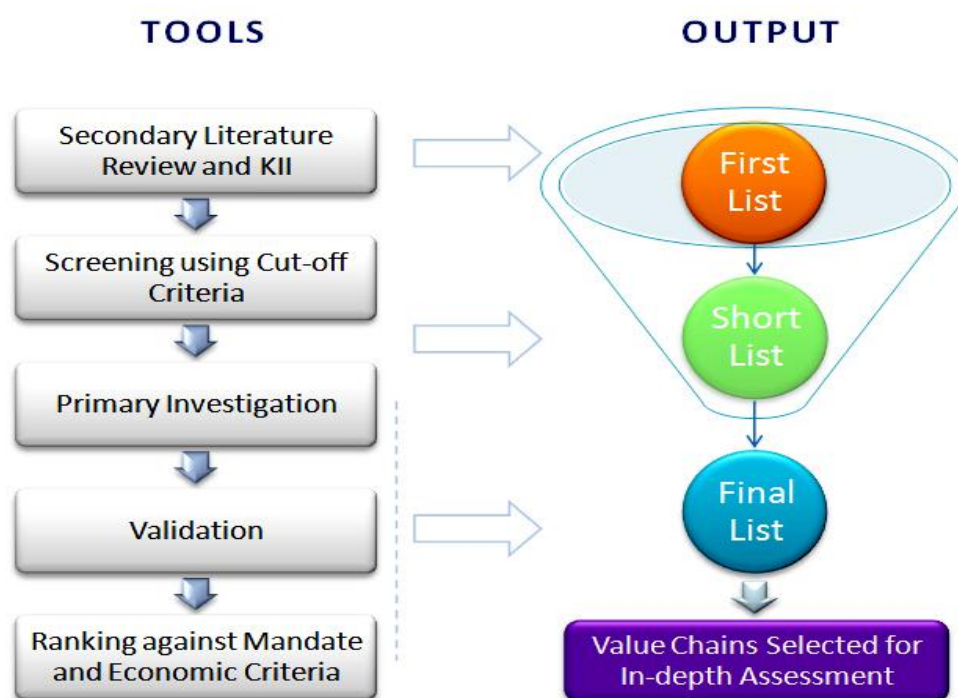
4. Methodology

The study was conducted in two phases where Value Chain Selection in Phase-1 and Value Chain Analysis in Phase-2. In each step of the process, the project personnel of CREL worked with the team in every step, validating the outcomes at each step.

4.1 Approach of the Value Chain Selection

Innovision used a funnel approach to identify, analyze and select potential value chains for a project intending to invest in value chain development. The approach (figure 3) uses five tools to generate three outputs the last of which are final list of value chains selected for in-depth assessment to design interventions of the project.

Figure 3: VC Selection Funnel- The Step by Step Approach for Value Chain Selection



4.1.1 Secondary Literature Review and KII to generate first list of potential value chains and value chain Selection criteria

The consultants reviewed all relevant literature on value chain analysis, sector and subsector studies, CREL project papers, policy documents, case studies that are relevant to development interventions in the selected regions. Several key informants interview were also conducted at this stage to develop the first list of potential value chains. The key informants also included CREL staffs having significant experience on value chains in the selected region. A first list of potential value chains for each region was developed.

Based on the literature and interviews with the CREL staffs, one cut-off criteria and twelve criteria for value chain selection were developed.

The cut-off criteria are usually those that are highly related to the project's mandate and therefore its capacity to deliver results. It is noted that the cut-off criteria are used so that value chains in which the project has least scope for contribution are eliminated. This helps increase relevance and efficiency of the screening process. The Cut-off criterion that was used in the screening of the first list of value chains is given below:

Value chains that deplete forest and/or wet land directly will be ineligible for selection

The relative weightages were given to each of the selected criteria based on the importance in consultation with CREL team. The following table depicts the definition, relative weightage and justification for each of the selected criteria:

Table 2: Criteria Definition, Relative Weightage and Justification

Criteria	Definition	Weight	Justification
Climate Tolerance (Low tolerance=1 High tolerance=5)	Climate tolerance is the ability of social or ecological system (<i>inside the value chain</i>) to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization, and the capacity to adapt to stress and change. (IPCC.ch)	3	If there is low climate tolerance, it will likely have high resource requirements and thus not be chosen. Non-resilient crops will already be eliminated by the cut-off criteria.
Climate Resiliency (Low resiliency=1 High resiliency=5)	Climate change resilience is the capacity of an individual, community, or institution (<i>within the value</i>) chain to dynamically and effectively respond to shifting climate impact circumstances while continuing to function and prosper. (IPCC.ch)	3	Climate resiliency is one of the core mandates of CREL project which leads to its high weightage
Resource Extraction Minimization (Not minimized=1 Highly minimized=5)	The chosen value chain must reduce and minimize the pressures on the natural resources in the environment; it should be a more eco-friendly alternative to their current income-generating activity.	5	Since this is one of the core objectives of the project, it has the highest importance
Women and Youth Inclusion (Low inclusion=1 High inclusion=5)	The value chain involves women and youth in its operation and creates employment opportunity for them.	5	This is also one of the core project aims and thus has high weightage
Outreach (Low outreach=1 High outreach=5)	Number of beneficiaries the developing the value chain would directly and indirectly impact.	2	While being one of the main indicators of the Project's success, since the beneficiaries are limited within very specific areas, the outreach number is not the most important aspect of the project.
Growth potential (Low growth=1 High growth=5)	This criterion measures the estimated feasible demand for the value chain product/service in the local, national or international market and growth trend of that market.	5	One of the core market criteria, it is crucial for the chosen value chain product/service to have a lucrative and growing market to attract beneficiaries away from their current source of income. Entering a new source of income requires investment in terms of time, labour and money for tools, inputs etc. The value chain product/service must have clear potential to convince the beneficiaries that it will be worth it.
Income (Low income increase=1 High income increase=5)	Potential monthly income to be generated from choosing the listed value chain: <ul style="list-style-type: none"> • Area farmed • Yield • Cost of production • Quantity sold • Revenue 	5	Regardless of how climate resilient a value chain may be, it must generate significantly higher income than their current source, or it will not be adopted. Thus, the highest weightage is assigned.
Private sectors participation	The presence of private sector firms who are willing to promote the listed product/service	3	Presence of willing private sectors is important for the feasibility of intervention in an M4P approach to value

(Low interest=1 High interest=5)	and work with the beneficiaries to develop the production base or market channel.		chain development. However, generally if private sector firms are not present, they can be found and involved through linkage building interventions, while project support with financial and human resources makes them willing to cooperate. Thus, it is not as important for this factor to be present for value chain selection.
Development priorities and favorable policy of government (Low priority & favorability=1 High priority & favorability=5)	Government departments and offices located within project area along with others providing support services like NGOs and other project offices.	3	The project areas all lie close to protected areas identified by the government. Thus, there would be additional restrictions and legalities concerning economic activities, project operations etc. In particular, development of new value chain of products/services might be of particular interest to the government's policies concerning these areas. Thus, it is important for the chosen value chain to have the approval of the government policies and their favorability would be an added advantage.
Synergy and potential collaboration (Low synergy=1 High synergy=5)	Complementarity of value chain with other projects in the area	3	Protected areas remain in focus for other projects and initiatives. As such, if the chosen value chains match those of other projects, there lies a scope for CREL to collaborate with them for synergistic impact on beneficiaries.
Risk (High risk=1 Low risk=5)	<ul style="list-style-type: none"> • Entry barrier • Capital intensive • Business risk <p>Every value chain would have its own risk of failure attached with it. Generally, economic activities with greater risks and greater investment also have greater profits. This criterion would judge the potential return in each value chain in terms of sustainable income versus the risk of failure.</p>	4	Considering the beneficiaries, who are very poor, the value chains selected must balance investment with return. The income generated from these potential value chains should be sufficiently higher than their current source while keeping the investment requirements and other risks low in order to make the beneficiaries willing to change. The project aims to facilitate these transitions and assist in minimizing the initial risk with better knowledge, market access and support services. Thus, slightly higher risks should not be a factor for which a value chain should be discarded; resulting in its lower weightage compared to other criteria.
Scope for value addition (Low scope=1 High scope=5)	This criteria judges the scope for developing the beneficiaries' current source of income to move them to a product/service with higher value addition	3	Current beneficiaries are involved in value chains which are not dependent on natural resource extraction. However, due to the limited income from them, they also engage in other activities of resource extraction to supplement their income. If these value chains can be developed for higher value addition and thus higher income, the beneficiaries would be more willing to stop or minimize the resource extraction based activities. However, these value chains may be promoted regardless of value addition since they do not depend on natural resource extraction and it will be more feasible to encourage income generating activities the beneficiaries already do rather than move them to a completely new one. Thus, a relatively lower weightage is assigned compared to other criteria.

4.1.2 Screening using cut-off criteria

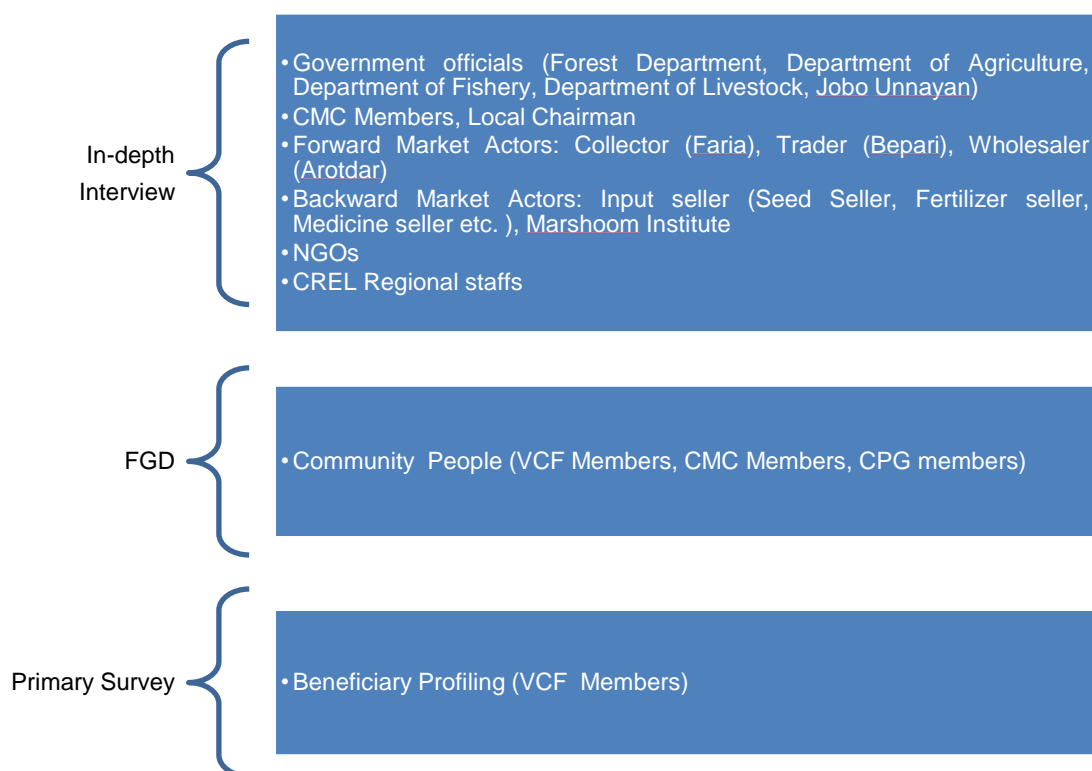
Once the first list of value chains developed, a short list of value chains is derived by using the cut-off criteria. That is, the value chains that have passed through the cut-off criteria were selected for the next step. A list of 8-10 value chains were selected for the region.

4.1.3 Primary Field Investigation

Once the short list was developed, the consultants prepared a checklist in light of the criteria that would be used to compare the attractiveness of the potential value chains. This checklist was used to collect information on all the short listed value chains in each region. During the primary investigation, the consultants conducted in-depth interviews with government officials, forward market actors and backward market actors in the region and in the country, NGO staffs, staffs from other projects engaged in the region and CREL staffs. In this stage, a beneficiary profiling is also conducted through

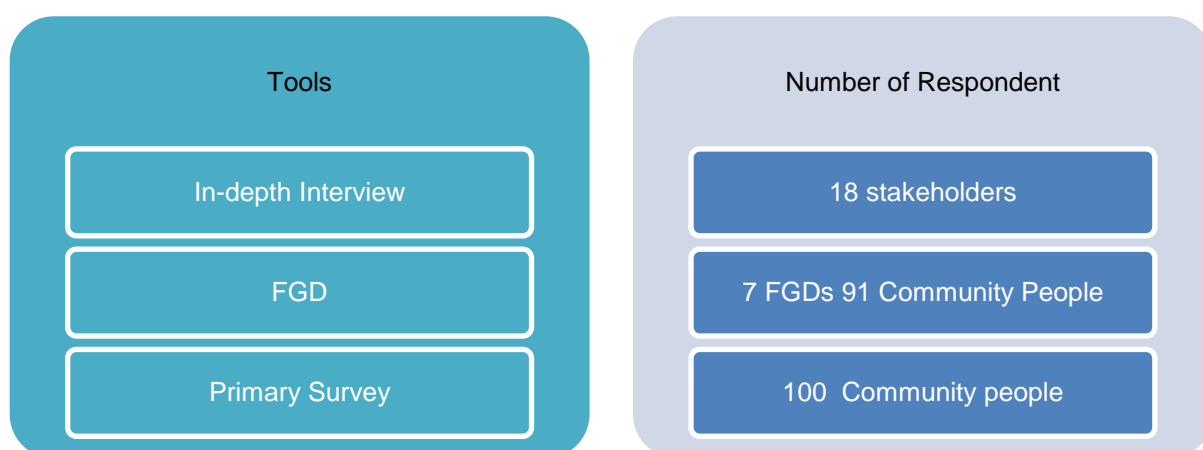
the CREL regional staffs to have better understanding about the community people. Besides, project staffs were also joined in the primary investigation with the consultants and were updated about the findings. They had provided necessary recommendation to the consultants on the field. The tools that were used in the primary investigation and also the type of respondents in field are shown by the following chart:

Figure 4: Respondent Type



The following table summarized the total number interviews conducted in each zone:

Figure 5: Type of respondents



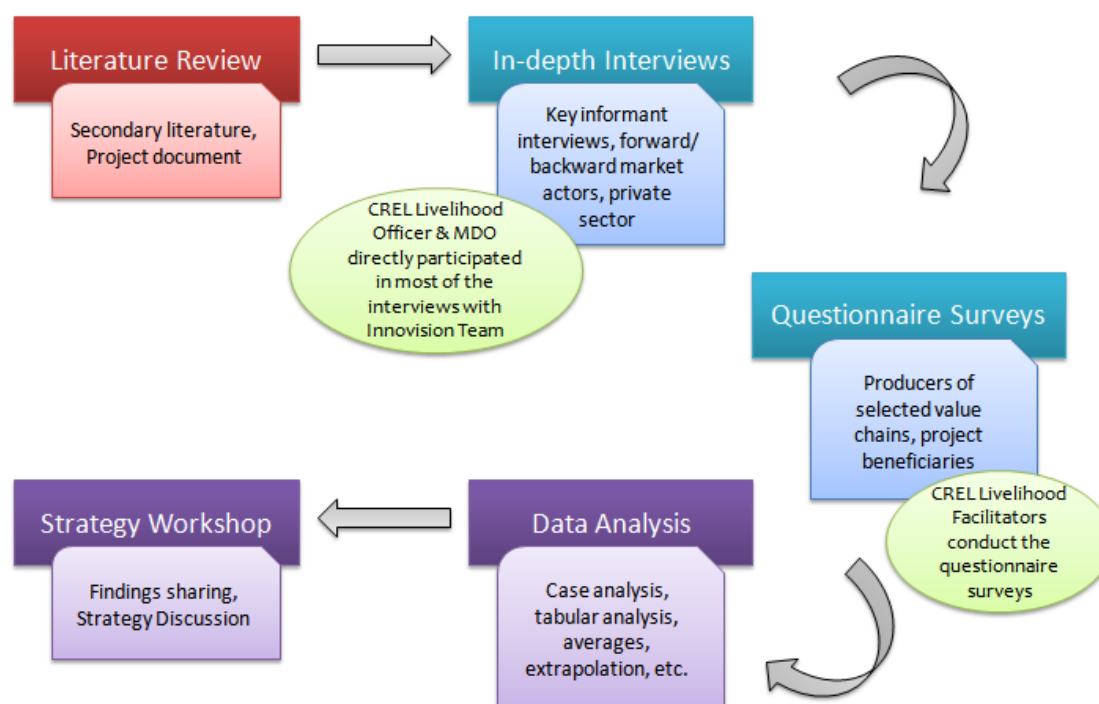
4.1.4 Validation Workshop and Ranking Exercise

After completion of field investigation the information were duly analysed and a daylong validation workshop was organized in Khulna where CREL staffs, different government officials of relevant fields, project beneficiaries, representative of local government, representative of CMC were present. The field findings were shared in the workshop and validated by the participants. Then a ranking exercise was conducted with the direct participation of participants and the top three value chains were derived based on the highest ranking.

4.2 Approach to Value Chain Analysis

Once the value chains were selected, we began with the analysis. The study process started with the literature review, followed by in-depth interviews and questionnaire surveys. The accumulated data was then analyzed and shared in the strategy workshop.

Figure 6: Steps of the Study Process



4.2.1 Literature Review

Literatures from different secondary sources like value chain reports, journals, government publications, newsletters on vegetables & medicinal plants, fruits, sunflower, fisheries, handicrafts, etc. were studied to have a preliminary understanding on the end market, market segments and market potential of the value chains. Besides, the key informants for the value chains, different market actors, regulatory and development stakeholders were also identified through the literature review. The key-informants included stakeholders at different levels of the value chains like government officers, private sector representatives, researchers, NGO personnel, and projects who are working directly with these sub-sectors. A set of checklists for key informants and different value chain actors were developed at this stage of the study. It was also used as the guide to identify the production clusters, major markets and hence in designing the field plan for the in-depth interviews.

4.2.2 In-depth Interviews

In-depth interviews were taken of the different value chain actors of Vegetables, Culture Fishery and Duck Layering at both the national and regional levels. The purpose of the in-depth interviews was to gather facts and information on the market systems of the aforementioned value chains to gain a more qualitative overview of the sub-sectors. The workshops and in-depth interviews helped the team to develop a general idea about the existing value chains and also to comprehend the market prospects, the constraints, and the strategies to ensure sector growth and also to identify the potential partners for the project to some extent.

The in-depth interviews were conducted on the program areas in three districts in North-East regions for the comprehensive situation analysis of the selected value chains. There was a team of four personnel (consultants & associate) engaged in the study. The team covered North East Region comprised of Sylhet, Maulavibazar and Habiganj districts. The program areas located in the predetermined sites were taken under the geographic coverage of the study.

For assessing the value chains, a set of checklists of different value chain actors was used. A total of eighty one (81) respondents of different tiers of these value chains and support functions were interviewed through snowball sampling technique². The respondents included **backward linkage actors** like feed sellers, spawn sellers (fishery); seed sellers, nurseries, fertilizer and pesticide sellers, other agro input sellers (fruits, vegetables, sunflowers); **producers**(farmers, artisans); **forward linkage actors** like farias/paikers, arotdars, retailers; and **support functions** like government bodies.

Table 3: Category of respondents

Actor	North East Region
Backward Linkage Actors	7
Producers	28
Forward Linkage Actors	40
Support Function & other actors	6
All	81

4.2.3 Questionnaire Surveys

Alongside the in-depth interviews, a set of questionnaires for quantitative surveys were designed for producers of the three selected value chains to capture the core issues in greater detail and quantifiable terms for analysis. Most of the respondents in the regions were interviewed during the in-depth qualitative assessment.

A full day orientation session was facilitated by the team leader accompanied by the whole team, for the program staff in each region, to brief them about the objectives of the research and the method of data collection. The session included briefing on the specific objectives of the study, presentation on the selected value chains, introduction of the different value chain actors, detailed field plan, sampling method (snowballing), team composition, and debriefing of the questionnaires and checklists, including rehearsal and mock sessions.

Seventy (70) producers of the selected value chains and thirty (30) extractors and other value chains actors were chosen from the project sites of the study region. Data collection was conducted with the structured question guides along with prepared checklist for face to face interviews. For acquiring more information from geographically distant locations, data have been collected by the project staff working in those particular program areas and sites. The core team directly participated in data

²Snowball sampling is a non-probability sampling technique where existing study subjects recruit future subjects from among their acquaintances.

collection process initially to facilitate the staff and ensure quality of the survey. Another sixty six (66) producers of these value chains were interviewed for cost benefit analysis of the selected products. The project staffs directly participated to collect the information on the cost benefit analysis.

Table 4: Composition of primary data collection

Questionnaire Survey	North East Region
Producers	70
Extractors and other value chain actors	30

4.2.4 Data Analysis

The analysis of the collected data included: End Market Analysis, Value Chain Mapping and Opportunities and Constraints Analysis.

End Market Analysis

The end market analysis showed the market opportunities, gap in demand and supply and scope for value chain upgrading to be undertaken by the project. It involved an extensive consumer market research. Since a full scale consumer market research was too broad and resource intensive for the time and scale of this study, the study relied more on secondary information and information collected from value chain actors like retailers, wholesalers and collectors to get the information required for the end market analysis.

The analysis revealed the different market segments, size and share of the market segments (for the local, regional, national level markets), growth trends and gap in the end market.

Value Chain Mapping

The value chains selected in the 1st phase (selection of value chains) were scrutinized in the second phase and value chain maps were developed to illustrate channels through which the product flows from the conception stage to the production stage and finally to the end consumers through the traders. It identified the actors and support service providers, their roles and interactions within the value chain, and their performance. The maps revealed the scopes to upgrade and the bottlenecks in the value chains that restrict up-gradation.

The mapping was done based on the findings unearthed from the in-depth interviews and questionnaire surveys conducted through snow-ball technique.

Constraints and Opportunities Analysis

After mapping the selected value chains of different regions, the opportunities to include the target beneficiaries into the value chains while conserving the ecosystem and climatic condition in the target geographic areas were identified. A comprehensive cost benefit analysis has been done on each and every specific product in the selected value chains on specific sites under each of the regions. This cost benefit analysis revealed the strengths and weaknesses of every sub-sector to be worked on. As the geographical, topological, and climatic environment vary from site to site, the sub-sectors with high prospect in the program areas differed.

After identifying the opportunities, the study identified the reasons for which the beneficiaries are not utilizing the benefits of the value chain opportunities. The systemic dysfunctions in the market systems within the value chains that hinder a profitable and sustainable inclusion of the poor people were identified and a problem tree analysis was conducted.

Aside from identifying the value chains, the study identified the income generating activities (IGA) in and around the program areas. Analysis for each IGA has been done to illustrate the feasibility of execution and inclusion in the intervention strategies. These IGAs are for the consideration of CREL management to be used for the beneficiaries that cannot benefit for value chain development activities in the selected value chains immediately.

4.2.5 Strategy Workshop

The findings and analyses were shared over a half-day strategy workshop. The valuable inputs from the core team members of CREL and the supporting allied organizations were taken into account to validate the findings and complete the analysis. In addition, broad intervention strategies were discussed in the open forum. The participation of all stakeholder organizations relevant with the project inspired the study to be aligned with the core objectives of the project. The outcome of the discussion was region-wise intervention strategies formed by the regional staff of CREL and guided by Innovision team.

**Part II: Value Chain Selection for Northeast
Region**
(Sylhet, Maulavibazar, Habiganj and
Sunamganj)

5. Value Chain Selection for Northeast Region

5.1 Climactic Assessment of the Target Area

5.1.1 Overview of Natural Resources and Biodiversity in the Area

Sylhet is one of the distinctive regions in Bangladesh. The region constitutes hills and basins. At the center there is a vast low laying flood plain of recent origin with saucer shaped depressions, locally called Haors.³ Multiple forests are present within the region, with Khadimnagar, Shatchari and Lawachara among its protected areas. The tropical evergreen and semi-evergreen forests are more prevalent on the lower slopes of the hills from the plain land up to 600 meters. Freshwater swamp forests, completely inundated during the rainy season, are often called 'reedlands' (locally known as *Pajuban*) due to the predominance of reeds like Nal, Khagra, and Ekra (*Eranthus ravannae*).

Forests form a crucial point of biodiversity. For example, biological diversity in the Lawachara National Park consists of 460 species, of which 167 species are plants, 4 amphibian species, 6 reptile species, 246 bird species, 20 mammal species, and 17 insect species. 159 plant species were studied in 2010. It includes 78 species of trees, 14 species of shrubs, 42 species of herbs, and 25 species of climbers. The western hoolock gibbon (*Hoolock hoolock*) is a higher primate found in Bangladesh. It is one of the top 25 most endangered primates and one of the six non-human primate species found in Lawachara. The Lawachara population is considered of critical importance as it is likely to be the last viable population of western hoolock gibbons that will survive into the next century.⁴

Apart from forests, haors or wetlands are also a source of biodiversity. This can be seen in Hakaluki haor, one of the biggest haors in the country and considered as one of the four major “mother fisheries” in Bangladesh. More than 100 fish species have been recorded in the Haor, approximately one third of which are listed as endangered.

Hakaluki Haor ecosystem also supports at least 73 species of wetland vegetation, which is nearly half of the national total of 158 species of vegetation (Choudhury and Faisal, 2005). The flora of Hakaluki Haor is a combination of ecologically important remnant swamp forest and reed lands although many of these species including vegetation are now largely absent.

The Haor is also the home for globally significant waterfowl especially, large number of migratory duck species that pass the winter season in the EGA. Hakaluki Haor is rich in wildlife resources also. There are a number of varieties of mammals and reptiles including snakes, frogs, turtles, toads, tortoises, Irrawady Squirrel, and the Gangetic Dolphin that inhabits in the Kushiara River.⁵

5.1.2 Environmental and Climate Change Issues in the target area

The climate of Sylhet division is humid subtropical with a predominantly hot and humid summer and a relatively cool winter. The annual average rainfall in the region is 3334mm, highest in Bangladesh. 80% of the rain occurs between May and September, often causing flash flood, sweeping agriculture crops and farmed fish. The foggy winter sometimes deters the growth of tomato and some other winter vegetables albeit only for a brief period.

³<http://en.wikipedia.org/wiki/Sylhet>

⁴http://en.wikipedia.org/wiki/Lawachara_National_Park

⁵<http://forestrysust.blogspot.com/2009/04/hakaluki-haor.html>

5.2 Community Profile of the Target Area

5.2.1 Beneficiary Profile

Extreme poor households, landless households, forest dependent people, ethnic community, large households and families without regular income represent the biggest yet most vulnerable portion of population living in the target areas. This indicates the project is appropriately pro-poor. We conducted a household survey with 100 of these people, as well as, included 91 of them in Focus Group Discussions. We have tried to develop an initial profile for these

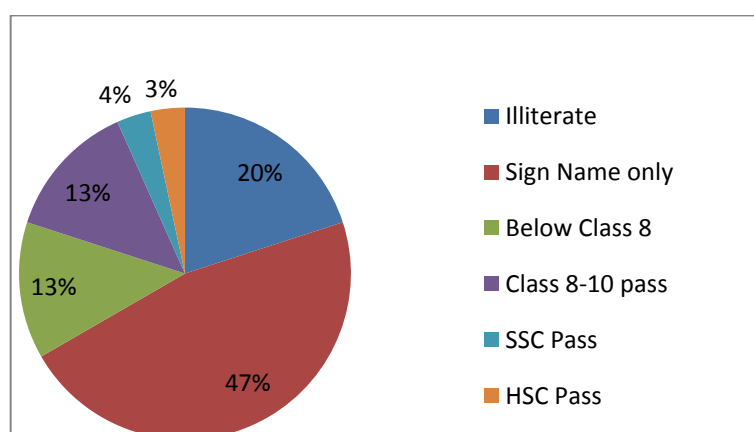
Table 5: Age group⁶

Age Group	Male	Female	Total
Below 18	56%	44%	50%
18 to 33	39%	61%	21%
34 to 60	55%	45%	25%
Above 60	13%	88%	4%

target peoples from the findings from the survey and the FGDs.

In terms of demographic information, the beneficiaries are gender balanced with 50:50 distributions. Half of these household members are below 18 years old, with 21% being in age group of 18 to 33 and 25% being in age group of 34 to 60 years. This shows the beneficiary group is relatively young with strong potential workforce and further growth in the future.

Figure 6: Literacy Status of Beneficiaries



Source= Primary Data: beneficiary profiling

Literacy status of beneficiaries was found to be very poor. The largest portion of these beneficiaries can only sign their names (47%) with 20% being illiterate. Only 26% have passed class 10 while 6% have passed SSC or higher. Due to this lower level of education status, their entry into conventional service sectors is very limited, as per the beneficiaries in the FGDs.⁷

Examining the economic status of the beneficiary households, it was

found that, average family income per year was 76,941 BDT. In these households, on an average, 3.3 persons are dependent on income of one person. Average annual family expense was found to be almost eight thousand taka.

Table 6: Economic status⁸

Average Number of Family Members	6.9
Average Number of Earning Members	1.6
Dependency Ratio	3.3
Average Annual Family Income (BDT)	76,941
Per Capita Per Day Income (BDT)	30.97
Average Annual Family Expense (BDT)	79,920

⁶ Primary Data: Beneficiary Profiling

⁷ Primary Data: Beneficiary Profiling

⁸ Primary Data: Beneficiary Profiling

5.2.2 Infrastructure and Operating Environment and market structure

Road communications are quite extensive in Sylhet division. The districts, upazilas and most unions are inter-connected by paved roads. However, monsoon floods often submerge the connected roads and many unions/upazilas become isolated from the main lands. This forces the inhabitants of the isolated localities to use watercrafts as a convenient means of transport and keep the trades open.

Electricity: Vola district and Sylhet division are the two surplus electricity producing area in Bangladesh. In current fiscal, electricity production in Sylhet was around 400-500 megawatt per day (Power Cell; PDB). Nevertheless, remote areas like Rema-Kelenga, remains out of connectivity and the well-off people in the area use solar, the green technology, perforce.

Market Structure: Market structure is strong across the region. Every, locality has access to more than one haat/bazaars for buying inputs or selling locally produced agro-products. There are also specialized markets to serve the local production hubs of specialty or niche products (e.g. there is a bazaar for citrus and pineapples near Lawachara).

Storage, Chilling and ripening facilities: Sylhet region is quite inadequate of chilling and storage infrastructure. Vegetables and highly perishable dairy products are constraint by lower market access due to short self-life and inadequate storage facilities across the region.

5.2.3 Status of Natural Resource Dependency

Over 30% of the target population is significantly dependent on protected areas (forests and natural depressions) for livelihoods. The type resource extracted differs between forest and haor areas. In forests, the main resources extracted are fire wood or *lakri* and grass and leaves for cattle grazing. In Haors the resources are fish, water hyacinth, grass, water lily and aquatic plants. It must be noted that haor fishes have high-value national demand with niche markets in urban centers of Bangladesh. Overall, the average value of extracted resource is BDT. 30,934 per year.

5.2.4 Engagement in Commercial Activities

About 100% households are engaged in homestead vegetable gardening, cattle rearing and poultry farming following subsistence approach. More than 90% of the target households are engaged in seasonal agriculture farming; about 30% target households have access to small, non-purpose built water bodies and majority of them are engaged in subsistence aquaculture (primarily, carp and small indigenous species). The agriculture sector cannot provide employment to the members of the target households for around 3-4 months (starting from July). A large number of target people then leave their villages in order to look for alternative livelihood options in off-farm sectors such as brick making, building construction, garments manufacturing, rickshaw pulling, van driving etc.

5.3 Value Chain Selection

5.3.1 Long list of value chain activities

A three member recon team visited six sites and conducted focused group discussions with the VCF members, had in-depth interviews with key informants (mostly DAE, DOF, DLS, DOE and Forestry officials,) and market actors at different levels to come up with a list of value chains that pass through the cutoff eligibility criterion – (The sectors that destruct /deplete the conservations are not eligible for selection for development). Accordingly, the lists of the eligible value chains are:

1. **Vegetables:** Sylhet is a vegetable deficient region. Every day, scores of trucks loaded with varieties of vegetables enter the region from vegetable surplus zones like, Narshingdhi, Comilla, Bogra etc. The vegetable price in the division is largely set by this influx from other divisions. For easy accessibility of externally produced vegetables, price of most vegetables is comparatively lower in cities and towns than in remote areas. Most rural households are engaged in vegetable farming in Sylhet. However, the productivity is low primarily due to poor farming practices and widespread use (80%) of low yielding farmers' retained seeds. The study team identified the following as top vegetable crops in the region:
 - French bean: Over 400 % return on investment, long shelf life easy to store and transport; gaining popularity as a staple crop and has export potential.
 - Tomato: Widely popular in the region with expected rate of return over 300% in farmers end. Has potential as summer crop (demand for summer tomato is high in the region and a large part of this demand is met through importing the crop from the neighboring states of India.
 - Eggplant: Eggplant is a base vegetable in the area. It can generate a steady flow of weekly income for the farmers for a period of 15-20 weeks. A perfect homestead crops with high involvement of women.
 - Radish: A high value short duration crop with moderate production and marketing risk.
 - Taro: A high value popular crop with low production and marketing risks. High level of profitability
 - 78% of beneficiaries have prior experience and skill in working with these vegetables and other agricultural products.
2. **Fruits:**
 - Citrus: Sylhet is the production hub of citrus (Lemon, satkora, Jara, Great fruit etc).The acidic soil of Sylhet (pH 4.5-5) is ideal for citrus growing. Expected return is very lucrative over 100% IRR for common (seed-less) citrus produced in Jainta, Satchara, Lowachara etc. It also has value addition potential (farmers produce Jara Lebu under contract farming agreement with lemon processors)
 - Papaya: Widely popular fruit, produced in several target sites.
3. **Aquaculture:** For fish, Sylhet largely depends on, Narshingdhi, Mymensing and Jessore. It's a growing sector in Sylhet; demand, supply and price of fish are increasing in the area. About 30%of the target households have access to water bodies for adopting this lucrative livelihood option. The base of the sector is still low with high potentials for the early entrants. Farmers have easy access to fries and fingerling for stocking in on-grow farms.
 - Carp: Moderate yield with lucrative market price. Easy market access. Less susceptible to diseases
 - Tilapia: commercial crop with high yielding potential. Local inhabitants are gradually acquiring the exotic test of the species. Often farmers sell their harvests, in pond site.
4. **Livestock:** Cattle rearing are common in the rural Sylhet. The approach however, is subsistence.

- Dairy: Majority of target households have cows (or heifer). The milk production per cow is quite low (average; less than 1.5 liter/day per cow). Low self-life is the key constraints for market access. The farmers follow low input, low output strategy to avoid marketing risk.
- Beef fattening: Again the same proven approach; a classic example of risk aversion mind set. In rural Sylhet, the cattle serve as the asset base rather than a business investment.
- 48% of beneficiaries have prior experience and skill in cattle rearing.
- Duck Layer: Some entrepreneurs have broken the tradition and have shown the entrepreneur courage. Duck farming can provide, quick income stream. Farmers have access to high quality day-old-chicks and branded feed. With improved management techniques, the duck farmers are supposed to be the winners. However, most commercial farmers are new and yet to understand the nitty-gritty's and nuances of the business.
- 41% of beneficiaries have prior experience in duck rearing.

5.3.2 Attractiveness Measure of Eligible Value Chains

To look at the attractiveness of eligible value chains, we first looked at the prevalence of the chosen value chains across different project sites. This maximized the beneficiary outreach of value chains chosen for ranking. Given below is the site-wise prevalence of the chosen value chains:

Table 7: Site-wise spread of value chains chosen for ranking

Crop	Lawa-charra	Satchori	Rema-Kalenga	Khadim nogor	Hail Haor	Hakaluki haor
Vegetable	√	√	√	√	√	
Citrus	√	√	√	√		√
Tilapia	√	√	√	√		
Carp		√	√	√	√	√
Dairy		√	√	√	√	√
Beef		√	√	√	√	√
Duck (Layer)	√		√	√		√

After discussion and validation of the findings including the site specific value chain table, the team went through the rigorous process of evaluating each value chain against the following attractiveness criteria and then scored and finalized the selection:

Table 8: Attractiveness measure of eligible value Chains⁹

SI	Criteria	Weight	Vegetables	Fruits	White fish	Tilapia	Beef	Dairy	Duck
1	Climate Tolerance	3	4	3.5	3.5	4	4	4	4
2	Climate Resiliency	3	3.5	4	4	4	4	4	4
3	Resource Extraction Minimization	5	5	5	5	5	5	5	5
4	Women and Youth Inclusion	5	5	4	2	1	3	3	4
5	Outreach	3	5	3	2.5	2.5	2.5	4	4
6	Growth potential	3	4	3.5	4.5	4	4	3	4
7	Income	5	3.5	4	4.5	4	4	4	4.5
8	Private sectors participation	5	2	3	2	3	2	3	4
9	Development priorities and favorable policy of government	3	4.5	4.5	4.5	4.5	4	5	5
10	Synergy and potential collaboration	3	4	4	4	4	3	3	3
11	Risk	5	2	3	4	4	3	3	3
12	Scope for value addition	5	3.5	4	3	3.5	2	4	2
Total Weightage Score			180	182.5	171.5	171.5	159.5	179	184.5

Accordingly, Top three selected value chains for conducting in-depth value chain analysis are:

1. Vegetables with Citrus
2. Carp & Tilapia
3. Duck Layer

⁹ Primary Data: In-Depth interviews and Validation Workshop

5.3.3 Tentative Outreach with the Shortlisted Value Chains and Trades

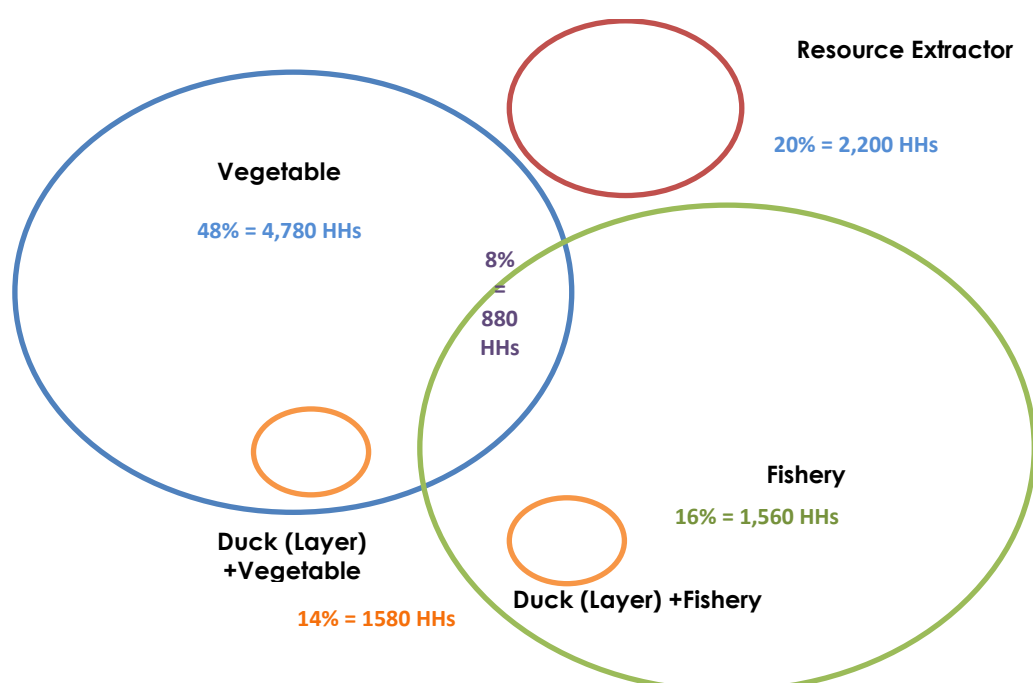
For Sylhet region, the target beneficiary number is 11,000. This number was divided among the sites in the same ratio as the previous beneficiary numbers from IPAC. Then, the targeted beneficiaries were allocated under each value chain according to the area's suitability for the respective value chains. In Duck (layer) the aim is to increase the number of ducks only slightly, which would still be insufficient as a single source of income. Thus, the duck (layer) value chain will be developed with beneficiaries who will also be involved in vegetable or aqua-culture value chain.

Following Table illustrates the site wise tentative outreach through the selected value chains:

Table 9: Tentative outreach through the selected value chains¹⁰

Site	New	R.Ex	VC	Vegetable		Fishery		Overlap (Veg+Aq)		Veg/Aq+Duck (layer)	
				%	No.	%	No.	%	No.	%	No.
LNP	1454	291	1163	15%	717	16%	250		0	12%	190
SNP	1777	355	1422	20%	956	16%	250		0	14%	221
RKWS	2181	436	1745	29%	1386	6%	94		0	17%	269
KNP	1066	213	853	11%	526	2%	31		0	19%	300
HH	2989	598	2391	20%	956	30%	468	60%	528	28%	442
HLH	1533	307	1226	5%	239	30%	468	40%	352	10%	158
Target	11000	2200	8800	4780		1560		880		1580	

Figure 7: Venn diagram Illustration of Beneficiary Allocation



Source: Primary and Secondary Data: beneficiary profiling, FGDs, CREL Project Documents

¹⁰ Primary Data: beneficiary profiling, in-depth interviews and FGDs, Secondary Data: CREL Project Documents

Table 10: Potential Outreach for Vegetables¹¹

LNP	SNP	RKWS	KNP	HH	HLH
No. of target beneficiaries: 1163	No. of target beneficiaries: 1422	No. of target beneficiaries: 1745	No. of target beneficiaries: 853	No. of target beneficiaries: 2391	No. of target beneficiaries: 1226
Potential Outreach: 717	Potential Outreach: 956	Potential Outreach: 1386	Potential Outreach: 526	Potential Outreach: 956	Potential Outreach: 239
Overall Potential Outreach: 59%					
Considerations for Outreach Estimation					
<ul style="list-style-type: none"> 80% of the total beneficiary will be reach through the selected value chains 20% of the beneficiaries are resource extractor (2200) Vegetable value chain has better potential to reach larger number of beneficiaries as most of the project beneficiaries have either homestead gardening or commercial vegetable farming Soil fertility is higher in this region Some of the sites have natural irrigation support Market demand for vegetable is higher in the major markets 					

Table 11: Potential Outreach for Fishery¹²

LNP	SNP	RKWS	KNP	HH	HLH
No. of target beneficiaries: 1163	No. of target beneficiaries: 1422	No. of target beneficiaries: 1745	No. of target beneficiaries: 853	No. of target beneficiaries: 2391	No. of target beneficiaries: 1226
Potential Outreach: 250	Potential Outreach: 250	Potential Outreach: 94	Potential Outreach: 31	Potential Outreach: 468	Potential Outreach: 468
Overall Potential Outreach: 23%					
Considerations for Outreach Estimation					
<ul style="list-style-type: none"> 80% of the total beneficiary will be reach through the selected value chains 20% of the beneficiaries are resource extractor (2200) Fish value chain has better potential to reach beneficiaries in 4 sites (LNP, SNP, HH & HLH) since prevalence of water bodies are higher there The haor sites have rich biodiversity which acts as incentive to fish cultivation Availability of input suppliers are moderate in the sites Market demand for fish (both cultured and catch)is high in the major markets 					

¹¹ Primary Data: beneficiary profiling, in-depth interviews and FGDs, Secondary Data: CREL Project Documents

¹² Primary Data: beneficiary profiling, in-depth interviews and FGDs, Secondary Data: CREL Project Documents

Table 12: Potential Outreach for Duck13

LNP	SNP	RKWS	KNP	HH	HLH
No. of target beneficiaries: 1163	No. of target beneficiaries: 1422	No. of target beneficiaries: 1745	No. of target beneficiaries: 853	No. of target beneficiaries: 2391	No. of target beneficiaries: 1226
Potential Outreach: 190	Potential Outreach: 221	Potential Outreach: 269	Potential Outreach: 300	Potential Outreach: 442	Potential Outreach: 158
Overall Potential Outreach: 18%					
Considerations for Outreach Estimation					
<ul style="list-style-type: none"> 80% of the total beneficiary will be reach through the selected value chains 20% of the beneficiaries are resource extractor (2200) Duck value chain has ubiquitous beneficiary reach capacity throughout the 6 sites Natural feed for Duck are available throughout the region, which makes duck rearing quickly adaptable to the beneficiaries Every beneficiary households have homestead duck rearing with a smaller number of ducks, thus the chances for expansion is better 					

¹³ Primary Data: beneficiary profiling, in-depth interviews and FGDs, Secondary Data: CREL Project Documents

5.4 Resource Extractors

Resource extractors are those who extract natural resources from protected areas either for personal use or commercial use. From our studies, roughly 20% of beneficiaries were identified as resource extractors. A survey was conducted by CREL staff on these resource extractors to identify their resources and skill-base for involvement into other livelihoods.

5.4.1 Profile

The resource extractors' situation in North-East region is relatively better compared to other regions. The tendency to depend on resource extraction for primary income is less likely than in Southern zones like the Sundarbans. On average, these beneficiaries each own 24 decimals of land and lease 84 decimals of land, which indicates their interest in other livelihoods. 7% of these beneficiaries appear to be completely landless; having neither their own land nor the access to leasing other's lands. Our study also shows a significant difference in resource extraction for personal use and commercial use.

5.4.2 Nature of Resource Extraction & Challenges

The main natural resources extracted are fish for haor areas and firewood for forest areas. For personal usage, beneficiaries extract about 236 kg of firewood monthly, which would cost BDT 710. In haor areas, extractors take 24 kg of fish monthly which would cost them BDT 2,377. For commercial use, professional resource extractors take about 1,041kg of firewood, which earns them BDT 3,221. In haor areas, fishermen extract around 90kg of fish, earning them BDT 10,750.

These figures reveal an obstacle in involving some resource extractors in proposed value chains. Apart from the 7% landless, the value chains would be difficult to entice the professional resource extractors who are earning BDT 3,000 – 10,000 with less effort and costs.

In addition, these professional extractors have limited skills in areas other than resource extraction and any attempt to change their livelihood would meet with resistance and unwillingness. Keeping these factors in mind, our resource extractor's involvement strategy focuses on those who extract resources for personal use and the family members of professional resource extractors.

5.1.1 Involvement Strategy

At the core of resource extractor's involvement strategies lay three objectives to minimize resource extraction:

- A. Time: As our targeted beneficiaries get involved in our chosen value chains, they would have less time to give to resource extraction
- B. Self-sufficiency: For haor-areas, fish extracted for personal consumption may be substituted by cultured fish and farmed vegetables from their own production
- C. Future Impact: For professional extractors, the focus would be to involve their wives and the next generation so that they would not follow in their father/mother's footsteps minimizing future resource extraction.

Strategy A: Value Chain Involvement

One advantage of Value Chain development is the scope for employment generation. As production increases, more people are usually needed as labor, which creates employment opportunities. Among our resource extractors, our survey revealed prior experience in the following areas of the chosen value chains:

Table 13: Value Chain Skills¹⁴

Crop	Skill	Re. Ex. Experienced
Agriculture	Sowing	77%
	Farming	77%
	Harvesting	63%
	Cleaning	57%
	Carrying	50%
Duck	Sourcing	17%
	Cage making/clearing	7%
	Duck herder	7%
	Carrying	20%
Fishery	Pond preparation,	33%
	Carrying	30%
	Feeding	33%
	Harvesting	30%
	Management	13%

As illustrated above, resource extractors have prior experience in agriculture and fishery with few in duck rearing. This bodes well for the project and increased its likelihood in involving them into the chosen Value chains.

Strategy B: Off-farm activities

This strategy will focus on the family members of commercial resource extractors. The potential trades are listed below:

Table 14: Strategy for Off-farm activities

Activity	Rational	Involvement Strategy
Taking care of Cow / Duck in rainy season when there's scarcity of food (<i>bathan</i>)	Cow / duck rearing is an existing IGA in the region	Training provision on cow/duck rearing, linkage with surrounding large farmers
Involving in handicraft/souvenir making	Indigenous community have skills in handicrafts production	Product design and production skill development Linkage development for handicraft/souvenir marketing with CMC/private sectors working in Tourist areas
Mechanical Skills (Engine, boats, bikes, CNGs etc)	Challenging topography increases wear-and-tear on engine-based vehicles – creating demand for skilled mechanics	Engine repair skills training, linkage with private sector garages Access to repairing tools purchased on shared loans with CREL
Rickshaw / Van pulling	Challenging topography leads to high demand for various transports	Developing access to finance can help extractors acquiring rickshaw/ van by loans

¹⁴ Primary Data: beneficiary profiling, in-depth interviews and FGDs

Part III: Value Chain Analysis for Northeast Region

(Sylhet, Maulavibazar, Habiganj and
Sunamganj)

6. Value Chain Analysis for Vegetable

6.1 Brief Overview

Vegetable is a culinary necessity throughout the region and round the year. Though the study region showed presence of vegetable varieties, but 4 particular vegetables were selected assessing their market opportunities. The vegetables are Tomato, Forash (French bean), Brinjal and Taro (Mukhi Kochu). These vegetables have robust demand in the locality. Commercial scale production is seen in a few areas but homestead/ non-commercial scale production is seen in most parts of the region. Thus there is scope mainly for vertical expansion. Also, each product has some region specific advantages which open up scope for horizontal expansion too.

All the vegetables have sufficient income growth potential which though differs site to site depending on soil condition among other environmental factors. In addition the socio-economic condition also differed from site to site, which combinedly impacts the profitability and suitability of each crop to respective sites. The impact of these differences on business profitability was quantified through a cost-benefit analysis carried out on the project sites. The results of which are shared below:

Table 15: CBA of Vegetables¹⁵

SATCHORI										
Crop/ Species	Field Prep Cost/ Decimal	Seed Cost/ Decimal	Fertilizer Cost/ Decimal	Pesticide cost/ Decimal	Labor cost / Dcm	Transport +other costs / Decimal	Total Cost / Dcm	Yield (kg)/ Dcm	Revenue/ Decimal	Profit/ Decimal
Eggplant	345	82	335	224	206	81	1388	120	1919	531
Tomato	332	50	186	296	184	47	1233	115	134800	882
Forash/ Bean	418	15	189	164	206	31	1149	71	71500	357
Taro	91	80	110	9	109	56	566	57	17200	231
HAIL HAOR										
Eggplant	149	47	139	37	188	62	623	75	706	83
Tomato	132	57	150	44	244	187	814	96	1525	711
Forash/ Bean	79	29	174	67	154	297	799	93	1050	250
Taro	102	136	95	8	129	43	514	58	720	207
REMA-KALENGA										
Eggplant	131	87	137	92	116	101	662	30	812	150
Tomato	287	57	164	114	240	188	1050	58	1804	754
Forash/Bean	129	56	58	108	120	116	586	26	946	360
Taro	282	101	145	79	139	215	960	63	1197	238
HAKALUKI HAOR										
Eggplant	200	54	87	103	163	78	889	102	1655	766
Tomato	314	58	135	119	253	87	1138	144	2357	1219
Forash/Bean	75	32	15	14	65	15	348	13	565	218

¹⁵ Primary Data: Cost- benefit analysis Survey

6.2 End Market Analysis

6.2.1 Main Market, Buyers & competition

The end market for these vegetables is mainly local and urban consumers. Local consumers mostly buy their products from local retailers or local bazaars. While urban consumers buy mostly from urban markets and smaller bazaars. A portion (7%) of homestead vegetables is consumed by the farmers themselves or lost in production. Homestead farmers' generally sell their produces in the local market while commercial farmers' products reach the urban markets, especially in peak season.

No major competitor for these four vegetables was seen in the study region. Vegetable production is ubiquitous throughout the country, thus the larger markets procure products from wherever they can. No particular competitive indicators (like quality, color, size, shape) were found for other region's production belt that can put stress on this region's product marketing.

6.2.2 Demand-Supply Situation

Among these four vegetables, tomato and brinjal have wider market reach, their consumption is very prevalent in these regions. Taro and forash have more area specific consumption patterns; thus their demand varies seasonally. In off seasons, Taro and forash are mostly consumed locally, with taro from other regions, namely the southern belt, entering the market to meet the local demand. In the peak season, local production caters to the local demand and then is traded to urban town markets. These two products' reach generally ends here. As for tomato and brinjal, in the off-season a large portion of the local production is consumed locally while a smaller volume is traded to town markets. This trading is primarily done for higher profitability. In peak season, tomato and brinjal are traded in large volumes to the urban town markets. Market demand is very high for summer tomatoes, which is now being produced in a limited volume especially in areas of Hakaluki Haor.

6.2.3 Market opportunities

As mentioned above, market opportunities for vegetables lie throughout the region and beyond. There are also specialty crops like forash (French bean) growing in and around the Hakaluki site with market opportunities at the national level via divisional market hubs in Sylhet and Srimongol. Haor areas in particular have alluvial rich soil, allowing higher productivity and lower fertilizer costs for vegetable production. In addition, the market system for vegetables has been strongly established allowing a clear channel for the products to move, essential for vegetables due to their short shelf life.

6.3 Value chain map and analysis of value creation activities

6.3.1 Vegetable Sector Overview

Every Value Chain can be broken down into the core functions of Input sellers, producers, Market intermediaries, retailers and consumers. With the vegetable value chain, the complexity lies within the market intermediary section. Depending on the volume of production, the same vegetables can be channeled through different market intermediaries to reach consumers at different locations at various price points.

Business Environment: Underlying Factors

There are **underlying factors** of the vegetable value chain which **impacts the way it functions** as a whole. These factors given below also create the **underlying constraints** of the value chain functions.

Perishability & Seasonality

Like most agriculture products, vegetables are seasonal by nature and perishable. However, it must be noted that vegetables are far more perishable with much shorter shelf life than other agro products

like say rice or maize. Vegetables show discoloration, softening and deformations within 24 hrs of harvest and does not last longer than 3 days at most. This short shelf-life means farmers have a very limited window of time for sale of their product.

When combined with seasonality factor, the vegetable markets have a highly volatile nature despite the wide acceptability and demand. During peak season, a large supply of the product gluts the market; which have to be cleared in a short time to their high perishability. This leads to rapid fall in prices. Consequently, as the season ends, supply falls and price rises accordingly.

Price Effect: Freshness & Form

Now vegetables are produced across the nation and cater first to their local markets. Some areas, like Mymensingh and Bogra area mainly, are highly proficient in it, creating surplus production which is transported to other areas of the country. However, due to the time it takes and rigors of travel, the product loses some of its freshness and form; which leads to a fall in price. Thus, we usually see local produce of any market enjoying higher price than produce from other districts or regions; even if the product is of higher quality or lower price or both.

These and other factors described below lead to the uniquely interlinked value chain of vegetables in Sylhet Region.

6.3.2 Value Chain Actors, Functions and Map

Input Suppliers

Input Suppliers consist of retailers of Seeds, fertilizers and insecticide/pesticide. The retailers range from small retailers in local markets to large stores – cum – wholesalers who sell to large commercial farmers and have strong relations with sales representatives of large companies. There are no specific input suppliers for vegetable inputs alone, rather for agricultural inputs overall. Near regional hubs like Srimongol and Sylhet, retailers had wide selection and high-quality imported varieties of seeds. In fertilizer, chemical fertilizers were highly prevalent; but micro-nutrients were often not sold at small local retailers – who are the major suppliers for the targeted beneficiaries.

Producer

Producers are the targeted beneficiaries, responsible for cultivating the vegetables. Our analysis split these groups into three, according to their production volume and intent. The primary beneficiary group is made up of homestead gardeners, who follow subsistence- level farming without commercial concerns or investment ability. They are mostly connected with small retailers in local markets. Next are small commercial farmers who work on lands smaller than 60 decimals. These farmers have started to realize the benefits of commercialized vegetables and started on their own. These may be the most preferred group of farmers in this study as they are willing and capable of commercialize. However, lack of commercial experience and scale-up practices lead to final product in competitive in the larger markets. Lastly, there are larger commercial farmers who use more than 60 decimals and aim for wholesale markets rather than small local market retailers. They have a preferred relationship with input suppliers.

Trading

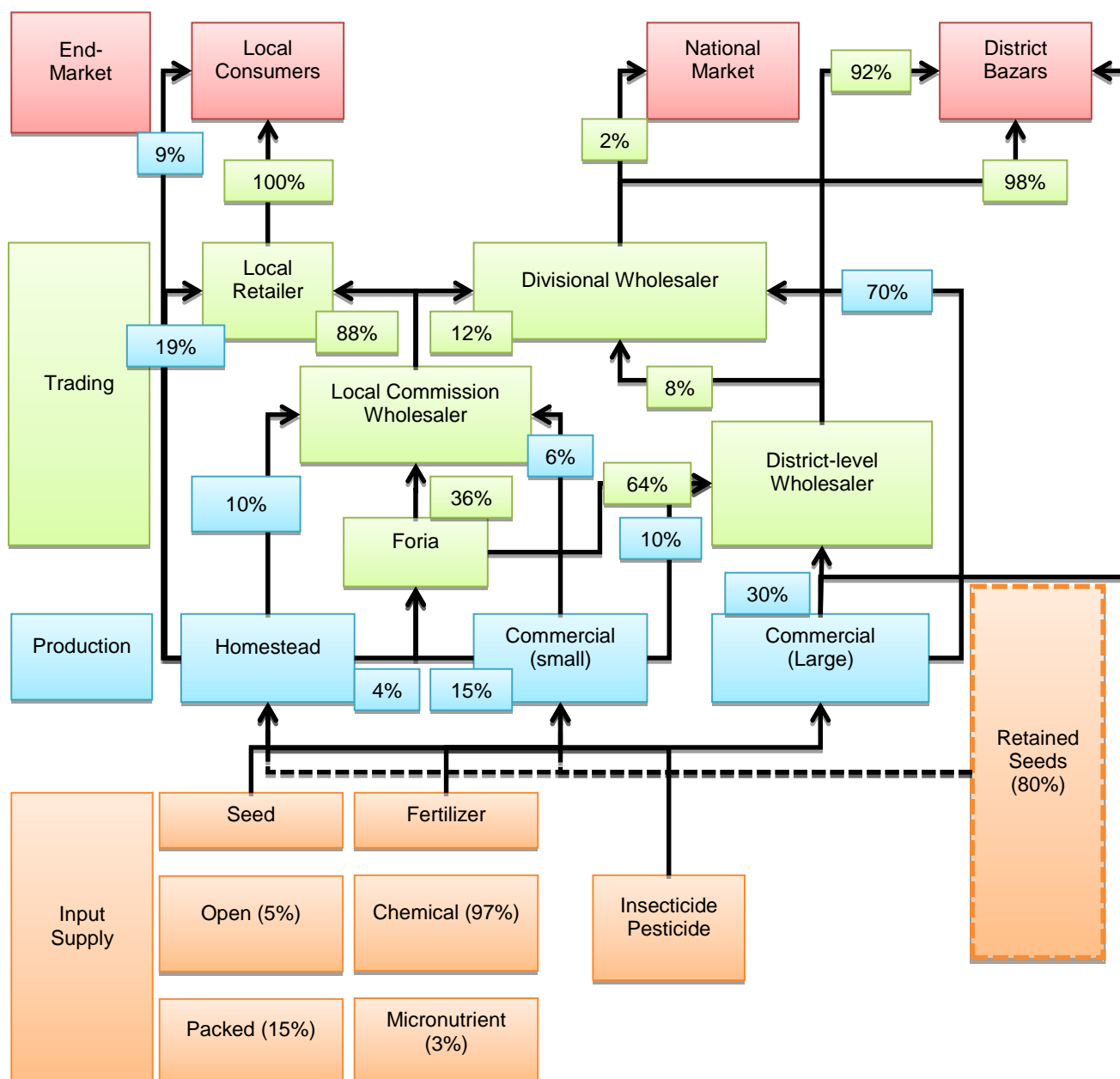
The trading function has multiple actors depending on the volume of vegetables they move around. Firstly, there are Forias or collectors who collect vegetables from multiple small farmers and re-sell the whole bulk to local markets. They profit from savings on transportation cost of bulk sales. They also bring in vegetables from major district bazaars to local bazaars. The local retailer has the strongest connection with the beneficiaries; they serve both as the market for selling by small farmers and also for buying vegetables as consumers when local production is insufficient. . For slightly larger volumes provided by small commercial farmers, the preferred interaction is with local commission wholesalers. These traders do not technically own the product. Rather, they hold the product

overnight and sell it to retailers and wholesalers in other areas and keep 5%-7% of sales price as commission. For large commercial farmers, the trading channel reaches up to district-level wholesalers who shift the products around the region and within small markets in the district. All these trading cumulates at the divisional wholesalers who link the regional markets with the national markets, bringing in vegetables from outside Sylhet and sending excess vegetables to Dhaka, Chittagong and other regions; although it happens with a relatively small volume as the region is mostly supply deficient.

End-market or End Consumer

Vegetable is part of staple diet for most Bangladeshis. As such, there are few psychographic or characteristic classifications of their consumers. Thus, the consumers were segmented geographically based on proximity from beneficiary. Firstly, there are the local consumers who lie 5-10km of the beneficiaries. They are the main markets for the beneficiaries, taken directly or via forias. The next level is district level markets which are major commercial hubs which service the other areas within and outside the districts. For very large volumes, the divisional markets in Srimongol and Sylhet are involved where the customers are wholesalers from other regions. For the beneficiaries, the vegetable production is still at a very amateur level and the end-market is mostly limited to local markets with minimal exposure to district level markets and none to national markets.

Figure 8: Value Chain Map for Vegetable¹⁶



¹⁶ Primary data: In-Depth interviews and Questionnaire Survey

6.4 Value Chain Performance

Value Chain performance investigated above on their actors and their functions revealed some strengths and weaknesses of the vegetable a value chain to impact the beneficiaries. Further analyses of factors affecting the chain as a whole are given below:

6.4.1 Business Enabling Environment

In general, we found the business environment within the region to be conducive to business growth. There is good availability of both input suppliers and market actors. The challenge remains within the production tier as many producers and especially the targeted beneficiaries are satisfied with their subsistence farming technique, unwilling to risk the investment behind commercial up scaling.

Gender and cultural norms: There appears to be a strong culture of going abroad as menial labour and send back earnings as remittance. This cultural dependence on foreign income results in lack of effort on part of the youth to engage in building businesses here.

Some areas of the region like Sylhet and Moulvibazar appear to be highly conservative and do not see women working and working outside with other men, in a positive light. These values lead to a system where despite the supply-deficiency and preference for fresher local vegetables, the farmers have not expanded their practices.

6.4.2 Vertical Linkages

Vertical linkage among vegetable-producing beneficiaries in Sylhet Region is low. As mentioned above they are unwilling to take the risk of expanding their operations both in volume and also level of business.

Access to markets: Some beneficiaries in Khadimnagar and Lawachara who were large farmers work both as producers and retailers. They sell the main bulk of their produce to large wholesalers and some leftover is sold at the local market where they act as retailers themselves. However, that volume is limited to a single basket of vegetables at best. The most likely reason is that both sites were near Sylhet and Srimongol respectively, which are the regional business hubs with the largest vegetable markets. For other areas, the nearest markets are too far to justify the cost of transportation.

Input Access & Quality: Beneficiaries are mostly dependent on retained seeds which create weak relationships with seed suppliers. Access and quality to other inputs are also present; but distance and limited demand means individual beneficiaries are unable to influence the input sellers.

Access to Market Information: The linkage in the trading arena is stronger as the same wholesaler can function as a local, district-level or regional wholesaler depending on his current volume of business. Information flows freely and quite quickly as the highly perishable nature of vegetables means the goods must reach consumers as quickly as possible, leaving little time for price negotiation or hoarding tactics.

6.4.3 Horizontal Linkages

Horizontal linkages among beneficiaries were present in some weak forms. Generally, the beneficiaries have been part of a group under former project and there is a level of interaction, albeit informal in nature.

Types & forms of collaboration & competition: At the trading level of collaboration & competition are both high. This can be seen because every market, at local, district and regional level, all have a form of Association which dictates the operation of the market place. However, they do not influence the daily pricing in anyway. This means the market actors are highly competitive; in both prices and quality. As the region is largely dependent on vegetables coming from *outside* the region, the retailers have a keen awareness of the source and benchmark of quality that can be provided in the market.

Roles for the targeted beneficiaries: However, these trading actors prefer to work with large farmers as they are consistent and professional. Targeted beneficiaries cannot access these actors and stick to local markets. In Rema-Kalenga, Hakaluki and few other sites, we found prevalence of Forias or collectors/travelling wholesaler who workwith 5-10 farmers as one group.

The performance of the Value Chains and Scope for Upgrading are summarized by the following table:

Table 16: Value Chain Performance

Input Supply		Production	Trading	Support Service
Actors	Local Suppliers and large urban shops. Open and packed seeds, fertilizers, insecticides and pesticides.	Homestead, commercial (small), Commercial (large). Rice is the dominant crop. Lemon and tea in some areas. Variety of vegetables produced; some with localized demand.	Faria, Wholesalers, Retailers - vegetables, fruits and spices. Two kinds of wholesaling: Commission-based selling (5%-7%) and buy for re-selling.	Transport service provider
Functions	<ul style="list-style-type: none"> Provide inputs for vegetable farming Embedded services on making right input choices 	<ul style="list-style-type: none"> Produces vegetables for self-consumption and selling Homestead farming involves women 	<ul style="list-style-type: none"> Link between local markets and outside divisions Provide market insight to demand trends The arotdars influence price for both selling and buying 	<ul style="list-style-type: none"> Vegetables transported in bundles for 'hard' vegetables like taro and in crates for 'soft' ones like tomato
Performance (-)	<ul style="list-style-type: none"> Relations with producers hampered by usage knowledge gaps Price-sensitive nature of small farmers and preference for open seeds 	<ul style="list-style-type: none"> Lacking commercial interest for remote area farmers Ready access to water in most areas reduces irrigation costs Acidic soil of some areas impact yield Dependence on traditional knowledge and 	<ul style="list-style-type: none"> Outside sourcing preferred due to lower pricing and better quality products, despite lower freshness and deformation in transport Local produce has problems with inconsistent supply, lack of professionalism 	<ul style="list-style-type: none"> Infrastructural challenges increase transportation cost and time which in turn reduces 'freshness' of vegetables

		natural soil fertility	and lower quality at higher price	
Performance (+)	<ul style="list-style-type: none"> ▪ Strong brand presence and variety of choice ▪ Retailers are knowledgeable and willing to engage customers ▪ Good relations with big companies 	<ul style="list-style-type: none"> ▪ Overlapping areas of hills and haors create belts of both agriculture and pisciculture practices 	<ul style="list-style-type: none"> ▪ Overall volatility of market leads wholesalers to prefer repeated dealing with same source ▪ Price information flows freely: Mobile telecommunication s 	<ul style="list-style-type: none"> ▪ Established channel for transportation of vegetables from outside the region; this can be used to send vegetables outside the region on the return trip
Scope for Upgrading	<ul style="list-style-type: none"> ▪ They have direct relations with the producers, so they can provide advice on cultivation techniques to the producers 	<ul style="list-style-type: none"> ▪ Improve their knowledge and use of better cultivation techniques to increase productivity 	<ul style="list-style-type: none"> ▪ Consistent quality of production will encourage traders to collect from remote areas 	<ul style="list-style-type: none"> ▪ Group/ bulk production and sales will decrease cost of transportation

6.5 Value Chain Governance

Influence & control along the chain: The value chain is largely influenced by traders, especially the wholesalers. As the region has a large amount of vegetables coming from outside, the quality and supply of those products influence the markets greatly and the channel via which they come in is the wholesalers.

Power dynamics: Thus, for both product movements into and within the region, the wholesaler is in charge. Unfortunately, due to the small production volume, targeted beneficiaries are unable to even engage with the wholesalers, let alone have any influence on them.

Inter-firm relationships: The vegetable value chain is a strongly established chain built for speed of delivery. As such cooperation and collaborations exist between trader groups especially to get the product into the consumers' hand in shortest time possible. District wholesalers keep in touch with various markets and their retailers to quickly negotiate prices and terms of trade. The strength of inter-firm relationships can be seen in the concept of commission-based wholesalers who do not own the product but sell it on the farmers' behalf for a commission. All contracts are verbal and based on mutual trust. As the business is spread out over the year across different vegetables, the market actors generally manage a stable business relationship for long-term profitability.

6.6 Assessment of Regulatory Environment and Support Services

Driven by foreign remittance and strong tourism activities, Sylhet has developed good supporting markets. The network of financial institutions, Government Departments and Information service providers are present and active in most of the sites. The challenge is accessing these actors by the targeted beneficiaries. Since they are usually situated in very remote locations and the scope of their commercial activities are very small, these supporting markets are often uninterested to engage with them or even unaware of them. Given below are only some of the supporting markets which exist and could benefit our beneficiaries if better linkage is established.

Extension Services: Sub-Assistant Agricultural Officer (SAAO) or Block Supervisors (BS) are available when farmers visit them for advice on diseases, etc.

Business Development Services: In the study region, very few of the respondents were found having any formal training on advance cultivation or balanced use of fertilization. These trainings are mostly provided by input companies or by NGOs providing loan.

Financial Services: No particular loan facilities are available for vegetable farmers. They either have to take loan from mahajan (Informal lenders) or depend on the loan from micro credit provider NGOs.

6.7 Market Analysis

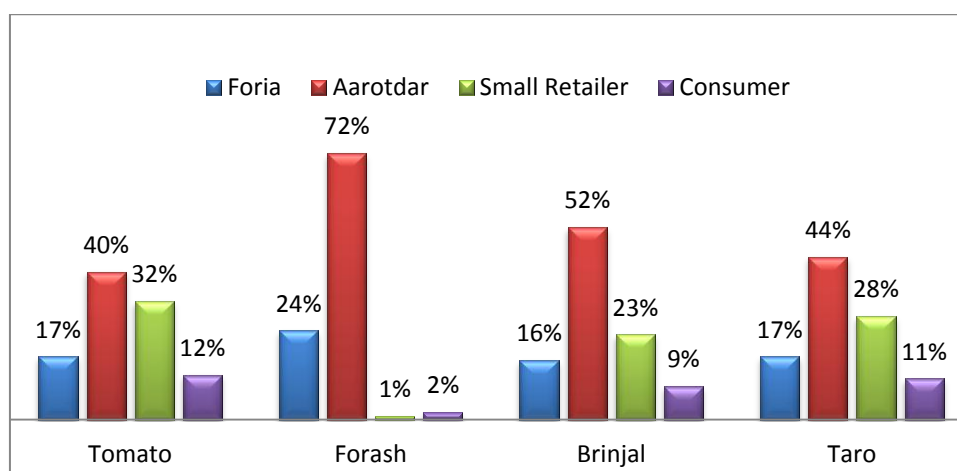
The industry figures reveal that Sylhet plays a very minor role in the national production of vegetables in Bangladesh. The data has been taken from BBS survey in 2011. The demand far exceeds the supply which leads to influx of about 60% vegetables consumed in the region from surplus vegetable producing zones of the country.

Table 17: National Contribution of Sylhet in chosen Vegetables¹⁷

Vegetable:	Annual Prod. Sylhet (MT)	Annual Prod. National (MT)	Contribution
Kharif Brinjal	1588	125080	1%
Arum	8200	238665	3%
Rabi Brinjal	5132	215490	2%
Tomato	7735	232459	3%

In channel preference, there were some differences based on vegetables, while forash (french bean) had a strong preference for the Foria-Aarotdar channel, the rest preferred Aarotdar-Small Retailer. The details given below:

Figure 9: Vegetable Channel Preference¹⁸



The value addition ranges from 11% in Forash to 173% in Brinjal. The changes in prices are given below as price per Kg:

¹⁷ Bangladesh Bureau of Statistics (2011)

¹⁸ Primary Data: Questionnaire Survey

Table 18: Actor-wise value addition¹⁹

Price/kg	Tomato	Forash	Brinjal	Taro
Foria	13	47	19	14
Aarotdar	14	50	24	15
Small Retailer	19	51	51	18
Consumer	20	52	52	21

6.8 Poor/Resource-dependent People, Youth and Gender Analysis

Marginal farmers who have homestead land can easily engage in cultivating vegetables. This will increase consumption of vegetables of the producers' households, and also make it more accessible for other households to purchase them. The landless resource dependent people have lesser scope for engaging in the formal value chain as they are generally without any financial support or land. But they have the opportunity to engage themselves in alternate income generating activities like working as laborer in cropping and harvesting season. Vegetable cultivation is a profitable venture. Thus, youth can get engaged in vegetable production at both the homestead level and commercial level, using improved quality of inputs and better cultivation techniques. There are many opportunities for the involvement of women in the vegetable production and also in post-harvest handling and storing of vegetables.

6.9 SWOT Analysis

Table 19: SWOT Analysis

Strengths <ul style="list-style-type: none"> Consistent local demand throughout the year Homestead vegetable cultivation is present in most households Farmers' access to market information is strong 	Opportunities <ul style="list-style-type: none"> Lack of technical knowledge on improved cultivation High dependency on retained seeds Lack of knowledge on balanced use of fertilizer Transportation cost to urban markets is comparatively higher Lack of storing capacity for perishable vegetables
Weaknesses <ul style="list-style-type: none"> Sufficient natural water sources fulfilling the demand of irrigation at ease Formal input supply sources present in the area 	Threats <ul style="list-style-type: none"> Selling price falls in peak season Products from outer markets are sold at more competitive prices

¹⁹ Primary Data: Questionnaire Survey

6.10 Constraints Analysis

Table 20: Constraint Analysis

Level	Symptoms	Constraints
Production	<ul style="list-style-type: none"> ▪ Lack of supply (locally) during off-season ▪ Large number of farmers prefer homestead production ▪ Preference for farmers' retained seeds over high yielding branded seeds (recycled seeds than bought seeds) ▪ Unbalanced use of fertilizer ▪ Inadequate use of micronutrients ▪ Indiscriminate use of insecticides ▪ Arbitrary use of micronutrients ▪ Late harvest of products 	<ul style="list-style-type: none"> ▪ Lack of knowledge/skill on improved cultivation techniques causing low yield ▪ Unaware of the benefits of using hybrid/ summer variety seeds ▪ Lack of knowledge on crop specific balanced fertilization techniques (micronutrients, etc.) ▪ Lack of proper knowledge in prudent use of crop protection products and techniques
Post-harvest	Inefficient post-harvest techniques cause lack of competitiveness with outside of the region products	Lack of knowledge on efficient post-harvest techniques lead to quality and quantity loss of harvests
Trading	<ul style="list-style-type: none"> ▪ Fall of selling price in peak season ▪ Procuring vegetables from outside region in off-season ▪ Limited production to meet local market demand only ▪ Not interested to reach larger markets 	<ul style="list-style-type: none"> ▪ Poor shelf life and absence of proper storage facilities lead to market gluts and free fall of vegetable price in peak seasons ▪ Weak linkages with larger regional markets ▪ Rudimentary farming practices in rural areas leads to lower yield compared to potentials ▪ High transportation costs ▪ Inadequate infrastructure
Access to Finance	Low capital to start large scale farming	No sources for vegetable specific loans

6.11 Recommendations

Table 21: Recommendations

Constraints	Interventions	Activities	Results	Leverage point
<ul style="list-style-type: none"> ▪ Lack of knowledge/skill on improved cultivation practices ▪ Unaware of the benefits of using hybrid/ summer variety seeds ▪ Lack of knowledge on crop specific balanced fertilization techniques (micro-nutrients, etc.) ▪ Lack of proper knowledge on prudent use of crop protection products & techniques 	Promote improved farming practices of vegetables among target groups	<ul style="list-style-type: none"> ▪ Hiring sector expert ▪ Developing training modules ▪ Organizing training events ▪ Organizing demonstration plots, field days ▪ Developing and screening docu-drama 	<ul style="list-style-type: none"> ▪ Capacity development of farmers ▪ Adaptation to better farming practices ▪ Increased yield will help compete with products from out of the region market ▪ Increase in income 	input retailers
Poor shelf life and absence of proper storage facilities lead to market gluts and free fall of vegetable price in peak seasons	Assist farmers to use new varieties (early, late & off-season varieties) as well as varieties with higher shelf life in order to widen the availability of crop beyond the peak season			Government extension departments (SAAO)
Rudimentary farming practices in rural areas leads to lower yields				Other development projects
High transport cost	Introducing group marketing of products & synchronizing transport use with different actors (farmers-farias)	Group formation product-wise; Linkage meeting with market actors; Facilitate arrangement of group transport	Individual cost of marketing decreases; Reaching larger markets for bigger volumes. Specially prevents distress sell in peak season.	Market actors
Inadequate infrastructure				
Lack of knowledge on efficient post harvest techniques leads to quality and quality loss of harvest	Promote responsible post-harvest handling practices	<ul style="list-style-type: none"> ▪ Support training initiatives ▪ Provide technical assistance for setting up field pack station in potential VCF clusters 	Beneficiaries can now perform better post-harvest processes	DAE

7. Value Chain Analysis for Culture Fishery

7.1 Brief Overview

A region with varied topography, with sloping hills and large haors, Sylhet region is naturally suited for fishery resources. Well known for Tanguar Haor, one of the largest reservoirs for natural fish in Bangladesh, the region also has interconnected water bodies known as *beels* which form the various haors. These haors not only provide natural fish resources, they also act as conduit to high volumes of water flowing down from the mountains across the border in the Assam region of India. However, growing population pressure and changing climate patterns have shrunk haor areas greatly while depleting fishes to near extinction from overfishing.

As haor catch declines, there has been a gradual shift towards cultured fish, particularly in carp with growing potential for tilapia. The average pond size is 30dcm which is used mostly for subsistence farming with excess being sold off. Here lies the potential for the project to upgrade the farmer's production into commercialization, thus increasing income as well as reducing dependency on haor fishing.

Fisheries have sufficient income growth potential which though differs site to site depending on water availability among other environmental factors. In addition the socio-economic condition also differed from site to site, which combined impacts the profitability and suitability of fishery to respective sites. The impact of these differences on business profitability was quantified through a cost-benefit analysis carried out on the project sites. The results of which are shared below:

Table 22: CBA of Fishery²⁰

Pond prep/dec	Fingerling/dec	Fish feed/dec	Medicines/Vitamins/dec	Irrigation/dec	Total Yield/Dcm	Total cost/dec	Revenue/dec	Net Profit/dec
HAIL HAOR								
62	468	1358	37	0	32	2230	3540	1310
REMA KALENGA								
643	94	180	31	0	13	1204	1619	416
HAKALUKI HAOR								
327	445	40	144	86	88	1860	9927	8067

7.2 End Market Analysis

7.2.1 Main Market, Buyers & Competition

For a region known for its fishery resources, it was found to be supply deficient and importing fish from Mymensingh, Jessore and the southern belt to fill in this gap. The main market players are the arotdars and small retailers who sell to local consumers. Retail markets procure from small farmers and often the fish get sold at the pond sites right after harvest. On average, the fish are netted every 20-25 days. Only fish of suitable size are kept for consumption or sale while the rest are released back into the ponds to grow further. Arotdars work with bigger volumes, at least 1 mound (40kg) per catch. They usually have pre-arrangements with large farmers and collect straight from the ponds, bearing the transportation costs.

²⁰ Primary Data: Cost benefit analysis survey

Small retailers serve the local markets while arotdars sell to local big bazaars and at the divisional trading hubs in Srimongol and Sylhet. From there, the products spread out further, but are completely consumed within the region. The beneficiary producers do not have the ability to penetrate national markets in Bhairab or Dhaka yet.

7.2.2 Demand-Supply Situation

The fish market in Sylhet region is heavily impacted by haor fish in the short term. With strong market preference for natural fish, during fishing season, increased haor-catch pushes down the price of cultured fish. In addition, fish from Mymensingh and Jessore are cultured with significantly upgraded techniques, which allow them to competitively price their products in the market. However, to the fish consumers, freshness and sources are important price determinants which create preference for local cultured fish despite its higher price.

Overall, the local demand is still unmet by local production of both cultured and haor-catch fish. On average, small commercial farmers which make up a portion of the beneficiaries, produce 481 kg of fish, both carp and tilapia every year. 15% of this is used up for self-consumption. As per the beneficiaries' feedback, 40% of the beneficiaries who culture fish are doing so commercially while the rest are at a subsistence level.

Fish is a product with round the year demand while the product can have a longer shelf life by being left in the pond to grow when the price is low. This allows the small farmers some control over price. However, pressure from lenders for repayment narrows down the window for waiting.

7.2.3 Market opportunities

Fish is culturally a staple food for Bangladesh. There remains a strong national and local demand which is not fully catered to from the local supply. This happens despite the fact that the region is ideally suited for fish production with ready access to water in most areas. This unwillingness to culture fish indicates both a challenge as well as an opportunity for the growth of the sector.

The study team found a perception gap among the target population especially, in the haor areas. Small farmers are unwilling to scale up their production as they believe that the haor-catch serves the majority of the market and therefore the market price would fall if they increase production. However, talking to the large commercial farmers, we found many of them to be major haor fishermen before, who shifted to cultured fish because although the haor fishes are higher in value per unit, their dwindling supplies meant the revenue generated is no longer sufficient for them. Addressing this misperception is a key challenge for enhancing cultured fish production in Sylhet.

Tilapia, mono-sex tilapia, remains a potential species for aqua-farming. The average pond-size is ideal for tilapia farming, while the low water level requirement means fish production will remain uninterrupted even in the dry season (Winter-summer). Also, Tilapia has a shorter cycle which allows 2 cycles per year in semi-intensive form and 3 cycles in intensive practices.

7.3 Value chain map and analysis of value creation activities

The value chain map has been developed based on the data collected during this study from different market actors involved in the fish sector. They included input retailers, feed suppliers, feed companies, fishermen, small fish farmers, commercial fish farmers, different types of traders, government officials, other NGOs, etc.

7.3.1 Culture Fishery Sector Overview

Every Value Chain can be broken down into the core functions of Input sellers, producers, Market intermediaries, retailers and consumers. There are few unique characteristics of aquaculture in Sylhet Region which influence the value chain functions within the aquaculture sector.

Business Environment: Underlying Factors

Captured Vs. Cultured: Sylhet has been traditionally a source of fishery with large water bodies and abundance of natural fish. Thus, a strong perception exists within the region that naturally caught fish will be higher income-generating than cultured fish. This perception is valid to an extent as natural fish is priced 20%-30% higher than their cultured counterpart. This leads to reluctance among fishermen to invest behind commercial aquaculture as an IGA.

However, a closer look reveals that driven by the growing population pressures, the overfishing in Sylhet has led to depletion of the natural fish supply. Thus, despite limited investment and skill requirements, and higher price, the current supply of naturally caught fish is so low, the absolute revenue or income is insufficient as a sustainable IGA. Thus, the region is supply deficient with market gap being filled by fish supply from Mymensingh, Jessore and other regions. The region is changing with more fishermen converting to cultured fish, especially in haor areas like Hakaluki and Hail haor.

Price Effect: Source & Size: Aquaculture products' pricing vary depending on size of whole fish; with bigger fishes getting better prices. Thus, when market price is low, fish farmers keep the fish in pond, waiting for higher prices. This allows the farmers a wide window of wait and consequently a more stabilized market. However, the longer the wait, the higher the cost of feeding; which will not be off-set by higher prices at one point.

The other point is source, whether it is natural caught or cultured. Naturally caught fish is a seasonal practice, so in season, the market gets a sudden influx of naturally caught fish. In these times, lasting about 6 weeks, the cultured varieties suffer through very low prices. This remains a challenge to the growth of commercial aquaculture in the region. However, with depleting fish resources, the impact is reducing both in length and severity every year.

7.3.2 Value Chain Actors, Functions and Map

Input Suppliers

Input Suppliers are important for aquaculture mainly because the quality of the spawn or fingerling is the most influential factor affecting yield. Input suppliers consist of hatcheries, nurseries, fish feed and aqua chemical providers. Spawns come from hatcheries and nurseries provide fingerlings. However, most of the fish (60%) is cultured from eggs of unsold fishes last year. This creates a high level of in-breeding, affecting yield. With the rest, source is 1/4th local and 3/4th from outside the region, namely Mymensingh and Jessore. Also, a very small portion is sourced from Government Institutions like DFO and other development projects. Generally, the quality is found to be wanting due to dependence on retained fish seed. Also, the network of local hatcheries for mono sex tilapia is still lacking for our beneficiaries.

Feed is the second influential factor behind fish growth and the single largest cost factor. There are ready-feed for Tilapia and natural-feed mixes for carp. While supply was available, most beneficiaries were ignorant as to correct balance of feed to be given going by hearsay and trial-and-error. The same can be said for aquachemicals which are mainly used for pond preparation also provided by the same retailers who give fish feed.

Producer

Producers are the targeted beneficiaries, responsible for cultivating the fish, tilapia or carp. There are household farmers who make use of small water bodies within their home area and large or small commercial farmers. The smaller commercial farmers usually depend on nurseries for fingerling; but spawns for hatcheries are limited to large commercial farmers.

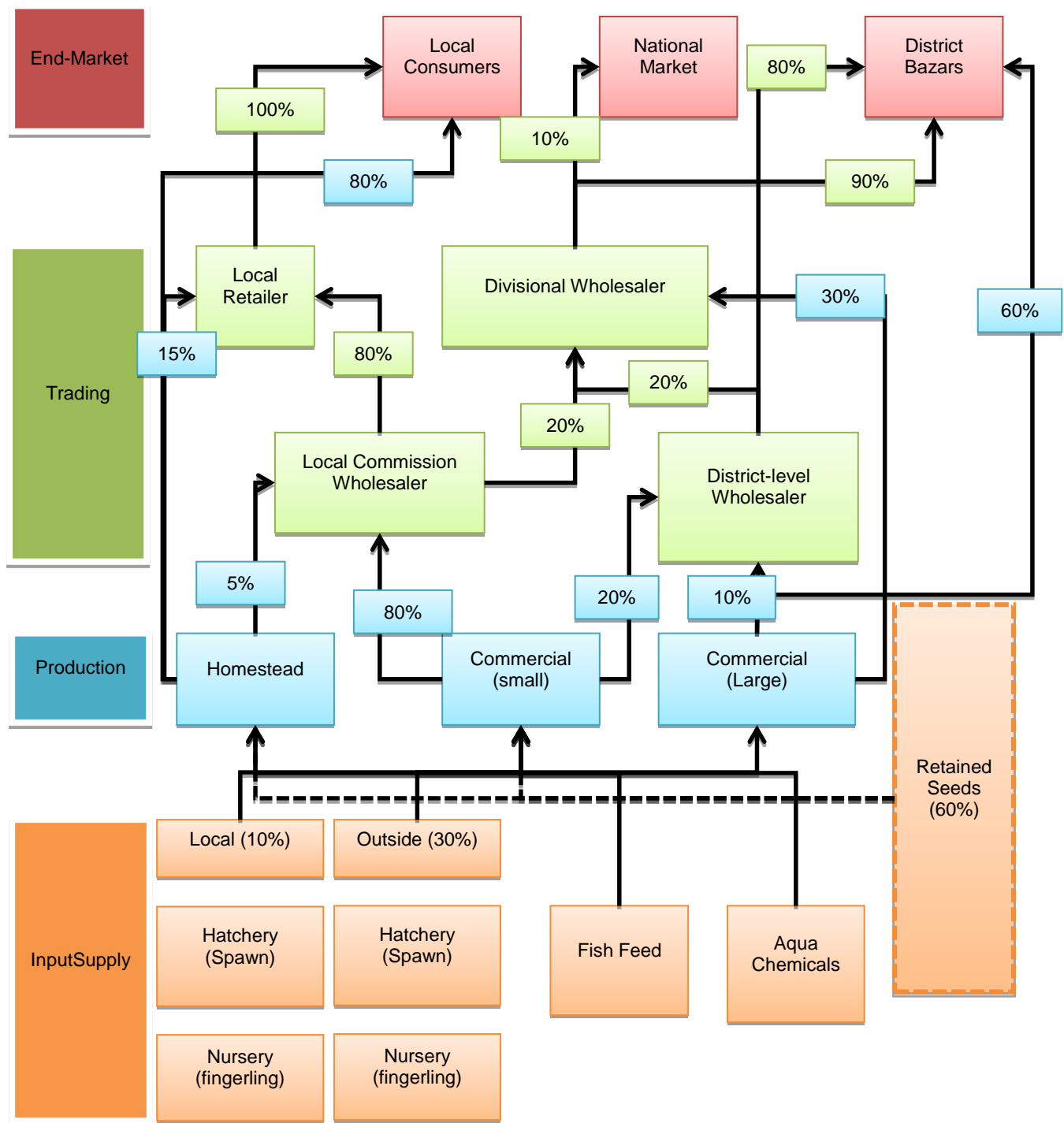
Trading

The trading function has multiple actors depending on volume of fish being traded. Traders also play a crucial role in partially financing the initial investments for each cycle. For beneficiaries, who are Homestead farmers and small commercial farmers; the preferred channel is directly to consumers or local markets and small wholesalers.

End-market or End Consumer

Fish is part of staple diet for most Bangladeshis. As such, there are few psychographic or characteristic classifications of their consumers; although more financially solvent consumers prefer more expensive fishes of bigger size. Thus, the consumers were segmented geographically based on proximity from beneficiary. Firstly, there are the local consumers who lie 5-10km of the beneficiaries. They are the main markets for the beneficiaries, taken directly by consumers in locality. The next level is district level markets which are major commercial hubs which service the other areas within and outside the districts. For very large volumes, the divisional markets in Srimongol and Sylhet are involved where the customers are wholesalers from other regions. For the beneficiaries, the aquaculture production is still at a very amateur level and the end-market is mostly limited to local markets with minimal exposure to district level markets and none to national markets. Sylhet is the core hub for aquaculture with national reach but targeted beneficiaries cannot engage them due to infrastructural challenges and insufficient volume.

Figure 10: Value Chain Map for Culture Fishery²¹



²¹ Primary data: In-Depth interviews and Questionnaire Survey

7.4 Value Chain Performance

Value Chain performance investigated above on their actors and their functions revealed some strengths and weaknesses of the aquaculture value chain to impact the beneficiaries. Further analyses of factors affecting the chain as a whole are given below:

7.4.1 Business Enabling Environment

With traditional reputation as source of fishery, Sylhet region has business environment conducive to growth. Network of input suppliers is lacking, especially commercial production of Tilapia, due to limited number of mono-sex tilapia hatcheries. Market actors are sufficient in number and willing to act as loaning institutions in return for contracted purchase of their produce. The challenge remains within the production tier as many producers and especially the targeted beneficiaries are satisfied with their subsistence farming technique, unwilling to risk the investment behind commercial up scaling. There appears to be a strong perception that captured fish is a far better source of income and cultured fish is too risky.

Gender and cultural norms: Some areas of the region like Sylhet and Moulvibazar appear to be highly conservative and do not see women working and working outside with other men, in a positive light. In general, women involvement in aquaculture is very low and the production itself requires little additional labour.

7.4.2 Vertical Linkages

Vertical linkage among Carp-culture beneficiaries in Sylhet Region is high.

Input Access & Quality

As mentioned above they are unwilling to take the risk of expanding their operations both in volume and also level of business. Many beneficiaries in Hakaluki and Hail haor, who were large farmers, work both as grow-out farmers and nurseries. However, the common practice is to grow both fingerlings and table-fish in the same pond due to limited pond-size and additional cost of maintaining multiple ponds. Thus, the production is inefficient since larger fishes get over-fed, increasing cost, while smaller fishes take longer to grow.

Access to Markets

The linkage in the trading arena is stronger as the same wholesaler can function as a local, district-level or regional wholesaler depending on his current volume of business.

Access to Market Information

Information flows freely since the option to keep fishes in the pond if prices are too low means that any market instability is resolved in short time.

7.4.3 Horizontal Linkages

Roles for the targeted beneficiaries

Horizontal linkages among beneficiaries were present in haor areas. In Hakaluki Haor area, farmers were found who combine to have joint-production of cultured fish in Carp and Tilapia as the profitability of aquaculture increases exponentially with increase in pond-size.

However, trading actors prefer to work with large farmers as they are consistent and professional. Targeted beneficiaries cannot access these actors and stick to local wholesalers to sell their products. In Hail haor, Hakaluki haor and few other project sites, we found prevalence of contract farming with local wholesalers.

Types, forms of collaboration and competition

At the trading level, both collaboration & healthy competition exist within the markets. This can be seen because every market, at local, district and regional level, all have a form of Association which dictates the operation of the market place. However, they do not influence the daily pricing. This means the market actors are highly competitive; in both prices and quality. As the region is dependent on aquaculture coming from *outside* the region, the retailers have a keen awareness of the source and benchmark of quality that can be provided in the market.

The performance of the value chain and scope for upgrading:

Table 23: Value Chain Performance

Input Supply		Production	Trading	Support Service
Actors	Local Suppliers and Suppliers in Mymensingh, Jessore. Government bodies, projects Hatchery, Nursery, Fish feed and aqua chemical companies	Fish Farmers Large/Commercial, small commercial /Homestead	Wholesalers, Retailers Carp, Tilapia, haor-caught fish, small fish (mola, dhaela, tengra), other varieties	Transport service provider
Functions	<ul style="list-style-type: none"> Supply spawns for nursery-integrated farmers, fingerlings for other farmers Ready-feed (preferred for Tilapia) and Natural-feed mixes (for carp) Embedded services of usage information, problem identification and likely solutions Hormone-treated monosex fingerlings for Tilapia Aqua chemicals like lime, vitamins, medicines and Rotenol used in pond preparation and growth management 	<ul style="list-style-type: none"> Grow-out fish farming Vertically integrated nursery and grow-out Sell to consumers or market intermediaries 	<ul style="list-style-type: none"> Two kinds of wholesaling: Commission-based selling (5%-7%) and buy for re-selling Link between local market and outside division (namely Bhairab) Finance Access: Work as lenders to fish farmers, few of whom have the capital required for year-long carp fish harvest cycle 	<ul style="list-style-type: none"> Providing carrying and transport facilities to the traders and farmers
Performance (-)	<ul style="list-style-type: none"> Farmers prefer retained fish for spawns of carp production Fish feed for Tilapia expensive, discouraging scaling up 15% mortality of fish seed during travel when outside sources used Haor fish captured as brood mothers for seeds, damaging haor ecology 	<ul style="list-style-type: none"> Low yield, limited profitability Dependence on natural feed due to expensive nature of ready-feed Inability to manage water health and level Lacking basic commercial farming skills Lack access to finance lack of knowledge and skills about 	<ul style="list-style-type: none"> Traders depend on outside fish to fill up demand gap Small volumes on local levels make it unfeasible for collection Dealing with haor fish gives higher commissions and margins Size, a prime price determinant for Tilapia, is smaller in Sylhet region than others 	

		pond preparation		
Performance (+)	<ul style="list-style-type: none"> Input sellers are knowledgeable Ready access to most inputs 	<ul style="list-style-type: none"> Natural water resource in haor areas Traditional interest in fishery-based income 	<ul style="list-style-type: none"> Flow of information among markets is good Arotdars prefer local fishes over those from outside 	

7.5 Value Chain Governance

The value chain is largely influenced by traders, especially the wholesalers.

Influence & control along the chain

As the region has a large amount of wholesalers coming from outside, the quality and supply of those products influence the markets greatly and the channel via which they come in is the wholesalers. The other point of influence is the influx of naturally caught fish in certain season. The ultimate control of the value chain lies with the end-market actors – consumers – who dictate demand and pricing of fish.

Role of Beneficiary

Beneficiaries are unable to go beyond local wholesalers and often choose selling directly to consumers in locality for quicker return on harvest. This occurs because most production is done on loans and there is pressure to pay back as soon as possible.

Inter-Firm Relationships

Aquaculture value chain has inter-firm relationships between hatcheries and nurseries, both within the region and outside. The input supply actors and even small commercial farmers have a good network with suppliers from outside the region, namely Mymensingh and Jessore and many directly source it from there via water-filled drums. This system has developed mainly due to the lack of quality input suppliers within the region.

As Sylhet region consumers have a preference for fish consumption, the trading network is well developed to provide demand-driven supply of cultured fish. The strength of inter-firm relationships can be seen in the concept of loan-based contract farming model between wholesalers and farmers. All contracts are verbal and based on mutual trust and sustainable business relations.

7.6 Assessment of Regulatory Environment and Support Services

Supporting markets are well-developed within Sylhet region, driven by foreign remittance and strong tourism activities. The network of financial institutions, Government Departments and Information service providers are present and active in most of the sites. The challenge is accessing these actors by the targeted beneficiaries. Since they are usually situated in very remote locations and the scope of their commercial activities are very small, these supporting markets are often uninterested to engage with them or even unaware of them. Given below are only some of the supporting markets which exist and could benefit our beneficiaries if better linkage is established.

Extension Services:

Upzilla Fishery officer (UFO) are available; but are assigned across the district which makes it difficult to reach them in time of need as they have large numbers of farmers to deal with.

No particular Government policies or laws were found to enhance the effectiveness of the formal value chain. Department of Fisheries (DoF) is active within region. However, due to large number of farmers and small manpower, they cannot reach out to them in time. The department provides

farming advice, and aqua-chemicals at discounted prices, although supplies are very limited and mostly taken by large farmers. The government policy is to encourage aquaculture with additional focus on Tilapia and Pangus.

Business Development Services: In the study region, very few of the respondents were found having any formal training on advance cultivation or proper feeding or pond preparation techniques. These trainings are mostly provided by government bodies and projects since private companies have yet to develop any system of disseminating information or engaging at beneficiary level.

Financial Services: No particular loan facilities are available for aquaculture farmers. They have to take loan from local wholesalers and commit their produce at pre-set price. The problem is aquaculture has a yearly production cycle for carp and atleast 4 monthly cycles for Tilapia while most loan re-payment schedules are monthly – which makes the current models of microfinancing ill-suited for aquaculture. There is no easy access to finances for small farmers in aquaculture.

7.7 Market Analysis

The national production in fisheries of Bangladesh is 2,899,198MT. Of this amount, 17.84% comes from marine fisheries while the rest is from inland fisheries consisting of Captured fish (35.53%) and Cultured Fish (46.63%). The focus of this analysis is specifically in pond-based cultured fish production which nationally contributed 1,140,484MT in 2009- 2010. Sylhet, overall, has very weak pond-based fish production, contributing only 5% to the national production at 53,028 MT. In comparison, Khulna produces nearly 2.5 times at 129,512 MT while Dhaka (including Mymensingh) produces 347,626 MT, which is 6.5 times higher than Sylhet. With total area of 30,385 Hectares, the average production is 1.75 MT per hectare in Sylhet whereas in Khulna it is 2.44 MT/ha. and in Dhaka 4.05MT/ha. This indicates that not only is the production low; the productivity in Sylhet also requires vast improvement.

In channel preference, Tilapia and Carp farmers both depend on Arottdars (42% and 38%) and small retailers (46% and 43%) mainly. In value addition, carp has 25% higher value addition than Tilapia. However, the shorter cycles of Tilapia means that on an annual basis, the revenue is earned through much quicker turnovers, reducing financing pressures and risk of liquidity crisis.

Table 24: Value Addition in Trading²²

Price/kg	Tilapia	Carp	Value Added (Tilapia)	Value Added (Carp)
Foria	104	100		
Aarotdar	113	120	8	20
Small Retailer	120	145	7	25
Consumer	130	150	10	5

7.8 Poor/Resource Dependent, Youth and Gender Analysis

The scope for employment generation in aquaculture is lower than that in other value chains. Even very large fish farms require 5-6 people at max for full time employment. However, there is scope for involvement in pond preparation and harvesting.

Women are not generally employed in aquaculture as employment scope is limited to begin with. Although, if homestead fish culture is carried out, then women will probably get involved in managing the pond and feed for the fish.

²² Primary Data: Questionnaire Survey

7.9 SWOT Analysis

Figure 11: SWOT Analysis

Strengths <ul style="list-style-type: none"> ▪ High local demand ▪ Homestead ponds available in 40% households although unprepared for fish culture ▪ Ready access to core resource: Pond and water ▪ Prevalent practice of fishing in haor areas 	Opportunities <ul style="list-style-type: none"> ▪ Limited knowledge of commercial upscaling of production ▪ Misperception about the strength of haor-fish market ▪ Limited practice of pond preparation ▪ Lack of linkage with large arotdars ▪ Dependence on loans limits business decisions and ownership ▪ Knowledge of proper stocking technique absent
Weaknesses <ul style="list-style-type: none"> ▪ Presence of some group-based aquaculture ▪ Scope for group selling to reduce transportation cost and attract big buyers ▪ Scope for group-savings to reduce loan dependency ▪ Tilapia feasible for small pond sizes with shallow water ▪ Market preference for local cultured fish 	Threats <ul style="list-style-type: none"> ▪ Strong competition from outside sources ▪ Seasonal impact of haor fish ▪ Acidic water hampers growth ▪ Limited finances may make intensive tilapia culture too expensive ▪ Volatile prices for Carp may generate business instability

7.10 Constraints Analysis

Table 25: Constraint Analysis

Level	Symptoms	Constraints
Input Supply	High Investment requirement for Tilapia compared to Carp	Low understanding of commercial benefits of Tilapia farming (2-3 cycles a year) over white Fish Farming (1 cycle/year)
	Tilapia Feed is very expensive	Lack of Knowledge regarding proper feed management in Tilapia farming
Production	Acidic Water damages fish health	Absence of pond Preparation practices among beneficiaries due to prevailing wrong perception of the value of the activity has become a bottleneck to adopt improved aqua- farming practices in the area
	Use of Chun kills the fish	Lack of awareness and skills in proper application of 'Dolomite' to reduce acidity leads to poor growth ,health hazards and productivity of fish farming in low pH water of Sylhet Zone
	Water retention difficult in some areas while variable depth problem in others	Lack of access to suitable tech-know-how in channeling Haor water into pond
	Oxygen shortages hampers growth	Lack of knowledge regarding stocking density leads to overstocking
	Mortality rates and low growth size of fish	
	Fish gets poisoned by gas from rotting feed	Use of sinking feed instead of floating feed due to lower price
	Low Yield of Tilapia farming, also lower priced than Carp	
Trading & End Market	Not interested in reaching bigger markets	Substandard infrastructure and packaging leads to high transportation cost and product loss in penetrating bigger markets
	Dadon (Informal lender) controls business	Farmers' poor access to custom-made aquaculture loan products forces them to secure loans from informal lenders at high rates of interest. Year-long cycle of white fish leads to high loan rates, which leads to exploitation of farmers by informal lenders
	Obligated to sell to Dadon or no loans next year	
	Cannot compete with Natural fish from haors	Ever declining haor catch leading to fetch lower revenue from sales in spite of the high value of the catch per unit

7.11 Recommendations

Table 26: Recommendations

Constraints	Interventions	Activities	Results	Role of CREL	Leverage point
Low understanding of commercial benefits of Tilapia farming (2-3 cycles a year) over white Fish Farming (1 cycle/year)	Promote improved aquaculture practices focusing tilapia and carp farming Through ToT, Docudrama, Exposure Visit etc.	(i) Hiring sector expert	Farmers can now produce tilapia and carp on a commercial scale profitably. Enabling them to compete with products from outside sources.	Provide technical assistance	Input retailers
Lack of Knowledge regarding proper feed management in Tilapia farming		(ii) Developing training module		Organizational strengthening & facilitation of relationships among key actors	Govt. extension departments (UFO)
Absence of pond Preparation practices among beneficiaries due to prevailing wrong perception of the value of the activity has become a bottleneck to adopt improved aqua- farming practices in the area		(iii) Organizing training events			
Lack of awareness and skills in proper application of 'Dolomite' to reduce acidity leads to poor growth ,health hazards and productivity of fish farming in low pH water of Sylhet Zone		(iv) Organizing demo-ponds / field days			
Lack of knowledge regarding stocking density leads to overstocking		(v) Facilitating preparation of and holding promotional events			Other development projects & market actors
Lack of access to suitable tech-know-how in channeling haor water into pond	Facilitate development of irrigation channel systems	Demonstration, development of irrigation channel makers	Beneficiaries are now maintaining stable water levels, reducing the impacts of acidic water etc.		DFO
Use of sinking feed instead of floating feed due to lower price	Promote floating feed to enhance productivity		Beneficiaries maintain proper feed management techniques	Strengthening collaboration with other projects having similar goals	
Substandard infrastructure and packaging leads to high transportation cost and product loss in penetrating bigger markets	Promote group-selling practices to attract bigger market players	Group formation product-wise. Linkage meeting with market actors. Facilitate arrangement of group transport	Individual cost of marketing decreases. Reaching larger markets for bigger volumes		
Ever declining haor catch leading to fetch lower revenue from sales in spite of the high value of the catch per unit	Insert a chapter in training manual to address the perception gap re potential of aquaculture in Sylhet	Update Training manual	Beneficiaries switching to cultured fishing from haor caught fishes	Facilitators in linkage building, group formation, organizing and guiding meetings	

8. Value Chain Analysis for Duck (Layer)

8.1 Brief Overview

Duck egg has an appealing demand throughout the region where nearly the total amount of local production is consumed at the local level. In terms of consumption volume it is only second to chicken eggs. Though it's current level of production lacks commercial scale, its suitability is high for horizontal expansion in the region. Almost all households in the region are engaged in homestead duck rearing (6 – 8 ducks) which cater to their daily demand for animal protein. The natural depressions and the water bodies in the region provide feed for duck, particularly in the winter season.

Duck rearing have sufficient income growth potential which though differs site to site depending on the availability of natural feed. In addition the socio-economic condition also differed from site to site, which combined impacts the profitability and suitability of duck rearing to respective sites. The impact of these differences on business profitability was quantified through a cost-benefit analysis carried out on the project sites. The results of which are shared below:

Table 27: CBA of Duck²³

Egg-laying %	Monthly Egg/Duck	Cost/DoC	Feed Cost/Duck	Total Cost/Duck	Total Prod.(Egg)/Duck	Total Sale (Egg)/Duck	Tot. Revenue1/Duck	Tot.Rev2/Duck (Sell)	Totl.Rev/duck	Income Duck
SATCHORI										
65%	19	105	412	634	124	112	894	70	964	330
HAIL HAOR										
77%	51	72	58	280	104	102	793	57	850	570
REMA-KALENGA										
87%	17	40	364	470	140	113	812	137	949	479
HAKALUKI HAOR										
66%	20	128	170	580	202	197	1291	95	1386	806

8.2 End Market Analysis

8.2.1 Main Market, Buyers & competition

End market for duck egg is the household consumers. Any other type of consumer, specially industrial or other retail is not seen in this region. Duck eggs are not generally used for commercial products or in hotels/ restaurants. Typically the buying patterns of the household consumers are generally up to a dozen at a time. They mostly buy it from retail shops. In rural areas, consumers sometimes buy egg directly from homestead duck farmers. Demand for bigger duck egg is higher. Also duck egg consumption generally increases in winter season.

Local production volume is not yet sufficient to fulfill the national market demand. There are some duck rearing belts located in pockets of Moulvibazar, Habiganj, etc. Due to their large production volume throughout the year, they have better access to those markets. Despite that, even in off-season the regional town markets sometime procure eggs from these belts to meet the local demand.

²³ Primary Data: Cost-Benefit Analysis Survey

8.2.2 Demand-Supply Situation

Duck egg supply has high seasonal variation throughout the project region. However, its demand is more or less even around the year. Commercial farmers have around 78% of market share while the rest comes from homestead farmers. In peak season, duck egg sales are around 230 pieces/day in small markets, while in off-season the number comes down to 50 pieces/day. Though there is a large fluctuation in the seasonal sales volume, the sellers believe that the demand is high throughout the year. They think that they could sell 3 times the current supply of duck eggs without any significant implication to the price level of the commodity.

8.2.3 Market opportunities

Duck rearing has good market potential. The demand is growing and all the traders in the study region are confident to sell 3 - 4 times of the current volume if produced.

A major opportunity could be to enhance the capacity of the homestead duck rearers to rear 25-30 ducks in lieu of the current practice of 8-10 ducks. This would enhance their protein intake as well as increase the market share of the homestead based egg suppliers with enhanced access to institutional finance, a significant percentage of VCF members can be integrated to this duck egg value chain.

Duck rearing also has two additional market opportunities. Firstly it can also be reared for the meat, rather than focusing solely on eggs; target beneficiaries can procure suitable species and rear them for 3-4 months targeting to sell on them during winter when the demand for duck meat is at its peak. Secondly, the haor based beneficiaries can offer duck rearing services to the owners of a sizable number of ducks in the wet season; it can be a good alternate source of income. This practice is not very prevalent yet. However, it has good earning opportunities, generating around BDT 230/day.

8.3 Value chain map and analysis of value creation activities

The value chain map for duck rearing and duck eggs have been developed based on the regional data collected from the project areas. The data collection was from the interviews and survey of the market actors including duckling sellers, feed sellers, farmers, traders, consumers and other supporting actors like government officials, transport providers, etc.

8.3.1 Duck Eggs Sector Overview

Every Value Chain can be broken down into the core functions of Input sellers, producers, Market intermediaries, retailers and consumers. There are few unique characteristics of duck eggs in Sylhet Region which influence the value chain functions.

Business Environment: Underlying Factors

There are **underlying factors** of the vegetable value chain which **impacts the way it functions** as a whole. These factors given below also create the **underlying constraints** of the value chain functions.

Undeveloped Value Chain:

The first thing to know about duck eggs is it is considered a niche product with seasonal demand at best. Thus, although there is a system via which the products reach the consumer, it does so sporadically with negligible number of beneficiaries doing so consistently on a commercial scale. There is no established network of actors consistently working with duck eggs and mainly the product piggybacks on the poultry egg value chain. So, instead of a value chain, a more apt description would be a fragmented value chain.

Land-Water combination:

While most beneficiary households had a few ducks, commercial production is limited to specific areas with close access to both water bodies and land area. Thus, duck rearing in larger scale is prevalent near haor areas like Hakaluki and Hail. It is also prevalent in project sites that lie between high hilly areas and low haor areas like Satchori.

8.3.2 Description of Value Chain actors and functions

Input Suppliers

For duck eggs, the main inputs are duck feed, vaccine & medicine seller (Government & Private) and Day-old Chicks (DoL) seller. Now the biggest problem with commercial production is diseases. Ducks are susceptible to certain illnesses and since commercial production requires large number of ducks (250+), any illness quickly spreads to create big damage to business. Thus, even commercial duck egg producers prefer to keep their numbers low to minimize risk.

This is because although vaccinations and medicines are available, they are expensive and applicable for large number of dosage. For example, one bottle serves 150+ ducks. Government institution (Department of Livestocks) provides some of these medicines and vaccinations at subsidized rate but the supply is highly limited and not accessible by beneficiaries who live in remote areas.

Input Suppliers are important for aquaculture mainly because the quality of the spawn or fingerling is the most influential factor affecting yield. Input suppliers consist of hatcheries, nurseries, fish feed and aqua chemical providers. Spawns come from hatcheries and nurseries provide fingerlings. However, most of the fish (60%) is cultured from eggs of unsold fishes last year. This creates a high level of in-breeding, affecting yield. With the rest, source is 1/4th local and 3/4th from outside the region, namely Mymensingh and Jessore. Also, a very small portion is sourced from Government Institutions like DFO and other development projects. Generally, the quality is found to be wanting due to dependence on retained fish seed. Also, the network of local hatcheries for mono sex tilapia is still lacking for our beneficiaries.

Feed is the second influential factor behind fish growth and the single largest cost factor. There are ready-feed for Tilapia and natural-feed mixes for carp. While supply was available, most beneficiaries were ignorant as to correct balance of feed to be given going by hearsay and trial-and-error. The same can be said for aquachemicals which are mainly used for pond preparation also provided by the same retailers who give fish feed.

Producer

Producers are the targeted beneficiaries, responsible for cultivating the fish, tilapia or carp. There are household farmers who make use of small water bodies within their home area and large or small commercial farmers. The smaller commercial farmers usually depend on nurseries for fingerling; but spawns for hatcheries are limited to large commercial farmers.

Trading

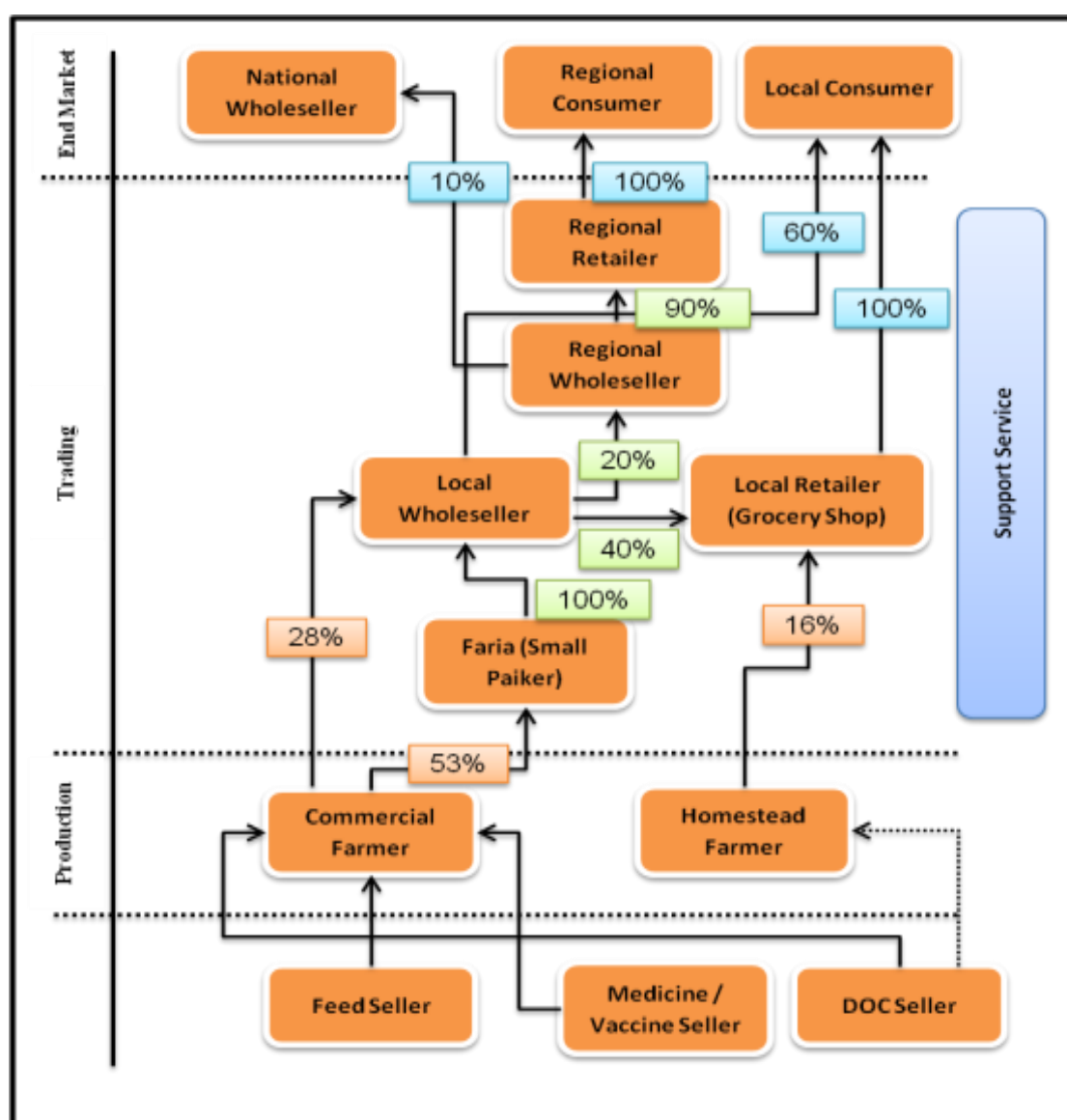
The trading function has multiple actors depending on volume of fish being traded. Traders also play a crucial role in partially financing the initial investments for each cycle. For beneficiaries, who are Homestead farmers and small commercial farmers; the preferred channel is directly to consumers or local markets and small wholesalers.

End-market or End Consumer

Fish is part of staple diet for most Bangladeshis. As such, there are few psychographic or characteristic classifications of their consumers; although more financially solvent consumers prefer

more expensive fishes of bigger size. Thus, the consumers were segmented geographically based on proximity from beneficiary. Firstly, there are the local consumers who lie 5-10km of the beneficiaries. They are the main markets for the beneficiaries, taken directly by consumers in locality. The next level is district level markets which are major commercial hubs which service the other areas within and outside the districts. For very large volumes, the divisional markets in Srimongol and Sylhet are involved where the customers are wholesalers from other regions. For the beneficiaries, the aquaculture production is still at a very amateur level and the end-market is mostly limited to local markets with minimal exposure to district level markets and none to national markets. Sylhet is the core hub for aquaculture with national reach but targeted beneficiaries cannot engage them due to infrastructural challenges and insufficient volume.

Figure 12: Value Chain Map for Duck (Layer)²⁴



²⁴ Primary Data: In-depth interviews and Questionnaire Survey

8.4 Value Chain Performance

Value Chain performance investigated above on their actors and their functions revealed some strengths and weaknesses of the vegetable a value chain to impact the beneficiaries. Further analyses of factors affecting the chain as a whole are given below:

8.4.1 Business Enabling Environment

In general, we found the business environment to be not conducive for commercialization of duck egg farming. While there is good availability of both input suppliers the market actors are those of poultry eggs and duck eggs do not get priority. It is rather an additional product that retailers carry if the retailers have money left after buying poultry eggs. The challenge also is within the production tier as many producers and especially the targeted beneficiaries are satisfied with their subsistence farming technique, unwilling to risk the investment behind commercial upscaling.

Gender and cultural norms: There appears to be a strong culture of going abroad as menial labour and send back earnings as remittance. This cultural dependence on foreign income results in lack of effort on part of the youth to engage in building businesses here. Some areas of the region like Sylhet and Moulvibazar appear to be highly conservative and do not see women working and working outside with other men, in a positive light. However, at a homestead level, since women are primarily in charge of livestock management for both poultry and livestock, women are more involved with duck (layer) rearing.

8.4.2 Vertical Linkages

Vertical linkage among duck-egg producing beneficiaries in Sylhet Region is low. As mentioned above they are unwilling to take the risk of expanding their operations both in volume and also level of business.

Access to markets: Beneficiaries in Satchori, Hakaluki and Hail haor project sites were found to have larger duck numbers conducive to commercialization. No duck hatching farms were found within the project sites and producers sourced it directly from Habiganj or Mymensing. Most producers are involved with production for family consumption and the excess is sold within the neighborhood. Among the few large commercial producers we found, they had direct relation with egg wholesalers in Madhabpur who are mainly poultry egg wholesalers.

Input access & quality: Beneficiaries are mostly dependent on poultry feeds which are also used as duck feed. The chicks are brought in from other places and there is a dependency on retained duck eggs which are hatched to provide more ducks for egg laying. Awareness of proper duck species for egg laying is limited to none.

Access to market information: With a niche market product like duck eggs, little information exists on pricing and demand. Few commercial farmers work with selected few wholesalers to ensure their sales. These producers value maintaining the relation, even at the cost of low prices as the number of market actors dealing with duck eggs is very limited.

8.4.3 Horizontal Linkages

Horizontal linkages among beneficiaries were very low to non-existent. Since duck eggs have seasonal demand and low volume, most businesses depend on few producers dealing with few market actors. Thus, scope for collaboration is low and the product is considered uncompetitive with poultry eggs.

Types, forms of collaboration and competition: Large producers (100+ ducks) maintain collaborative relation with wholesalers, valuing sustainability of trade relations above all else, even

profitability. Thus, duck egg producers are willing to sell at a lower than expected prices as long as their chosen wholesaler continues to do business with them.

Roles for the targeted beneficiaries: The duck egg wholesalers prefer to work with large farmers as they are consistent and professional. Targeted beneficiaries cannot access these actors and stick to neighborhood markets.

The performance of the value chain and scope for upgrading are summarized below:

Table 28: VC Performance

Input Supply		Production	Trading	Support Service
Actors	Feed seller, Vaccine & Medicine Seller (Govt. & Private), DOC Seller	Duck Farmer Large/Commercial, Duck Farmer Homestead	Faria (Small Paiker), Whole Seller (Local & Regional)	Transport service provider
Functions	<ul style="list-style-type: none"> Selling packet feeds and open feeds (Khoil, Kura etc.) Selling medicines and vaccines Selling "Day Old Chicks" to duck farmers (Embedded) Providing information to the farmers on applying medicines and vaccines 	<ul style="list-style-type: none"> Rearing duck for egg production Selling products in markets 	<ul style="list-style-type: none"> (Faria) Collecting products from commercial farmers and from remote areas. Sell to the wholesalers located in the local markets. Bears the transport cost (Wholesalers) Collects products, both from Farias and large commercial farmers. Sellers bear the transport cost Mostly sell products locally, only a small percentage (5% - 10%) goes to national market in peak season. 	<ul style="list-style-type: none"> Provide carrying and transport facilities to the traders and farmers
Performance (-)	<ul style="list-style-type: none"> Demand for packet feed is very low, open feed is more popular among the duck farmers Input providers have limited knowledge to share with the farmers on applying medicine or vaccine Medicines / Vaccines from Govt. sources are sometimes low on supply 	<ul style="list-style-type: none"> Production rate is low, particularly in rainy season Inappropriate feeding throughout the region Duck mortality rate is higher due to diseases. Farmers fail to take proper care. Majority of the duck rearers are homestead, not part of the formal value chain. Limited market channel, large farmers reaching district and divisional market due to large scale production (economies of scale). 	<ul style="list-style-type: none"> The Market is primarily limited to local and divisional 	
Performance (+)	<ul style="list-style-type: none"> Mortality rate of regular DoC is low. Good care is taken when selling Govt. services provide better quality products. 	<ul style="list-style-type: none"> Peak season production is high High demand resulting optimum consumption of local production 	<ul style="list-style-type: none"> Transport time wastage rate is low Access to information is strong 	

8.5 Value Chain Governance

Influence & control along the chain: Since no established value chain exists, the largest influence is exerted by local and district market retailers who assess the demand and keep stock of duck eggs accordingly.

Power dynamics: For large commercial farmers the bargaining power lies completely in the hands of large wholesalers who shift the product both within the region and outside, especially in Chittagong.

Inter-Firm Relationships: Since the product is a niche market with fragmented supply chain, the scope for collaboration and cooperation is low at present.

8.6 Assessment of Regulatory Environment and Support Services

Driven by foreign remittance and strong tourism activities, Sylhet has developed good supporting markets. The network of financial institutions, Government Departments and Information service providers are present and active in most of the sites. The challenge is accessing these actors by the targeted beneficiaries. Since they are usually situated in very remote locations and the scope of their commercial activities are very small, these supporting markets are often uninterested to engage with them or even unaware of them. Given below are only some of the supporting markets which exist and could benefit our beneficiaries if better linkage is established.

Extension Services: Upazilla Livestock Officer (ULO) is available when farmers visit them for advice on diseases, etc. The department was active at project sites, especially in Hakaluki Haor. However, on a policy or regulatory level, there were no clear directions on developing duck eggs as a viable IGA for the government. Thus, the support is low and focused almost exclusively on livestock and poultry management at homestead production level.

Business Development Services: In the study region, very few of the respondents were found having any formal training on advance cultivation or correct identification and cure of diseases. These trainings not provided by within the project sites by any actors we identified during the study.

Financial Services: No particular loan facilities are available for Duck egg producers. It remains unnecessary as the number of ducks (20-30 at max) is quite low and production of eggs is not based on any particular knowledge or technique, rather via trial-and-error.

8.7 Market Analysis

Industry volume is difficult to measure as the duck eggs have yet to become a proper value chain, from rather a fragmented supply chain with volatile supplies. The annual volume is roughly estimated to be around 6 million eggs. In terms of channel preference, 53% go through Farias while 28% sell to arotdars and 16% to small retailers. Farias buy for 650tk/100pc, arotdars for 700tk/100pc, and small retailers for 850tk/100pc and consumers for 1050tk/100pc. The biggest value addition in trading is enjoyed by small retailers (24%). The main decision-making power of the market system lies with the wholesalers/ arotdars. As the focal point of the market chain, they play a pivotal role in price-setting and regulating the market channels. They also have the highest investment among the market actors.

8.8 Poor/Resource Dependent, Youth and Gender Analysis

The poor/resource dependents have lesser scope for engaging in the formal value chain as they are generally without any financial support. Thus as mentioned earlier, they have the opportunity to engage themselves in alternate income generating activities like offering duck rearing services during the monsoon season as the water gets too deep for the ducks to reach the aquatic plants.

As for women, involvement in duck value chain is a real opportunity. Women play a key role in homestead duck rearing (feeding, sheltering etc.), therefore, if homestead farmers are integrated in the formal value chain, women can be involved in the chain in more productive manner.

8.9 SWOT Analysis

Table 29: SWOT Analysis

Strengths <ul style="list-style-type: none"> High local demand Homestead duck rearing is common in almost all households Mortality rate is low during layering stage Egg laying rate is high in peak season, even in traditional technique 	Opportunities <ul style="list-style-type: none"> Value chain is not established formally yet Lack of technical knowledge on improved rearing methods Time consuming, hindering farmers to engage in other agricultural/fishing activities Very capital intensive to start commercial production
Weaknesses <ul style="list-style-type: none"> Low seasonal fluctuation of demand High demand around the year Natural feeding is available for more than half of the year Govt. veterinary services and medicine supplies are available Supplementary income sources are available like duck rearing for meat, and offering duck rearing services 	Threats <ul style="list-style-type: none"> Severe lack of food during rainy season Number of large duck layering pockets located in the surroundings of the project region Access to finance for commercial farming is inadequate

8.10 Constraints Analysis

Table 30: Constraint Analysis

Level	Symptoms	Constraints
Input Supply	High mortality rate of DoC and ducklings from diseases	Lack of knowledge on improved/ commercial duck rearing practices
Production	Lower output in off season, also smaller size of eggs	Lack of awareness of and access to quality vaccination
	Mixed species giving mixed output	Inadequate feeding and improper feed management lead to low productivity per bird
Trading & End Market	Majority of the consumption in local market	Informal and often fragile supply chain due to lack of economies of scale
	Limited market reach due to lower yield	
	Competitive advantage of larger duck rearing belts	
	Lack of professionalism within the producers & absence of fixed customer base	
	Volatile pricing due to advance payment system	

8.11 Recommendations

Table 31: Recommendations

Constraints	Interventions	Activities	Results	Role of CREL	Leverage point
Lack of knowledge on improved/commercial duck rearing practices	Promote Improved/commercial duck rearing practices	Pilot initiative of commercial duck layer farming	Beneficiaries have the knowledge on improved traditional duck (layer) practices	Providing technical assistance Providing financial assistance in building Duck housing for those with 200-250+ ducks (Also provide assistance to the beneficiaries who would enhance their flock size from 8-10 to 25-30)	Input Retailers
Lack of awareness of and access to quality vaccination	Capacity building and Strengthening access	Develop linkage with government and private sector for better vaccination input and services	Beneficiaries are using quality vaccination techniques	Strengthening collaboration with other projects with similar goals	Govt. extension departments (ULO)
Inadequate feeding and improper feed management leads to low productivity per birds.	Demonstrate and train in better feed management		Beneficiaries are using proper feed for profitable egg production. This will overcome the handicapped feed scenario in rainy season.	Facilitators in linkage building, group formation, organizing and guiding meetings	Other development projects & market actors
Informal and often fragile supply chain due to lack of economies of scale	Introduction of duck eggs more extensively into poultry egg value chains	Linkage meetings with market intermediaries of chicken eggs	Beneficiaries can reach bigger market for duck eggs, thus compete with the surrounding large duck layering pockets.	organizational strengthening & facilitating relationship among key actors	DLO

9 Ethnic Communities and New Technologies

9.1 Status of Ethnic Communities

The Northeast Zone (Sylhet) of the project consists of 6 protected areas. They are namely, LauwaChara National Park (LWNP), Shatchhori National Park (SNP), Rema-Kalenga Wildlife Sanctuary (RKWS), Hakaluki Haor (HKH), Hail Haor (HH) & Khadimnagar National Park (KNP). Four of these protected areas are tropical evergreen forests and two are water bodies. Topography of forest areas are typically undulating. Small numbers of ethnic communities are located inside and in the perimeter of these forests.

Dependency on Natural Resources

Majority of the ethnic communities in all four sites were found extracting natural resources from the protected areas. Only those who are engaged as labors in tea estate are less of a resource extractor. They mostly collect wood and bamboo from adjacent forest areas. Firewood, fodders, leafy vegetables, bamboo shoots and culinary plants are regularly extracted from the forests also. In KNP it was seen that, one of popular livelihood option for ethnic community (Patro) is collecting wood, burning them to coal and then selling them. But it was observed that co-management programs of IPAC resulted in a declining trend of natural resources extraction from the protected areas studied.

Opportunities for Value Chain Integration

The ethnic communities located in the Northeastern Zone are generally very poor, landless and living inside or in the perimeter of forests, which forces them to become resource dependent. Again dependency over livelihoods based on natural resource extraction inhibits the scope of any skill development. This situation makes it difficult to integrate them in mainstream value chain activities. The strategy for the development of ethnic communities can be either engaging them in alternate income generating activities (AIGAs) or start integrating them as support service actors.

Few of the leverage points found for the ethnic communities are – that Govt. had provided a small area of land to ethnic HHs in some regions as lease with lower rates. Also, ethnic communities living inside forest areas practice agriculture. Thus with proper training & capacity building of the ethnic communities, more of them can get engaged in homestead vegetable cultivation. Project interventions for *“Vegetable Value Chain Development”* will thus become good incentives for them.

Another livelihood option can be activated for the ethnic communities involved in making handicraft items. Nature-tourism sites can be their potential market. Many of the tourists visiting the Nature-tourism sites are interested to collect souvenir of the indigenous communities and their culture. Improving the product quality of the handicrafts by providing training and better raw materials will increase their market to many potential tourism areas.

Demographic Status of ethnic groups in Northeastern project region

KNP: There is one ethnic community, Patra Samprodai, located nearest the forest. There is no forest village located inside the Khadimnagar RF. Their main occupation is day labor, followed by fuel wood collection, vegetables etc. This community is dependent on the exploitation of forest resources for their HH needs. This is a tribal community, and has about 30 HHs. The adjacent areas have been covered by Tea estates. At present 70 % of the Patra are day laborers. Women of ethnic community have a major role in many HH decisions making. Women are more involved in earning in ethnic communities. There have no innate tendency of encroaching land or establishing new settlements inside the RF.

LNP: There are villages of four ethnic communities namely Khasia, Tripura, Manipuri and Santhal in and around the national Park. There are two Khasia villages within the National park namely Magurchara punji and Lawachara punji. They are specialized in Jhum farming specially Betel leaf. There are also two Manipuri villages in the neighborhood of the National Park namely Ramnagar and Baligaon. The two villages are not dependent on the resources of the park and therefore do not fall in the landscape. But the two villages are dependent on tourism of Lawachara. Households of both the villages weave conventional cloth. Manipuri handicrafts are very popular amongst the visitors and before or after the visit to Lawachara they come to these villages. Residents of eastern part of the Doluchara village are Tipra. Some of the households in this village too do weaving. The village has a handicraft shop where the villagers come and give their product for sale to visitors.

SNP: Ethnic Community Village Tiprapara is the only recognized forest village inside SNP, inhabited by 16 households of Tripura tribe. The headman leads the village which was established by the Forest Department (FD) inside the reserve forest to provide labor for raising plantations after clear-felling natural forests. Visitors can enter and go around the village after seeking permission and talk to the members of the tribe and understand their culture and their community lifestyle. The information center has brochures and other informative materials about the park and also sells T-shirts, caps and products from the ethnic community.

9.2 Technology Innovation

Table 32: Technological Innovations

Name of Value Chain	Proposed Intervention	Introduction to New technology
Vegetable	Promote improved farming practices of vegetables among target groups	<ul style="list-style-type: none"> - Introducing Dyke farming to reduce production cost and use of harmful chemicals (pesticides, insecticides) - Introduction to use of compost fertilizer will help reducing the production cost. Compost can be easily produced from household waste. It increases water holding capacity of the soil, also works as bio-pesticide. Overall crop quality increased with the use compost.
	Promote responsible post-harvest handling practices	<ul style="list-style-type: none"> - Usage of plastic crate will help reducing post-harvest damage of vegetables and keeping the quality of perishable vegetables better.
Fish	Facilitate development of irrigation channel systems	<ul style="list-style-type: none"> - Introducing improved irrigation channel system through controlled inlet-outlet water supply with sluice gate
	Promote improved aquaculture practices focusing tilapia and carp farming Through ToT, Docudrama, Exposure Visit etc.	<ul style="list-style-type: none"> - Cultivation of Tilapia in green water for house hold pond - Development of Tilapia nursery in cage or House hold pond - Introducing of low cost carp poly culture (Silver, Rui, Grass carp common carp) in house hold pond
Duck	Demonstrate and train in better feed management	<ul style="list-style-type: none"> - Integrated duck-fish farming in dry season will provide adequate feed supply for duck rearing, which will add savings for feed supply in rainy season

Annex

ANNEX 1: Term of Reference

Background

Climate-Resilient Ecosystem and Livelihoods (CREL) is an USAID funded project implemented by team led by Winrock International. CREL project will scale up and adapt successful co-management models to conserve ecosystem and protected areas (PA's) in Bangladesh, improve governance of natural resources and bio-diversity, and increase resilience to climate change through improved planning and livelihoods diversification. CREL will build the capacity of resource users for financial and entrepreneurial literacy so they participate profitably in value chain activities that will increase access to inputs, credit, markets, information, and improved technology. The result will be viable livelihoods and enterprises that increase incomes, sustain resources and productivity, and improve resiliency, especially among marginal and vulnerable populations. A brief background of the project is attached with TOR as Annex I.

CREL aims to provide sustainable alternative livelihood opportunity to the CREL target beneficiaries who are disadvantaged, poor/ultra poor, women, youth and highly dependent on natural resources through strengthening suitable and climate resilient value chains.

Objectives of the Study

The main objective of the study is to find out the potential Value Chains and analyzing the Value Chains to come up with strategies and interventions to ensure sustainable livelihoods for the beneficiaries of the project that lead to reduce pressure on natural resources. The study will be conducted in two phases. Specific objectives of each Phase of study can be defined as follows:

Phase 1: Analyze all potential Value Chains and select 3 Value Chains for full analysis from each region according to the criteria mentioned below;

Climate Resilient – Value Chains that are climate resilient and/or has the potential to reduce risk from climate change threats.

Potential to reduce extraction of natural resources

Ensured Market Demand and/or Opportunity to link with markets

Potential to increase income of the marginal and vulnerable populations who have small amount of land or totally landless

Potential to create employment throughout the value chain

Potential to incorporate women and youth

Potential to involve MSMEs

Potential for growth

Potential to be benefited from the available support services

Suitable for the economically disadvantaged area particularly in the landscape/wetland area of CREL regions

Phase 2: A detail analysis of the selected value chains to get a vivid picture of each value chain and to formulate the strategy/interventions to strengthen the value chains and create scope for sustainable livelihoods.

Scope of Work

Working area for this study is Bangladesh. Following cites will be covered in the study:

Zone	District	Upazila	Site
Northeast	Habiganj	Chunarughat and Madhabpur Chunarughat	Satchari NP RemaKhalenga WS
	Maulavibazar	MaulavibazarSadar and Sreemangal Kamalganj and Sreemongol Kularua, Juri, Baralekha, Fenchuganj&Golapganj	HailHaor Lawachara NP HakalukiHaor ECA
	Sunamganj	Dharmapasha, Tahirpur	TanguarHaor ECA (Only based on secondary literature)
	Sylhet	SylhetSadar, Goainghat	Kadimnagar NP
Southeast Zone 1	Chittagong	Lohagara,Banshkhali	Chunati WS
	Rangamati and Banderban Rangamati	Chandanise, Rangunaia, BanderbanSadar, Kaptai	Dudhpukuria- Dhupchari WS Kaptai NP
Southeast Zone 2	Cox's bazar	Cox's bazar Sadar,Ramu Chakaria, Teknaf Ukhiya	Himchari NP Fashiakhali WS Medhakachapia NP Teknaf WS Inani proposed NP
Southwest	Bagerhat	Sarankhola, Mongla, Morrelganj and Rampaul	Sundarbans (West)
	Khulna	Dacope and Koyra	SunderbanECA
	Satkhira	Shyamnagar	Sundarbans (East)

Innovision will assess all available Value Chains of the project areas to shortlist the Value Chains which are close to the criteria mentioned in the objectives. In addition to the mentioned criteria, Innovision will need to assess the available backward & forward linkages, business & financial services, infrastructure and enabling environment in project sites which are directly linked with the Value Chains. After the initial assessment, Innovision will submit a report elaborating the selection process of the shortlisted Value Chains. Once the value chains are shortlisted, Innovision will do an in-depth analysis of each value chain. This analysis should be in line with USAID guideline for analyzing value chains provided in the website <http://microlinks.kdid.org/>. CREL project will need separate report for each of the selected value chain according to the following guideline:

End Market Analysis (Main market, buyers, competition) and market demand

Descriptions of the Value Chains (Actors, their roles and functions, map and relationships of the actors and service providers)

Performance of the Value Chains and Scope for Upgrading (performance in each stage, Cost-benefit, value addition)

Poor/resource dependent, youth and gender Analysis and scope of integration in value chains

Assessment of Business, Financial and other services

Assessment of Policy/Regulations

SWOT Analysis

Summary of the constraints

Recommended Strategies/Interventions

Though market demands will be assessed and incorporated in Value Chain Study report, CREL will need a separate report on market demand assessment of each Value Chain.

Timeframe

Task	Deliverables	Deadlines
Phase 1: Selection of Value Chains	Report on detailing the selection process and selected Value Chains	20 th Calendar day
Phase 2: Full Analysis of the selected Value Chains	Report on full analysis of the selected Value Chains.	70 th Calendar day

Innovation will need to provide a detail work plan mentioning breakdown of the activities with dates. Alteration of dates during the implementation stage should be made in consultation with the Livelihood team of CREL/Winrock International.

Methodology

Innovation will propose methodology for the each phase of the study. However, proposed methodology should include following steps (not exhaustive):

Desk Research

Field Study and analysis of the findings

FGD

Interview of different actors

Key Informant Interview

Workshop

Innovation will consult with the livelihood team of CREL to finalize indicative sample size and methodology.

Deliverables

The deliverables to be provided by Innovision under the PO are the following:

Phase 1:

Summary findings of the desk research

Matrix of the key findings from the stakeholders workshop(if any)

Detail report on selected value chains elaborating selection process and methodology

Presentation at CREL on selection process and selected Value Chains

Phase 2:

Report on desk research(with draft value chains)

Workshop report

Report on full analysis of each of the selected value chains (including Nature tourism)

Market Demand Assessment Report

Database of the study (including all filled questionnaire, list of the interviewees)

Presentation on the findings of the study

Resource Facilities by Winrock, CODEC, CNRS and NACOM

To supervise the study, Winrock and their partners will use their own resources. However, Livelihood Officer, Market Development Officer and Livelihood Facilitator will assist Innovision in conducting the study. This assistance include, arranging interview, facilitate interview process and organizing workshops at regional level.

Key Contact Person

Mr. Sadruddin Imran, Chairman & CEO of Innovision will be key person from the vendors side while CREL project's Enterprise and Livelihood Manager Mr. Mahmud Hossain will be the key contract person for the this activity.

All Communication with GOB and USAID must be coordinated with the Chief of Party of Project, CREL.

Annex 2: Detailed Field Plan

Phase -1

CREL Field Plan									
Date	Day	Location	Staying at?	Check out	Morning (8am-12pm)	Afternoon (12pm-4pm)	Evening (4pm-6pm)	Night (6pm-10pm)	End of Day Staying at?
16th August	Friday	From Dhaka	Sreemongol	No	Travel (Start at 8:00 am, reach by 1pm)				Sreemongol
17th August	Saturday	Lawacharra	Sreemongol	No	Training @ CREL Office	FGD 1	FGD 2,	Official Dinner	Sreemongol
					In-depth Interview 1,2		In-Depth Interview 3,4	KII 1 & 2	
18th August	Sunday	Hail Haor	Sreemongol	Yes	FGD 3	KII 4	In-Depth Interview 5,6		Sreemongol
					KII 3				
19th August	Monday	Rema Kalenga & Satchori	RKS	No	FGD 4	FGD 5	In-Depth Interview 8,10		Rema Kalenga
					In-Depth Interview 7,8	KII 5			
20th August	Tuesday	Hakaluki (Kulaura)	Rema Kalenga	Yes	Travel till 11:00	KII 6	In-Depth Interview 11,12		Sylhet
					FGD 6				
21st August	Wednesday	Khadimnogor	Sylhet	No	FGD 7		In-Depth Interview 13,14	Official Dinner (If needed)	Sylhet
					KII 7 & 8				
22nd August	Thursday	Khadimnogor	Sylhet	No	In-Depth Interview 19,20	Collate, Analyse and make presentation for workshop			Sylhet
23rd August	Friday	Sreemongol	Sylhet	Yes	Collate, Analyse and make presentation for workshop				Sreemongol
24th August	Saturday	Sreemongol	Sreemongol	No	Workshop, work on reports				Sreemongol
25th August	Sunday	Dhaka	Sreemongol	Yes	Travel to Dhaka				Dhaka

Phase – 2

CREL Field Plan: Phase - 02									
Date	Day	Location	Starting	Check	Morning	Afternoon	Evening	End of Day Staying	

			from?	out	(8am-12pm)	(12pm-4pm)	(4pm-6pm)	at?
5th Sept	Thursday	From Dhaka	Sreemongo I	No	Travel (Start at 8:00 am, reach by 1pm)	Agriculture officer from workshop	Resource Extractor	Sreemongol (X2)
6th Sept	Friday	Lawacharra	Sreemongo I	No	Meeting with CREL Staff for final field plan	Juri bazar: Forash & Tomato - Big farmer	Snowballing: Forash trader/storage	Sreemongol (X2)
					Tourist interview plan	Brinjal and forash market channels	India LC tomato-Importer & market Channel	
7th Sept	Saturday	Habiganj	Sreemongo I	Yes/No	Satchori - Large lemon farmer	Mukhikochu Market - Habiganj	Debrief from Bani Bhai	Sreemongol (X2)
					Travel (Start at 8:00 am, reach by 1pm)	Collect Tourist feedback	Return to Dhaka	
8th Sept	Sunday	Hail Haor	Sreemongo I	No	Hail haor - Large Fish Farmer	Begun Market Assess	Tourism opportunity Assess & Resource Extractor	Sreemongol (X2)
					Fish Inputs market	Vegetable Input retailer	Duck Market	
9th Sept	Monday	Satchori & RKWS	Sreemongo I	Yes	Satchori - Lemon Market	Travel RKWS	RKWS - Local Veg market & Input	RKWS (X2)
					Satchori - Large Veg Farmer	RKWS - Large Duck Farmer & Resource Extractor	RKWS - Tourism Assess	
10th Sept	Tuesday	RKWS	RKWS	Yes	Fish Nursery/hatchery	Homestead-cum-commercial farmer	Satchori- Duck & fish market Assess (Chunarughat)	Sreemongol (X2)
					Large Fish Farmer	Travel Satchori	Tourism Assess & Resource Extractor	
11th Sept	Wednesday	Sreemongol	Sreemongo I	Yes	Travel to Sylhet	Collate Information, ID information gaps,		Sylhet (X2)
12th Sept	Thursday	Khadimnagar	Sylhet	No	Tomato Large farmer	Tourism Assess	Large Market: veg	Sylhet (X3)

					Travel to Sylhet		Large Market: Fish	
13th Sept	Friday	Khadimnogor	Sylhet	No	Mukhi Kochu Farmer		Market: Duck	Sylhet (X3)
					Agro-processor Interview	Resource Extractor	Paiker: Veg	
14th Sept	Saturday	Hakaluki (kulaura)	Syhet	Yes/No	Large Fish Farmer	Fish Nursery/hatchery	Fish: Inputs Retailer	Sylhet (X2)
					Large market: Fish & Veg	Travel to Sylhet	Market: Duck & Resource Extractor	
15th Sept	Sunday	Sreemongol	Sylhet	Yes	Travel to Sreemongol	Collate Information, Analysis		Sreemongol (X2)
16th Sept	Monday	Satchori	Sreemongol	No	Large Duck farmer	Market: Duck	Tourism Assess	Sreemongol (X2)
					DoL: Duck Farming	Resource Extractor		
17th Sept	Tuesday	Dhaka	Sreemongol	Yes	Travel to Dhaka			

Annex-3: Data Collection Tools

Phase-01: Information Checklists for the Value Chain Selection

CREL Value Chain Selection and Analysis

Criteria	Information	Respondents	Tools
<i>Climate Tolerance</i>	Influence of Erratic rainfall Heavy & flash flood Fog Draught Salinity Extreme temperature (heat & cold) Adaptation & mitigation techniques used by the community	Target community people Experts (Check climate effect of chosen VC with Ben-FGD)	FGD KII
<i>Climate Resiliency</i>	Community's response mechanism to climate change impacts Change in ecological situation due to those responses	Target community people Experts	FGD KII
<i>Resource Extraction Minimization</i>	Type of resources extracted in the regions Frequency of extraction Volume or quantity of the extraction	Target community people Experts (Rate of extraction better taken from Forest Dept.)	Beneficiary profile Secondary info KII
<i>Women and Youth Inclusion</i>	Types of involvement in the selected value chains Level of involvement in the selected value chains	Target community people	FGD
<i>Outreach</i>	Size of population involved in the selected value chains	Target community people	Beneficiary profile FGD
<i>Growth potential</i>	Market Demand (existing and projected demand) Price trend Seasonal variation Supply situation	Market actors Producers	FGD In depth interviews KII
<i>Potential for Income Increase</i>	Potential monthly income to be generated from choosing the listed value chain. The value chain specific cost benefit analysis will be deducted from the <ul style="list-style-type: none"> • Area farmed • Yield • Cost of production 	Market actors Producers?? Best to take from any farmer who's already doing it.	FGDs In depth interviews

	<ul style="list-style-type: none"> • Quantity sold • Revenue 		
<i>Private sectors participation</i>	Private sectors present in the regions Details of the private sectors	Market actors (Input suppliers, Buyers) Producers	FGDs In depth interviews
<i>Development priorities and favorable policy of government</i>	What are favourable policies in place? Local culture and customs	Govt. Private sectors NGOs	KII Secondary literature
<i>Synergy ,potential collaboration & overlap</i>	Similar projects working in the project area Overlapping scenario between different projects	NGOs	KII
<i>Low Risk</i>	Entry barrier Capital intensive Business risk	Value chain actors ?? Key is iD low hanging fruits, most info from FGD.	KII In depth interviews
<i>Scope for value addition</i>	Processing scope Opportunities to value add	Value chain actors??	KII In depth interviews

Phase-01: Participants for Dinner and Validation Workshop

Dinner on 17th	
Organization	Person
Innovision	3
Regional Coordinator (CREL)	1
Livelihood officer	1
Forest department (ACF & DFO)	2
Regional head of DAE	1
Regional head of DOF	1
Regional head of DOE	1
Total	10
Validation Workshop	
Organization	Person
Range Officer (2) & SUFO & UFO	4
DAE	1
DOE	1
CBO	8 (4 VCF member)
Community member	4 (Non beneficiary)
CREL staffs	7
Total	25

For beneficiary

BENEFICIARY PROFILE

Issues that hinders growth and production

How is the business growth / production trend in this region? Growing, stalled or declining.

What are the main reasons behind this condition?

Who / what can help in further growth of your business?

VALUE CHAIN

Input sourcing

What are the major inputs needed for your product?

From where and whom do you source the inputs?

What is your mode of purchase? Cash or credit?

Are the inputs widely available?

Is there any issue with the quality of inputs?

What challenges do you face in procuring inputs?

How did you try to tackle these challenges?

Does the input needs processing? How do you process the inputs? What problems do you face in processing?

Who do you think can help you in tackling the challenges / problems?

Status of production

What is your annual yield?

Are there other large farmers who have better yield?

Why is it so? What do they do that gives better yield?

What is your average cost of production per decimal?

What constrains you in controlling cost of production?

From whom did you learn about the details of chosen vegetable farming?

How do you collaborate with other producers in your locality?

What are the problems you face in vegetable production that you have not solved?

End Market

Who are your buyers? What % of volume goes to each type of buyer?

What price do you get from the buyers?

How do you transport products to the buyers? What is the cost?

How do the buyers pay- in cash or in credit?

Are the buyers satisfied with quality?

How do you get the information in market price and quality?

What other support do you receive for marketing and from whom?

What are your major challenges in marketing?

How did you try to tackle the challenges?

What issues do you need to address to increase your sales and get better prices?

Who can support you to address your market related constraints?

Do you have experience in buying inputs or selling produce in a group?

If so, what are the problems you faced or facing?

Status of support services

What type of support services do you need to produce?

What type of support services do you need for selling?

Are the support services available? What are the costs and is it affordable?

Is there any area-specific availability of the support services?

Access to finance

How much working capital do you need every year?

How much of the working capital is sourced through credit?

From whom do you source your credit?

What interest do you need to pay for credit?

What challenges do you face in sourcing funds?

How did you try to tackle the challenges?

What challenges do you need to address to source funds?

For Input Seller

Product Range

What products do you keep in your store?

What price range are they in?

Customer base

How many customers do you have? Regular and infrequent division.

What are the problems you face in dealing with customers?

Linkage strengths and weaknesses

Do your customers misuse your product due to lack of knowledge? Details

Which are the most important factors to your customer in purchasing decision?

Are there any bulk buyers from your shop? Do they get discounts?

Are you informed about the correct usage of inputs? Do you inform your customers?

Market Consistency

Which products have ready supply always and which do not?

How much does price of core inputs like seed, fertilizer and pesticide vary throughout the year?

Business Behavior

What is your transaction model with customers?

How many pay upfront? How many get credit? Why them?

Can customers bargain on price? What are the reasons when you bargain on price?

Inter-relationships

Do you cooperate and collude with other input sellers?

On which factors do you cooperate?

Product Range

What products do you sell?

In chosen value chains, what is the monthly volume and value sold of products sourced from project sites?

Customer base

How many customers do you have? Regular and infrequent division

What % from local area? From within district? Within Division? Outside division?

What are the main concerns from your customers regarding the value chain?

Linkage strengths and weaknesses

Do your customers have a problem with the chosen product? Why do they think so?

Which are the most important factors to your customer in purchasing decision?

Are there any bulk sellers in your shop? Do they get advantages?

What % of your source are small farmers? Forias and Paikers/patilwala? Large farmers? Collective farmers?

Market Consistency

What problems are there in supply and quality of chosen product?

How much does price of product paid vary throughout the year?

Business Behavior

What is your transaction model with farmers?

How many get paid upfront? How many on credits?

Can farmers bargain on price? What are the factors on which the bargain is set?

Inter-relationships

Do you cooperate and collude with other market actors of your kind?

On which factors do you cooperate?

Phase – 02: Questionnaire for CREL Staff Survey

Questionnaire for Vegetable Producer – North East Region

Respondent's Name		
Phone Number		
Date		
Project Site (tick):	Lawachara 4. Khadimnogor Satchori 5. Hail Hakaluki 6. RKWS	
Status (Tick Relevant)	Commercial	Small
Farmer's Land Size (dcm)	Own:	Leased:

Cost Benefit for Vegetable:

Name of the crop	Land Size (dcm)	Total Production Cost (BDT)	Volume Produced (Kg)	Volume Sold (Kg)	Total Revenue
Tomato					
Forash					
Brinjal					
Mukhikochu					

What are the problems in Vegetable production?

Name of the crop	Problem detail

Are you satisfied with quality of your product?

Yes B) No

If No, how can you improve the quality of product?

--

Training / Skill Development

Have you ever got training on your vegetable production?

Yes B) No

If Yes, Where did you get the training?

Government Institution

NGO

Private Company

VCF/CMC members

If NO, Do you require any training on skill development for vegetable cultivation?

Yes

No

Access to Finance

Have you ever got financial assistance for vegetable production?

Yes B) No

If Yes, What was the source of finance?

Govt. banks	Private Banks	Project/NGOs
Microfinance Institutions	Community fund/Samity/CBO	Dadon/Mohajon/Neighbours/Relative

Others:

If No, Do you require any financial assistance development for vegetable production?

Yes B) No

Market Behaviour

To whom do you sell your products (in percentage)?

Name of Crop:	Foria		Aarotdar		Small Retailer		Consumer	
	Price	%	Price	%	Price	%	Price	%
Tomato								
Forash								
Brinjal								
Taro/Kochu								

Questionnaire for Fish Producer – North East Region

Respondent's Name		
Phone Number		
Date		
Project Site (tick):	Lawachara 4. Khadimnogor Satchori 5. Hail Hakaluki 6. RKWS	
Status (Tick Relevant)	Commercial	Small
Farmer's Pond Size (dcm)	Own:	Leased:

Cost Benefit for Fish:

Name of the crop	Land Size (dcm)	Total Production Cost (BDT)	Volume Produced (Kg)	Volume Sold (Kg)	Total Revenue
Tilapia					
White Fish					

What are the problems in Fish Cultivation?

Name of the crop	Problem detail

Are you satisfied with quality of your product?

Yes B) No

If No, how can you improve the quality of product?

--

Training / Skill Development

Have you ever got training on your Fish Cultivation?

Yes B) No

If Yes, Where did you get the training?

Government Institution

NGO

Private Company

VCF/CMC members

If NO, Do you require any training on skill development for Fish Cultivation?

Yes

No

Access to Finance

Have you ever got financial assistance for Fish Cultivation?

Yes B) No

If Yes, What was the source of finance?

Govt. banks	Private Banks	Project/NGOs
Microfinance Institutions	Community fund	Dadon/Mohajon/Neighbours/Relative

Others:

If No, Do you require any financial assistance development for Fish Cultivation?

Yes B) No

Market Behaviour

To whom do you sell your products (in percentage)?

Name of Crop:	Foria		Aarotdar		Small Retailer		Consumer	
	Price	%	Price	%	Price	%	Price	%
Tilapia								
White Fish								

Questionnaire for Duck Producer – North East Region

Respondent's Name		
Phone Number		
Date		
Project Site (tick):	Lawachara Satchori Hakaluki	4. Khadimnogor 5. Hail 6. RKWS
Status (Tick Relevant)	Commercial	Small
Farmer's duck number		

Cost Benefit for Duck Layer:

No. of Ducks	No. of Eggs/month	Total Production Cost (BDT)	Eggs Produced (monthly)	Eggs Sold (monthly)	Total Revenue

What are the problems in Duck layer?

Name of the crop	Problem detail

Are you satisfied with quality of your product?

Yes B) No

If No, how can you improve the quality of product?

Training / Skill Development

Have you ever got training on your Duck layer?

Yes B) No

If Yes, Where did you get the training?

Government Institution

NGO

Private Company

VCF/CMC members

If NO, Do you require any training on skill development for Duck layer?

Yes

No

Access to Finance

Have you ever got financial assistance for Duck layer?

Yes B) No

If Yes, What was the source of finance?

Govt. banks	Private Banks	Project/NGOs
Microfinance Institutions	Community fund	Dadon/Mohajon/Neighbours/Relative

Others:

If No, Do you require any financial assistance development for Duck layer?

Yes B) No

Market Behaviour

To whom do you sell your products (in percentage)?

Name of Crop:	Foria		Aarotdar		Small Retailer		Consumer	
	Price	%	Price	%	Price	%	Price	%
Duck (Layer)								

Questionnaire for Resource Extractor

Respondent's Name		
Phone Number		
Date		
Project Site (tick):	Lawachara 4. Khadimnogor Satchori 5. Hail Hakaluki 6. RKWS	
Status (Tick Relevant)		
Land Size (dcm)	Own:	Leased:

Natural Resources Extracted (Personal use):

Name of Resource	Amount extracted (kg/month)	Value (Tk./month)
Firewood		
Fish		
Others:		

Natural Resources Extracted (Commercial use):

Name of Resource	Amount extracted (kg/month)	Monthly Income (Tk.)
Firewood		
Fish		
Grass		
Wild Plants		
Other:		

Other Experiences and skills:

Experience? (Tick)	Type of Experience (Tick)
Vegetable	Sowing, Farming, weeding, harvesting, cleaning, carrying
Duck (Layer)	Sourcing, cage making/clearing, duck herder, carrying
Fisheries	Pond preparation, Carrying, feeding, harvesting, management
Others: Name Sector	Describe skill

Phase -02: Site-wise Cost-Benefit Analysis

ক্রমিক		লাউয়াছড়া (১)	সাতছড়ি (২)
উত্তরদাতারনাম		রেমাকালেঙ্গা (৩)	হাইল হাওর (৪)
পিতা/ স্বামী		হাকালুকি হাওর (৫)	
মোবাইলনম্বর		বেনেফিসিয়ারি	নন- বেনেফিসিয়ারি
হাঁসের জাত			

COST – BENEFIT ANALYSIS of “Duck Farmer (Layer)”

বিগত ১ বছরের তথ্য

	Season (_____ মাস)
হাঁসের সংখ্যা	
ডিম দেওয়া হাঁসের সংখ্যা	
মাসিক ডিমের সংখ্যা	
বাচ্চাক্রয়ের খরচ	
বাচ্চাক্রয়ের সংখ্যা	
হাঁসের খাবারের পরিমাণ	
হাঁসের খাবারের খরচ	
ঔষধ/টিকাব্যবদ খরচ	
স্থাপনা (বাসা) খরচ	
যাতায়াত খরচ	
কামলা খরচ	
অন্যান্য খরচ	

মোটখরচ	
মোটডিমউৎপাদন	
মোটডিমবিক্রয়	
গড়বিক্রয়মূল্য/ ১০০পিস	
মোটবিক্রয়মূল্য	
মোটহাঁসবিক্রয়সংখ্যা	
গড়বিক্রয়মূল্য/ হাঁস	

COST – BENEFIT ANALYSIS OF “Fish Farmer”

ক্রমিক		লাউয়াছরা (১)	সাতছড়ি (২)
উত্তরদাতারনাম		রেমাকালেঙ্গা (৩)	হাইল হাওর (৪)
পিতা/ স্বামী		হাকালুকি হাওর (৫)	
মোবাইলনম্বর		বেনেফিসিয়ারি	নন- বেনেফিসিয়ারি

বিগত ১ বছরের তথ্য

	তিলাপিয়া	সাদা মাছ
চাষকৃত পুকুরের আয়তন		
বাৎসরিক লীজখরচ		
বাৎসরিকচক্র		
পুকুরতৈরিবাবদখরচ		
পোনাখরচ		
পোনারপরিমাণ		
মাছেরখাবারেরপরিমাণ		
মাছেরখাবারেরখরচ		
ঔষধ/ ভিটামিনখরচ		
সেচখরচ		
যাতায়াতখরচ		
কামলাখরচ		
অন্যান্যখরচ		
	তিলাপিয়া	সাদা মাছ
মোটখরচ		
মোটউৎপাদনkg		
মোটবিক্রয়kg		
গড়বিক্রয়মূল্য / kg		
মোটবিক্রয়মূল্য		

ক্রমিক		লাউয়াছড়া (১)	সাতছড়ি (২)
উত্তরদাতারনাম		রেমাকালেঙ্গা (৩)	হাইল হাওর (৪)
পিতা/ স্বামী		হাকালুকি হাওর (৫)	
মোবাইলনম্বর		বেনেফিসিয়ারি	নন- বেনেফিসিয়ারি

COST – BENEFIT ANALYSIS OF “Vegetable Farmer”

বিগত ১ বছরের তথ্য

সবজির নাম	টমেটো	বেগুন	কচুমুখি	ফরাশ	লেবু
বাৎসরিক চাষ চক্র					
চাষকৃত জমির পরিমাণ					
বাৎসরিক লীজ খরচ					
জমি তৈরি খরচ					
বীজ খরচ					
সেচ খরচ					
সার খরচ					
কীটনাশক খরচ					
কামলা খরচ					
যাতায়াত খরচ					
অন্যান্য খরচ					

মোট খরচ					
মোট উৎপাদন kg					
মোট বিক্রয় kg					
গড় বিক্রয় মূল্য / kg					
মোট বিক্রয় মূল্য					

Annex 4: Respondent list (Phase 1 + Phase 2)

Respondent List

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
1	MD. Tara Mia	1963212033	Hakaluki Haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-1	Project Staff
2	Doyamoy Das	1722940222	Hakaluki Haor	Sylhet,Moulvibazar	Fisherman	Producer	Questionnaire	Phase-1	Project Staff
3	Dhonanjoy Bsiwas	1741017919	Hakaluki Haor	Sylhet,Moulvibazar	Fisherman	Producer	Questionnaire	Phase-1	Project Staff
4	Touhid Alam	1924596135	Hakaluki Haor	Sylhet,Moulvibazar	Duck rearing	Producer	Questionnaire	Phase-1	Project Staff
5	ArobAli	1726907857	Hakaluki Haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-1	Project Staff
6	Md. Join Uddin	1767107377	Khadimnogor	Sylhet	Day Labour	Producer	Questionnaire	Phase-1	Project Staff
7	Md. Shahab Uddin	01741217925 (Req.)	Khadimnogor	Sylhet	Day Labour	Producer	Questionnaire	Phase-1	Project Staff
8	Md. Lal Mia	1766709255	Khadimnogor	Sylhet	Day Labour	Producer	Questionnaire	Phase-1	Project Staff
9	Belal Ahmed	1779459789	Khadimnogor	Sylhet	Agriculture	Producer	Questionnaire	Phase-1	Project Staff
10	Jaheda Begum	0	Khadimnogor	Sylhet	Agriculture	Producer	Questionnaire	Phase-1	Project Staff
11	Abdul Kadir	01738-658578	Lawachara	Moulvibazar	Fermer	Producer	Questionnaire	Phase-1	Project Staff
12	Abdul Karim	01853-211680	Lawachara	Moulvibazar	Fermer	Producer	Questionnaire	Phase-1	Project Staff
13	Saleh Ahmed	01756-920351	Lawachara	Moulvibazar	Fermer	Producer	Questionnaire	Phase-1	Project Staff
14	Nabibur Rahman	01963-209820	Lawachara	Moulvibazar	Day Lobourer	Producer	Questionnaire	Phase-1	Project Staff
15	Abdul Mannan	01710-208954	Lawachara	Moulvibazar	Fermer	Producer	Questionnaire	Phase-1	Project Staff
16	Mondhon Sarker	1826025577	Hail Haor	Sylhet,Moulvibazar	Fisherman	Producer	Questionnaire	Phase-1	Project Staff

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
17	Bidhu Vosun Boydda	1732084977	Hail Haor	Sylhet,Moulvibazar	Fermer	Producer	Questionnaire	Phase-1	Project Staff
18	Ali Ahmed	1714292854	Hail Haor	Sylhet,Moulvibazar	Madrasa Teacher	Producer	Questionnaire	Phase-1	Project Staff
19	Md. Ezar Uddin	1732130319	Hail Haor	Sylhet,Moulvibazar	Fisherman	Producer	Questionnaire	Phase-1	Project Staff
20	Md. Bajlur Rashed	01741-481432	Hail Haor	Sylhet,Moulvibazar	Fisherman	Producer	Questionnaire	Phase-1	Project Staff
21	Sriee Akhil Deb borma	-	Rema-Kalenga	Moulvibazar	Bamboo & Kean	Producer	Questionnaire	Phase-1	Project Staff
22	Md. Firoz Ali	01710-041357	Rema-Kalenga	Moulvibazar	Forest Depend	Producer	Questionnaire	Phase-1	Project Staff
23	Md.Amjad Ali	01732-980936	Rema-Kalenga	Moulvibazar	Paddy & Vegetable	Producer	Questionnaire	Phase-1	Project Staff
24	Md. Akol Mia	-	Rema-Kalenga	Moulvibazar	Paddy & Vegetable	Producer	Questionnaire	Phase-1	Project Staff
25	Md. Abdul Khalek	01746-860855	Rema-Kalenga	Moulvibazar	Forest Depend	Producer	Questionnaire	Phase-1	Project Staff
26	Churuk Miah	None	Satchori	Moulvibazar	Farmer	Producer	Questionnaire	Phase-1	Project Staff
27	Abdus Salam	1772452046	Satchori	Moulvibazar	Farmer	Producer	Questionnaire	Phase-1	Project Staff
28	Jashim Uddin	1751532355	Satchori	Moulvibazar	Farmer	Producer	Questionnaire	Phase-1	Project Staff
29	Md. Kuddus Ali	1738043325	Satchori	Moulvibazar	Farmer	Producer	Questionnaire	Phase-1	Project Staff
30	Md. Chanu mia	1726688417	Satchori	Moulvibazar	Farmer	Producer	Questionnaire	Phase-1	Project Staff
31	Moni Roy	1750707499	Satchori	Sylhet,Moulvibazar	Duck rearing	Producer	Questionnaire	Phase-2	Project Staff
32	mafia khatun	1748432549	Satchori	Sylhet,Moulvibazar	Duck rearing	Producer	Questionnaire	Phase-2	Project Staff
33	Md Ibrahim Miha		Rema kalenga	Sylhet,Moulvibazar	Duck rearing	Producer	Questionnaire	Phase-2	Project Staff
34	Anwara		Rema kalenga	Sylhet,Moulvibazar	Duck rearing	Producer	Questionnaire	Phase-2	Project Staff

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
35	Annanto	1724812144	hail Haor	Sylhet,Moulvibazar	Duck rearing	Producer	Questionnaire	Phase-2	Project Staff
36	Md Junu mia	1718277395	hail Haor	Sylhet,Moulvibazar	Duck rearing	Producer	Questionnaire	Phase-2	Project Staff
37	Ismail Ali	1771711590	hakaluki Haor	Sylhet,Moulvibazar	Duck rearing	Producer	Questionnaire	Phase-2	Project Staff
38	eakhlus Mia	1729757729	hakaluki Haor	Sylhet,Moulvibazar	Duck rearing	Producer	Questionnaire	Phase-2	Project Staff
39	Hadis Ali	1732511908	hakaluki Haor	Sylhet,Moulvibazar	Duck rearing	Producer	Questionnaire	Phase-2	Project Staff
40	Md.Soleman Ahmed	1819782647	hakaluki Haor	Sylhet,Moulvibazar	Duck rearing	Producer	Questionnaire	Phase-2	Project Staff
41	Md.Maksud Mia	1721510863	Satchori	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
42	Md.Faruk Mia	1762058311	Satchori	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
43	Md.Jamshed Ali	1768111147	Satchori	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
44	Md.Tauhid mia	1738352092	Satchori	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
45	Md.noor hossain	1749362719	Satchori	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
46	Md.Sohel Mia	1751628592	Satchori	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
47	Md.Farash Uddin	1747265901	Satchori	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
48	Md.Kajol Mia	1748334881	Satchori	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
49	<d.Ismail Mia		Rema Kalenga	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
50	Md.Shadekur Rahman	1733607201	Rema Kalenga	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
51	Md.Amirul Islam Forid	1720923801	Rema Kalenga	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
52	Kazi Hossain Ahmed	1720169315	Rema Kalenga	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
53	Md.Ishaq Mia	1766719066	Rema Kalenga	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
54	Md.Fayjur Rahman	1713807072	Rema Kalenga	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
55	Rubel Bakht	1735492257	LawaChara	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
56	Haidar Bakht	1742873851	LawaChara	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
57	Tajuddin Mia	1718978729	LawaChara	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
58	Akles Mia	1714752953	LawaChara	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
59	Md.Anu Mia	1720925409	LawaChara	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
60	Gunendra sen	1742034385	Hail Haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
61	Gopal Sarkar	1716158085	Hail Haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
62	Haricharan Das	1734825952	Hail Haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
63	Abdul Rahim	1766861331	Hail Haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
64	Md.Shad Mia		Hail Haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
65	Babul Sarkar	1732027114	Hail Haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
66	Israil Mia	1199478507	Hail Haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
67	Md.Goni Mia	1918576591	Hakaluki haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
68	Md.Rahim Uddin	1712668306	Hakaluki haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
69	Md.Hasan	1961074301	Hakaluki haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
70	Md.Mashuk Mia	1766230808	Hakaluki haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
71	Rajkumar Das	1838202914	Hakaluki haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
72	Fazlu Mia	1727298985	Hakaluki haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
73	Rafiqul Islam	1715273006	Hakaluki haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
74	Kamruzzaman	1711912361	Hakaluki haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
75	Makhon Das	1745962362	Hakaluki haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
76	Mofsir Ali	1783624446	Hakaluki haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
77	Ramkrishno Das	1767152991	Hakaluki haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
78	38Anwar Hossain	1723873295	Hakaluki haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
79	Jakir Hossain	1733752434	Hakaluki haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
80	Mizanur Rahman Majnu	1779905558	Hakaluki haor	Sylhet,Moulvibazar	Farmer	Producer	Questionnaire	Phase-2	Project Staff
81	Sayied Kutub Mia	1759932070	Satchori	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
82	Md.Lal Mia	1687186919	Satchori	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
83	Saidur Rahman Alfu	1199044056	Satchori	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
84	md.Shafiqul Islam Mabul	1710713446	Satchori	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
85	Md.Ashik Mia	1734398569	Satchori	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
86	Md.Kabir Mia	1754478864	Satchori	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
87	Md.Sayed Ali	1725709014	Satchori	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
88	Md. Hazi Saifullah		Satchori	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
89	Md.Abdul Jalil	1935432578	Satchori	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
90	Md.Shadaat Hossain	1719470988	Satchori	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
91	Abul Khayer	1717932527	Satchori	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
92	Hamja Bakht	1712326582	Satchori	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
93	Minnat Ali	1712082872	Hail Haor	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
94	Md.Bajlu Rahman	1741481432	Hail Haor	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
95	Md.Moonor Mia	1738477744	Hail Haor	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
96	Abdul Aziz	1732506523	Hail Haor	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
97	Md. Nuruddin	1722463342	Hail Haor	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
98	Bidhuvushon Baido	1732084977	Hail Haor	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
99	Mochabbir Ali	1727418960	Hakaluki haor	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
100	Md.Shahab Uddin	1752324676	Hakaluki haor	Sylhet,Moulvibazar	Fish Farmer	Producer	Questionnaire	Phase-2	Project Staff
101	Md.Jamal Uddin	1720132078	Satchori	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
102	Ms.Khorsheda Khatun	1759939063	Satchori	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
103	Md.Kiyamat Ali	1728550990	Satchori	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
104	Md.Shajal Mia	1754310216	Satchori	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
105	Md.Farid Mia	1754839132	Satchori	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
106	Md.Awal Mia	1738725997	Satchori	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
107	Md.Abdul Hannan	1732980845	Satchori	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
108	Md.Jahangir Mia	1928588751	Lawachara	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
109	Ms.Renu Begum	1734262293	Lawachara	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
110	Salatun	1777000838	Lawachara	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
111	sSuresh deb Barma		Rema Kalenga	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
112	Md.Mozid Miah		Rema Kalenga	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
113	Md.Jalal Miah		Rema Kalenga	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
114	Md.Iqbal Miah		Rema Kalenga	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
115	Md.Eusuf Miah		Rema Kalenga	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
116	Dilip Kumar		Rema Kalenga	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
117	Gurupod Sarkar	1778615842	Hail Haor	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
118	Moni sarkar	1780330064	Hail Haor	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
119	Md Alek Mia	1735022532	Hail Haor	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
120	Monor Uddin	1921978289	Hail Haor	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
121	Mrinal Sarkar	1721396156	Hail Haor	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
122	Suzan Mia	1721230499	Hail Haor	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
123	Salim Mia	1734262293	Lawachara	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
124	Kalam	17737585321	Lawachara	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
125	Md.Joynal Mia	1712326582	Lawachara	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
126	Mahesh Biswas	1732740775	Hakaluki haor	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
127	Mahabir Biswas	1753042785	Hakaluki haor	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
128	Shailesh Biswas	1751095870	Hakaluki haor	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
129	Mainul Islam	1961007931	Hakaluki haor	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
130	Dudhu Mia	1731674360	Hakaluki haor	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
131	Md.Jubair Ahmed	1752324676	Hakaluki haor	Sylhet,Moulvibazar	Resource Extractor	Producer	Questionnaire	Phase-2	Project Staff
132	Md. Kamrul haque	01713803836	Srimongol	Sylhet,Moulvibazar	Vegetable	Wholesaler	KII	Phase-2	Consultants
133	Fakruddin	01726145144	Srimongol	Sylhet,Moulvibazar	Vegetable	Retailer	KII	Phase-2	Consultants
134	Ajoy Roy	017853645233	Srimongol	Sylhet,Moulvibazar	Vegetable	Retailer	KII	Phase-2	Consultants
135	Shohan	01745696827	Srimongol	Sylhet,Moulvibazar	Vegetable	Retailer	KII	Phase-2	Consultants
136	Muhammad Ali	01745696827 (Shared)	Srimongol	Sylhet,Moulvibazar	Vegetable	Retailer	KII	Phase-2	Consultants
137	Aziz	01758500117	Srimongol	Sylhet,Moulvibazar	Vegetable	Retailer	KII	Phase-2	Consultants
138	Ali Hossain	01930260657	Srimongol	Sylhet,Moulvibazar	Vegetable	Retailer	KII	Phase-2	Consultants
139	Haroon ur Rashid	01712086980	Srimongol	Sylhet,Moulvibazar	Vegetable	Input Supplier	KII	Phase-2	Consultants
140	Nurul Amin	01733172400	Srimongol	Sylhet,Moulvibazar	Fish	Farmer	KII	Phase-2	Consultants
141	Md. Masuk Mia	01722318426	Satchori	Sylhet,Moulvibazar	Nature Tourism	Tour Guide	KII	Phase-2	Consultants
142	Harris Deb Bormon	01190912765	Satchori	Sylhet,Moulvibazar	Nature Tourism	Tour Guide	KII	Phase-2	Consultants

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
143	Rasel Deb Bormon	01740318972	Satchori	Sylhet,Moulvibazar	Nature Tourism	Tour Guide	KII	Phase-2	Consultants
144	Shukur Al Mahmud	01724343343	Madhobpur	Sylhet,Moulvibazar	Vegetable	Wholesaler	KII	Phase-2	Consultants
145	Md. Liton Mia	01728551227	Chunarughat	Sylhet,Moulvibazar	Duck	Wholesaler	KII	Phase-2	Consultants
146	Md. Ismail	01981389931	Rema Kalenga	Sylhet,Moulvibazar	Vegetable	Farmer	KII	Phase-2	Consultants
147	Saifullah Haji	-	Rema Kalenga	Sylhet,Moulvibazar	Fish	Farmer	KII	Phase-2	Consultants
148	Md. Bacchu Mia	01732094769	Rema Kalenga	Sylhet,Moulvibazar	Fish	Farmer	KII	Phase-2	Consultants
149	Md. Tajul Islam	01719470988	Rema Kalenga	Sylhet,Moulvibazar	Fish	Retailer	KII	Phase-2	Consultants
150	Md. Milon Mia	01768017253	Rema Kalenga	Sylhet,Moulvibazar	Vegetable	Farmer	KII	Phase-2	Consultants
151	Suleiman	01746731541	Satchori	Sylhet,Moulvibazar	Duck	Farmer	KII	Phase-2	Consultants
152	Md. Abdul Matin	01712204782	Satchori	Sylhet,Moulvibazar	Vegetable	Retailer	KII	Phase-2	Consultants
153	Abul Kalam	-	Chunarughat	Sylhet,Moulvibazar	Vegetable	Wholesaler	KII	Phase-2	Consultants
154	Fazlu Miah	01727298985	Kulaura	Sylhet,Moulvibazar	Vegetable	Farmer	KII	Phase-2	Consultants
155	Rafiqul Islam	01715273006	Kulaura	Sylhet,Moulvibazar	Vegetable	Farmer	KII	Phase-2	Consultants
156	kamruzzaman	01711912361	Kulaura	Sylhet,Moulvibazar	Vegetable	Farmer	KII	Phase-2	Consultants
157	Shamsul		Lawachara	Sylhet,Moulvibazar	Nature Tourism	Tour Guide	KII	Phase-2	Consultants
158	Rasel		Lawachara	Sylhet,Moulvibazar	Nature Tourism	Tour Guide	KII	Phase-2	Consultants
159	Taposh		Lawachara	Sylhet,Moulvibazar	Nature Tourism	Tour Guide	KII	Phase-2	Consultants
160	Khairul Islam	01758428535	Lawachara	Sylhet,Moulvibazar	Duck	Wholesaler	KII	Phase-2	Consultants

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
161	Asim Pal	01714519127	Lawachara	Sylhet,Moulvibazar	Duck	Wholesaler	KII	Phase-2	Consultants
162	Abdul Aziz Shah	01764558868	Lawachara	Sylhet,Moulvibazar	Duck	Farmer	KII	Phase-2	Consultants
163	Chittoronjon Deb Bormon	01193158875	Satchori	Sylhet,Moulvibazar	Vegetable	Farmer	KII	Phase-2	Consultants
164	Joj Mia	-	Satchori	Sylhet,Moulvibazar	Vegetable	Foria	KII	Phase-2	Consultants
165	Abul Fozol	01754478274	Satchori	Sylhet,Moulvibazar	Vegetable	Foria	KII	Phase-2	Consultants
166	Abdur Razzaq	01712204242	Satchori	Sylhet,Moulvibazar	Vegetable	Wholesaler	KII	Phase-2	Consultants
167	Wahid Alam	01738701156	Rema Kalenga	Sylhet,Moulvibazar	Fish	Farmer	KII	Phase-2	Consultants
168	Monirul Islam Sujon	01719190436	Rema Kalenga	Sylhet,Moulvibazar	Nature Tourism	Tour Guide	KII	Phase-2	Consultants
169	Tajul Islam Shopon	01756914460	Rema Kalenga	Sylhet,Moulvibazar	Nature Tourism	Tour Guide	KII	Phase-2	Consultants
170	Abdur Rahim	01741144174	Rema Kalenga	Sylhet,Moulvibazar	Nature Tourism	Tour Guide	KII	Phase-2	Consultants
171	Nazmul Hossain	01711334563	Lawachara	Sylhet,Moulvibazar	Fish	Farmer	KII	Phase-2	Consultants
172	Jalil Mia	01727417769	Lawachara	Sylhet,Moulvibazar	Vegetable	Wholesaler	KII	Phase-2	Consultants
173	Nannu Mia	01711182160	Moulvibazar	Sylhet,Moulvibazar	Duck	Wholesaler	KII	Phase-2	Consultants
174	Arjun Sarkar	01724812144	Hail	Sylhet,Moulvibazar	Duck	Farmer	KII	Phase-2	Consultants
175	Md. Romjan Ali	01711268989	Hakaluki	Sylhet,Moulvibazar	Duck	Wholesaler	KII	Phase-2	Consultants
176	Abu Sufiyan	01757382422	Hakaluki	Sylhet,Moulvibazar	Duck	Wholesaler	KII	Phase-2	Consultants
177	Sottoronjon Das	01845881762	Hakaluki	Sylhet,Moulvibazar	Duck	Foria	KII	Phase-2	Consultants
178	Anjan Kumar Das	01781149344	Hakaluki	Sylhet,Moulvibazar	Fish	Farmer	KII	Phase-2	Consultants

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
179	Md. Israel	01724756676	Hakaluki	Sylhet,Moulvibazar	Fish	Farmer	KII	Phase-2	Consultants
180	Jomiruddin	01720345702	Khadimnogor	Sylhet,Moulvibazar	Vegetable	Farmer	KII	Phase-2	Consultants
181	Kala Mia	01781786316	Khadimnogor	Sylhet,Moulvibazar	Fish	Foria	KII	Phase-2	Consultants
182	Syed Nasiruddin	01819875551	Khadimnogor	Sylhet,Moulvibazar	Fish	Input Supplier	KII	Phase-2	Consultants
183	Kamrul Haque	01713803836	Srimongol	Sylhet,Moulvibazar	Vegetable	Wholesaler	KII	Phase-2	Consultants
184	Fakruddin	01726145144	Srimongol	Sylhet,Moulvibazar	Vegetable	Retailer	KII	Phase-2	Consultants
185	Ajoy Roy	017853645233	Srimongol	Sylhet,Moulvibazar	Vegetable	Retailer	KII	Phase-2	Consultants
186	Shohan	01745696827	Srimongol	Sylhet,Moulvibazar	Vegetable	Retailer	KII	Phase-2	Consultants
187	Muhammad Ali	01745696827 (Shared)	Srimongol	Sylhet,Moulvibazar	Vegetable	Retailer	KII	Phase-2	Consultants
188	Aziz	01758500117	Srimongol	Sylhet,Moulvibazar	Vegetable	Retailer	KII	Phase-2	Consultants
189	Ali Hossain	01930260657	Srimongol	Sylhet,Moulvibazar	Vegetable	Retailer	KII	Phase-2	Consultants
190	Haroon ur Rashid	01712086980	Srimongol	Sylhet,Moulvibazar	Vegetable	Input Supplier	KII	Phase-2	Consultants
191	Nurul Amin	01733172400	Satchori	Sylhet,Moulvibazar	Fish	Farmer	KII	Phase-2	Consultants
192	Isaak Mia	01766719066	Rema Kalenga	Sylhet,Moulvibazar	Vegetable	Farmer	KII	Phase-2	Consultants
193	Abul Kalam		Rema Kalenga	Sylhet,Moulvibazar	Vegetable	Foria	KII	Phase-2	Consultants
194	Md. Jalil Mia		Hakaluki	Sylhet,Moulvibazar	Fish	Wholesaler	KII	Phase-2	Consultants
195	Jalal Uddin	01719741124	Hakaluki	Sylhet,Moulvibazar	Vegetable	Farmer	KII	Phase-2	Consultants
196	Gopal Patro	01739171587	Khadimnogor	Sylhet,Moulvibazar	Nature Tourism	Tour Guide	KII	Phase-2	Consultants

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
197	Md. Hossain Ali	01722228319	Khadimnogor	Sylhet,Moulvibazar	Nature Tourism	Tour Guide	KII	Phase-2	Consultants
198	Jahangir Alam	01917040846	Khadimnogor	Sylhet,Moulvibazar	Nature Tourism	Tour Guide	KII	Phase-2	Consultants
199	Ali Noor	01716073360	Khadimnogor	Sylhet,Moulvibazar	Duck	Wholesaler	KII	Phase-2	Consultants
200	Faisal Mohammad Shahriar	01199303797	Khadimnogor	Sylhet,Moulvibazar	Nature Tourism	Expert Resource	KII	Phase-2	Consultants
201	Md. Tawhid Alam	01924596135	Hakaluki	Sylhet,Moulvibazar	Duck	Farmer	KII	Phase-2	Consultants
202	Abdus Salam	01926522600	Hakaluki	Sylhet,Moulvibazar	Fish	Farmer	KII	Phase-2	Consultants
203	Golam Mustafa	01714106734	Khadimnogor	Sylhet,Moulvibazar	Fish	Expert Resource	KII	Phase-2	Consultants
204	Sunil Das	01718441666	Khadimnogor	Sylhet,Moulvibazar	Vegetable	Input Supplier	KII	Phase-2	Consultants
205	Md. Tariqul Islam	01920584824	Khadimnogor	Sylhet,Moulvibazar	Fish	Wholesaler	KII	Phase-2	Consultants
206	Md. Abdullah	01812413535	Khadimnogor	Sylhet,Moulvibazar	Fish	Wholesaler	KII	Phase-2	Consultants
207	Anjon Chokroborty	01733476547	Khadimnogor	Sylhet,Moulvibazar	Vegetable	Wholesaler	KII	Phase-2	Consultants
208	Md. Nizamuddin	01719741124	Khadimnogor	Sylhet,Moulvibazar	Vegetable	Farmer	KII	Phase-2	Consultants
209	Shahabuddin	01767107377	Khadimnogor	Sylhet,Moulvibazar	Vegetable	Resource Extractor	KII	Phase-2	Consultants
210	Johiruddin	01767107377 (Shared)	Khadimnogor	Sylhet,Moulvibazar	Vegetable	Resource Extractor	KII	Phase-2	Consultants
211	Md. Lal Mia	01766709255	Khadimnogor	Sylhet,Moulvibazar	Vegetable	Resource Extractor	KII	Phase-2	Consultants
212	Md. Nuruddin	01722463342	Hail Haor	Sylhet,Moulvibazar	Fish	Farmer	KII	Phase-2	Consultants
213	Shamim Ahmed	01738477744	Hail Haor	Sylhet,Moulvibazar	Fish	Farmer	KII	Phase-2	Consultants
214	Md. Fazlu mia	1717298985	Hakaluki haor	Sylhet/Moulvibazar	Kishi	Support Service	FGD	Phase-2	Consultants

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
215	Rabik Sardar	17937531373	Hakaluki haor	Sylhet/Moulvibazar	Kishi	Support Service	FGD	Phase-2	Consultants
216	Rafikul Islam	1715273006	Hakaluki haor	Sylhet/Moulvibazar	Kishi	Support Service	FGD	Phase-2	Consultants
217	Kamruzzaman	1711912361	Hakaluki haor	Sylhet/Moulvibazar	business	Support Service	FGD	Phase-2	Consultants
218	Tara Mia	1963212033	Hakaluki haor	Sylhet/Moulvibazar	fisher	Support Service	FGD	Phase-2	Consultants
219	samsu mia	1710355303	Hakaluki haor	Sylhet/Moulvibazar	business	Support Service	FGD	Phase-2	Consultants
220	meraj mia		Hakaluki haor	Sylhet/Moulvibazar	Kishi	Support Service	FGD	Phase-2	Consultants
221	maya begum	1961074301	Hakaluki haor	Sylhet/Moulvibazar	house wife	Support Service	FGD	Phase-2	Consultants
222	safiya begum		Hakaluki haor	Sylhet/Moulvibazar	house wife	Support Service	FGD	Phase-2	Consultants
223	arob ali	1726907857	Hakaluki haor	Sylhet/Moulvibazar	fisher	Support Service	FGD	Phase-2	Consultants
224	touhid alam	1924596135	Hakaluki haor	Sylhet/Moulvibazar	fisher	Support Service	FGD	Phase-2	Consultants
225	Md.Moazzem Hosen Chomru		Srimangal	Srimangal	Chairman	Support Service	FGD	Phase-2	Consultants
226	Md.Runu Mia		Srimangal	Srimangal	Vice Chairman	Support Service	FGD	Phase-2	Consultants
227	Gopal Sarkar		Srimangal	Srimangal	General Director	Support Service	FGD	Phase-2	Consultants
228	Somraj Majumdar		Srimangal	Srimangal	Tressurar	Support Service	FGD	Phase-2	Consultants
229	Prodip Sarkar		Srimangal	Srimangal	Director	Support Service	FGD	Phase-2	Consultants
230	Diba De		Srimangal	Srimangal	Active Member	Support Service	FGD	Phase-2	Consultants
231	Haji Abdul Kadir		Srimangal	Srimangal	Active Member	Support Service	FGD	Phase-2	Consultants
232	Sunil Sarkar		Srimangal	Srimangal	Active Member	Support Service	FGD	Phase-2	Consultants

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
233	MonDhon Sarkar		Srimangal	Srimangal	Active Member	Support Service	FGD	Phase-2	Consultants
234	Santosh Sarkar		Srimangal	Srimangal	Active Member	Support Service	FGD	Phase-2	Consultants
235	Malti Sarkar		Srimangal	Srimangal	Active Member	Support Service	FGD	Phase-2	Consultants
236	Kalpana Sarkar		Srimangal	Srimangal	Active Member	Support Service	FGD	Phase-2	Consultants
237	Terajan Begum		Srimangal	Srimangal	Active Member	Support Service	FGD	Phase-2	Consultants
238	Sahana Begum		Srimangal	Srimangal	Active Member	Support Service	FGD	Phase-2	Consultants
239	Gunendra Sarkar		Srimangal	Srimangal	Active Member	Support Service	FGD	Phase-2	Consultants
240	Ayesha Akhter	1715137488	Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
241	Mukta		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
242	Ojifa Khatun		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
243	Mehera Khatun		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
244	Shahid Mia	1761459966	Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
245	Feroj Ali		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
246	Rahima Khatun	1747927065	Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
247	Nasima		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
248	Alap Chan		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
249	Shanu Khatun		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
250	Fazal Mia		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
251	Banu	1773881621	Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
252	Joynob Chan	1738576549	Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
253	Rabia Begum		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
254	Maleka		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
255	Rahima		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
256	Anggura		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
257	Ful Banu		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
258	Selina Akter		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
259	Shahana		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
260	Maya Khatun	1770464941	Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
261	Rina Khatun		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
262	Agob Chan		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
263	Rina Begum	1715831503	Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
264	maleka Khatun		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
265	Amena Khatun		Srimangal	Srimangal	Agriculture	Producer	FGD	Phase-2	Consultants
266	Amina Akter	1726745519	Lawachara	Srimangal	Housewife	Producer	FGD	Phase-2	Consultants
267	Sirajunnesa	1731977361	Lawachara	Srimangal	Teacher	Producer	FGD	Phase-2	Consultants
268	Dilara Begum		Lawachara	Srimangal	Housewife	Producer	FGD	Phase-2	Consultants

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
269	Rabeya Begum		Lawachara	Srimangal	Housewife	Producer	FGD	Phase-2	Consultants
270	Khudeja Begum		Lawachara	Srimangal	Housewife	Producer	FGD	Phase-2	Consultants
271	Julekha Begum	1766701176	Lawachara	Srimangal	Housewife	Producer	FGD	Phase-2	Consultants
272	Champa Begum		Lawachara	Srimangal	Housewife	Producer	FGD	Phase-2	Consultants
273	Nazma Begum		Lawachara	Srimangal	Housewife	Producer	FGD	Phase-2	Consultants
274	Dilara Begum		Lawachara	Srimangal	Housewife	Producer	FGD	Phase-2	Consultants
275	Rupban Bibi		Lawachara	Srimangal	Housewife	Producer	FGD	Phase-2	Consultants
276	Mannan Miah	1710208954	Lawachara	Srimangal	Small Bussinessman	Producer	FGD	Phase-2	Consultants
277	Arif Aliah	1771277457	Lawachara	Srimangal	Rickshaw Pullar	Producer	FGD	Phase-2	Consultants
278	Gafur Miah	1768974305	Lawachara	Srimangal	Rickshaw Pullar	Producer	FGD	Phase-2	Consultants
279	asma begum		Lawachara	Srimangal	House wife	Producer	FGD	Phase-2	Consultants
280	fulbanu begum		Lawachara	Srimangal	House wife	Producer	FGD	Phase-2	Consultants
281	chaiban begum		Lawachara	Srimangal	House wife	Producer	FGD	Phase-2	Consultants
282	ragia begum		Lawachara	Srimangal	House wife	Producer	FGD	Phase-2	Consultants
283	rabeya begum		Lawachara	Srimangal	House wife	Producer	FGD	Phase-2	Consultants
284	amirul nesha		Lawachara	Srimangal	Farmer	Producer	FGD	Phase-2	Consultants
285	jalal mia		Lawachara	Srimangal	Idel Farmer	Producer	FGD	Phase-2	Consultants
286	unos ali		Lawachara	Srimangal	Idel Farmer	Producer	FGD	Phase-2	Consultants

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
287	jomir uddin	172345702	Lawachara	Srimangal	Idel Farmer	Producer	FGD	Phase-2	Consultants
288	shomod ali		Lawachara	Srimangal	Idel Farmer	Producer	FGD	Phase-2	Consultants
289	rafiq mia		Lawachara	Srimangal	Idel Farmer	Producer	FGD	Phase-2	Consultants
290	nijet mia	1719741124	Lawachara	Srimangal	Idel Farmer	Producer	FGD	Phase-2	Consultants
291	samsuddin mia		Lawachara	Srimangal	Idel Farmer	Producer	FGD	Phase-2	Consultants
292	Md. Monir uddin	171381114	Lawachara	Srimangal	Business	Producer	FGD	Phase-2	Consultants
293	Md. Rafiqul Islam	1715273006	Hakaluki haor	Sylhet/Moulvibazar	General secretary	Project Personnel	Workshop	Phase-2	Consultants
294	Nirmol Chondro das	1916028832	Hakaluki haor	Sylhet/Moulvibazar	General secretary	Project Personnel	Workshop	Phase-2	Consultants
295	Mainuddin Islam	1712326582	Hakaluki haor	Sylhet/Moulvibazar	NS	Project Personnel	Workshop	Phase-2	Consultants
296	Muminul Islam	1712326582	Lawachara	Sylhet/Moulvibazar	NS	Project Personnel	Workshop	Phase-2	Consultants
297	Moyna moti Kanu	1734523673	Lawachara	Sylhet/Moulvibazar	Kazkari Member	Project Personnel	Workshop	Phase-2	Consultants
298	Bokul Sarkar	1732027114	Hakaluki haor	Sylhet/Moulvibazar	CMC Member	Project Personnel	Workshop	Phase-2	Consultants
299	Md. Abdul Khaber Azad	1746352472	Satchori	Sylhet/Moulvibazar	Upozila Kishi Officer	Project Personnel	Workshop	Phase-2	Consultants
300	Sukalpo Das	1711488602	Lawachara	Sylhet/Moulvibazar	Side officer	Project Personnel	Workshop	Phase-2	Consultants
301	Smir Das	1713488294	Khadimnogor	Sylhet/Moulvibazar	CMC Member	Project Personnel	Workshop	Phase-2	Consultants
302	Md. Bodrul	1748095165	Lawachara	Sylhet/Moulvibazar	CMC Member	Project Personnel	Workshop	Phase-2	Consultants
303	Janak Debbarma	1714363925	Lawachara	Sylhet/Moulvibazar	CCPAMP CREL-CNRS	Project Personnel	Workshop	Phase-2	Consultants
304	Swaran Kumar Chowhar	1713488266	Lawachara	Sylhet/Moulvibazar	CO	Project Personnel	Workshop	Phase-2	Consultants

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
305	Dr. Goorangs Basuk	1718057544	Lawachara	Sylhet/Moulvibazar	ULO	Project Personnel	Workshop	Phase-2	Consultants
306	Md. Asur Hossain Sholous	1711431667	ALL	Sylhet/Moulvibazar	Value Chain CREL	Project Personnel	Workshop	Phase-2	Consultants
307	Md. Ashraful Islam	1917099924	Hakaluki haor	Sylhet/Moulvibazar	site officer CNRS	Project Personnel	Workshop	Phase-2	Consultants
308	Md Arifur Rahman	1915850040	Hail Haor	Sylhet/Moulvibazar	site officer CNRS	Project Personnel	Workshop	Phase-2	Consultants
309	Arjun Chandra Dus	1718725957	Rema Kalenga	Sylhet/Moulvibazar	site officer CNRS-CREL project	Project Personnel	Workshop	Phase-2	Consultants
310	Md. Monggem Husan	1719841242	Hail Haor	Sylhet/Moulvibazar	Prasedent Dumuni project	Project Personnel	Workshop	Phase-2	Consultants
311	Kazi Nazeul Islam	1712049394	Lawachara	Sylhet/Moulvibazar	SO_CNRS CREL	Project Personnel	Workshop	Phase-2	Consultants
312	Babeya Khatun	1738576539	Khadimnogor	Sylhet/Moulvibazar	NS	Project Personnel	Workshop	Phase-2	Consultants
313	Md. Kalam Hossain	1714071148	ALL	Sylhet/Moulvibazar	livelihood officer CNRS-CREL	Project Personnel	Workshop	Phase-2	Consultants
314	Md. Sobuj	1718327681	ALL	Sylhet/Moulvibazar	CREL dhaka	Project Personnel	Workshop	Phase-2	Consultants
315	Md. Nasir Khan	1671675920	ALL	Sylhet/Moulvibazar	innovision	Project Personnel	Workshop	Phase-2	Consultants
316	Nazim Hassain Sheikh	1914035461	Hakaluki haor	Sylhet/Moulvibazar	Asst director DOE	Project Personnel	Workshop	Phase-2	Consultants
317	হরি চরণ দাশ	০১৭৩৪-৮২৫৯৫২	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
318	গৌপাল সরকার	০১৭১৬-১৫৮০৮৫	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
319	বিবেকানন্দ দেব		Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
320	বাবুল সরকার	০১৭৩২-০২৭১১৪	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
321	শংকর দেব	০১৭১২-২৮০৮৮৯	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
322	দিগেন্দ্র সরকার	০১৭৭০-৭৩৪৫০৬	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
323	সঞ্চয় চক্রবর্তী	০১৭১৪-৯১৩৩৪৬	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
324	মো:মহিনুল ইসলাম	০১৭২২-৩৫৪৫০৯	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
325	ফুল মিয়া	০১৭৪৫-৭১৬১৮৪	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
326	গুনেন্দ্র সেন	০১৭৪২-০৩৪৩৮৫	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
327	মো: শাহীন আহমেদ	০১৭১৮-৬০৩৫৫৫	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
328	আরফান মিয়া	০১৭৩২-৫২১১৯৮	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
329	জহর লাল সরকার	০১৭১৩-৮১৭৮০৩	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
330	ফাকু মিয়া	০১৭৩৪-২২৭৫৪৫	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
331	দিনবন্ধু ভৌমিক	০১৭৪৫-৫৮৬৩০২	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
332	সজল গোপ	০১৭১৫-৭১৮২১৪	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
333	রবীন্দ্র চরন নাথ	০১৭৮২-০৫৯৬৭৪	Hail Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
334	মো: আব্দুল ওয়হিদ	০১৭২০-৯২৩৯৬৯	Hail Haor	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
335	বিধু ভূষণ বৈদ্য	০১৭৩২-০৮৪৯৭৭	Hail Haor	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
336	মো: নূর উদ্দিন	০১৭২২-৪৬৩৩৪২	Hail Haor	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
337	মো: ছালিকুর রহমান	০১৭১৫-৫৩৯৪২৬	Hail Haor	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
338	মো: খলিলুর রহমান	০১৭৬১-২৯৯৫২৯	Hail Haor	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
339	অনন্ সরকার	০১৭২৪-৮১২১৪৪	Hail Haor	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
340	মো: তাজুল ইসলাম	০১৭২৭-৬৯৩২৮৬	Hail Haor	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
341	বকুল সরকার	০১৭৩২-০২৭১১৪	Hail Haor	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
342	মো: লেবু মিয়া	০১৭২৪-১৫৩৫০৯	Hail Haor	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
343	মো: জমশেদ মিয়া	০১৭৩৯-৬৬৭২৮১	Hail Haor	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
344	Md.Zakir Hossen	01733-752434	Halaluki Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
345	Md. Rafikul Islam	01715-273006	Halaluki Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
346	Md.Fojlu Mia	01727-298985	Halaluki Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
347	Md. Selim	01731-647691	Halaluki Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
348	Md.Ali Ahamed	01715-096260	Halaluki Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
349	Sadir Mia	01813-408635®	Halaluki Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
350	Ali Hossen	01813-408635	Halaluki Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
351	Md. Arob Ali	01726-907857	Halaluki Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
352	Md.Nazir Hossen	01944-346264	Halaluki Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
353	Nirmol Chondro Das	01916-028832	Halaluki Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
354	Md. Nurul Mia	01733-924595	Halaluki Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
355	Md.Mizanur Rahman	01779-905558	Halaluki Haor	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
356	Md. Mizanur Rahman	01779-905558	Halaluki Haor	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
357	Prithes Das	01745-527424	Halaluki Haor	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
358	Subot Shil	01714-331228	Halaluki Haor	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
359	Md. Ruhul Mia	01760-868265	Halaluki Haor	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
360	Nirmol Chondro Das	01916-028832	Halaluki Haor	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
361	Md. Arob Ali	01726-907857	Halaluki Haor	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
362	Md.Tohid Alom	01924-596135	Halaluki Haor	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
363	Md.Akhlas Mia	01729-757729®	Halaluki Haor	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
364	Md. Ismail Ali	01771-711590	Halaluki Haor	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
365	Sotta Ronjon Das	01731-129983	Halaluki Haor	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
366	কাজল মিয়া	১১৪৮৩৩৪৮৮১	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
367	শাহীন মিয়া	১১৪৬৪৬৩১৪১	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
368	মোঃ রমজান আলী	১১২৩৬৮৮০২৪	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
369	সৈয়দ জামাল		Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
370	জামির উদ্দিন		Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
371	সাবেব আলী	১১৭৯৪৬৭৫৯৭	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
372	শাহ আলম মিয়া		Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
373	ফারমক মিয়া	১১৫১১০৩২৮১	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
374	মোঃ ওহাব আলী	১১৪৯১৩৯৯৯৩	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
375	ফারমক মিয়া	১১৪২৩২৮৪৯৪	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
376	পারভীন বেগম	১৯৩৯২৭৬০৩৮	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
377	চম্পা বেগম	১৯২৯৮৬৭৯৩৮	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
378	মোঃ গোলাম হোসেন	১৭১৫৫৮১২৭০	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
379	গোলাম মোস্তাফা	১৭৩৭৬৯৭৩৯১	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
380	সৈয়দ ইসলাম	১৭১৩৮০৪৫২০	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
381	আব্দুস সহিদ	১৭৪৩২৬৯২০৫	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
382	নাসির উদ্দিন	১৭১৯১৪১৭১৪	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
383	মোঃ জিতু মিয়া	১৭৪১১৬০৫২৮	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
384	আলাই মিয়া	১৭৭৭৮৫৭৮১৯	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
385	আশ্রাফ উদ্দিন	১৭৪৮২৮২৫৭৩	Satchori	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
386	মাসুক মিয়া	১৭৩৭৭৮৯৪৪৮	Satchori	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
387	কবির মিয়া	১৭৫৪৪৭৮৮৬৪	Satchori	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
388	আলফু মিয়া	১১৯৯০৪৪০৫৬	Satchori	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
389	নুরুল আমিন	১৭৩৩১৭২৪০০	Satchori	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
390	লোকমান মিয়া	১৭৩৩৮৯৮৩৮৬	Satchori	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
391	রাবেয়া আক্তার	১৭৬৫৩৫৭৫৪৭	Satchori	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
392	দেলোয়ারা বেগম		Satchori	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
393	মনি রায়	১৭৫০৭০৭৪৯৯	Satchori	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
394	সোলেমান মিয়া	১৭৪৬৭৩১৫৪১	Satchori	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
395	আছমা খাতুন	১৭২৩৮৫৬০৬০	Satchori	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
396	Firoj Mia	01746-201350	Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
397	Md. Maraz Mia	01745-900969	Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
398	Forid Mia	01720-272634	Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
399	Abdul salam	01714-627654	Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
400	Jahanara Begum		Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
401	Hasna Begum		Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
402	Md. Akter Hossen		Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
403	Md. Maraj Mia		Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
404	Shahanara Begum		Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
405	Md. Abdul Jobber Mia	01712-664776	Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
406	Kagi Shiraj Mia	01749-440987	Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
407	Jalal Mia		Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
408	Taslima Begum	01742-664430	Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
409	Md. Manik Mia	01742-499010	Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
410	Jalal Mia		Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
411	Abdul Khalek		Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
412	Renu Mia		Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff

Sl. No.	Name	Mobile	Project Site	District	Occupation	Actor	Tools	Phase	Interviewer
413	Ishak Mia	01766-719066	Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
414	Md. Abdur Rouf	01746-859063	Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
415	Abdur Rahim	01741-144174	Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
416	Moulana Shofiullah	01717-313726	Rema Kalenga	Moulvibazar	Vegetable	Farmer	Questionnaire	Phase-3	Project Staff
417	Angura Begum	01747-925472	Rema Kalenga	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
418	Haji Shaifullah		Rema Kalenga	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
419	Kazi Shiraj Mia	01749-440987	Rema Kalenga	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
420	Abdul Jolil	01935-432578	Rema Kalenga	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
421	Khodeja Khatun	01786-112490	Rema Kalenga	Moulvibazar	Fish	Farmer	Questionnaire	Phase-3	Project Staff
422	Angkuren nessa		Rema Kalenga	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
423	Most Delara Begum	01766-214396	Rema Kalenga	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
424	Rokeya Begum	01739-945102	Rema Kalenga	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
425	Rizia Akter		Rema Kalenga	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff
426	Anuara Khatun	01774-216581	Rema Kalenga	Moulvibazar	Duck	Farmer	Questionnaire	Phase-3	Project Staff

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