# VALUE CHAIN AND ENTREPRENEURSHIP DEVELOPMENT OF MAIZE AND SUGARCANE: A STUDY IN SELECTED DISTRICTS OF CHITTAGONG HILL TRACTS OF BANGLADESH

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## CERTIFICATE

This is to certify that the thesis entitled ***"Value Chain and Entrepreneurship Development of Maize and Sugarcane: A Study in Selected Districts of Chittagong Hill Tracts of Bangladesh"*** submitted to Sher-e-Bangla Agricultural University, Dhaka-1207, in partial fulfillment of the requirements for the degree of **Master of Science in Development and Poverty Studies**, embodies the result of a piece of bonafide research work carried out by **Md. Nazmul Alam**, Registration No. **08-02970** under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

I further certify that any help or source of information, received during the course of this investigation has been duly acknowledged.

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**Dated:** 03 December, 2015
**Dhaka, Bangladesh**

# DEDICATION

*This thesis is dedicated to my beloved parents.*

# Abbreviations

| | |
|---|---|
| **BARC** | **B**angladesh Agricultural Research Council |
| **BARI** | **B**angladesh Agricultural Research Institute |
| **BSRI** | **B**angladesh Sugarcane Research Institute |
| **BAU** | **B**angladesh Agricultural University |
| **BBS** | **B**angladesh Bureau of Statistics |
| **BCR** | **B**enefit cost ratio |
| **BSMRAU** | **B**angabandu Sheikh Mujibur Rahman Agricultural University |
| **DAE** | **D**epartment of Agricultural Extension |
| **DAM** | **D**epartment of Agricultural Marketing |
| **CHT** | **C**hittagong Hill Tracts |
| **EU** | **E**uropean Union |
| **FAO** | **F**ood and Agriculture Organization of the United Nations |
| **FGD** | **F**ocus Group Discussion |
| **HARS** | **H**ill Agricultural Research Station |
| **ICT** | **I**nformation and Communication Technology |
| **ISO** | **I**nternational Organization for Standardization |
| **NCDP** | **N**orthwest Crop Diversification Programme |
| **NFP** | **N**ational Food Policy |
| **NGO** | **N**on Government Organization |
| **RARS** | **R**egional Agricultural Research Station |
| **SMS** | **S**hort Message Service |
| **SAU** | **S**her-e-Bangla Agricultural University |
| **USAID** | **U**nited States Agency for International Development |
| **WHO** | **W**orld Health Organization |
| **WFP** | **W**orld Food Programme |
| **UN** | **U**nited Nations |

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*I am solely responsible for errors and omissions in this study, if any.*

*The author*

# ABSTRACT

The present study was undertaken to assess the entrepreneurship and value chain development opportunity on maize and sugarcane in some selected areas of Chittagong Hill Tracts. The purposive random sampling technique was followed for collecting data in this study. A total of 69 maize growers, 74 sugarcane growers and 37 intermediaries were selected. Descriptive statistics was used to analyze the data. Acharya's methods were used for estimating marketing efficiency. Factor analysis was done to measure the factors affecting value chain and entrepreneurship development and for measuring marketing performance, price spread and growers share were calculated. About 85-89 percent maize and sugarcane grower's main occupation was farming. Most of the growers occupied less than 0.5 ha of land. The total production cost of maize and sugarcane were at Tk 43544.61per hectare and Tk 180615.67 respectively. Marketing cost of the farmers was Tk. 769.15 for maize and Tk. 1032.56 for sugarcane per metric ton. Marketing cost for maize by different intermediaries was at Tk. 2192.5, Tk. 1491.00, Tk. 1210.32 and Tk. 2023.97 for *Faria*, Wholesaler, *Aratdar* and *Bepari* respectively. Marketing cost for sugarcane was at Tk. 4726.72, Tk. 2884.45, Tk. 2473.4 and Tk. 4121.09 for *Faria,* Wholesaler, *Aratdar* and *Bepari* respectively. For maize growers highest BCR were found when maize are sold in district market and it is 1.078 for growers and lowest BCR were found .916 when maize were sold at farm gate. For sugarcane growers highest BCR is 1.277 and lowest BCR is 1.077 for district market and farm gate market selling respectively. In maize and sugarcane value chain *Bepari* were added highest values. Education, market price, capital and credit availability, location of the market and number of traders were the most important factors which significantly influence the value chain and entrepreneurship development in the study area. For developing value chain in the study area some constraints like lack of market information's, unavailability of credits, low local demand, poor transportation facilities, market toll, lack of credit facilities, absence of storage facilities and lack of available market place was found. In this area, emphasis should be given to improved storage, establishment of feed mills, advertising through electronic and print media, improvement of road and communication facilities, lessening of market toll, and credit facilities from credit institution to improve effective production and marketing of maize and sugarcane.

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# INTRODUCTION

# CHAPTER 1

# INTRODUCTION

## 1.1 Background

The Chittagong Hill Tracts (CHT's) occupied a total of 13,295 square kilometers in south-eastern Bangladesh which are one tenth of the country. It is an exceptional territory with mountainous and valley land and different socio-economic and cultural realities from the rest part of the country. The economy of the CHT's is highly dependent on agriculture. The CHT's have immense potentialities becoming the source of food especially for cereal and cash crop. Maize and Sugarcane are the two major crops which are occupying the two third land area of cultivation in Khagrachori and Bandarban district in CHT's.

## 1.2 Maize cultivation in the study area and in Bangladesh

Maize is the third in position in cereal crops cultivation after rice and wheat in Bangladesh. Maize cultivation is rising on sharp in last few years in Bangladesh (The Daily Star, Dec 31, 2012). It was introduced as relatively new crop in the cropping patterns of Bangladesh (Hasan et al., 2008). Now it is grown on an estimated area of 4, 87,517 in 2011-2012 and 5, 80, 342 acres in 2012-2013 respectively (BBS, 2013). Maize always has been considered as a minor crop in Bangladesh. Periodic attempts were however made to promote its cultivation in the past. Last ten years, maize had gained an increasingly importance by the government. There is a huge demand of maize, particularly for poultry feed industry. So, the government and farmers intend to increase the production area of maize. Quality seed supply by the private companies, less pest attack and low production cost make the farmers confident in maize cultivation.

Total 434 acres, 576 acres and 760 acres of land was under maize cultivation in 2010-11, 2011-12, 2012-13 period respectively in Khagrachari hill district. It is observed that maize cultivation is increasing day by day. The quality seed supply by the commercial companies and extension services from the department of

agricultural extension helps to increase the maize cultivation in Khagrachari. In Khagrachari and Bandarban district, maize is the important cereal crops after rice and wheat. Total of 111 acres, 74 acres and 78 acres land was under maize cultivation in 2010-11, 2011-12 and 2012-13 tenure respectively in Bandarban hill district. Table 1.1 provides an overview of maize cultivation in the study area and in Bangladesh.

**Table 1.1 Maize cultivation areas**

| Year | Bangladesh (acres) | Khagrachari (acres) | Bandarban (acres) |
|---|---|---|---|
| 2008-09 | 317513 | 391 | 71 |
| 2009-2010 | 376242 | 403 | 65 |
| 2010-2011 | 409607 | 434 | 111 |
| 2011-2012 | 487517 | 576 | 74 |
| 2012-2013 | 580342 | 760 | 78 |

Source: BBS, 2013 & DAE, Khagrachari and Bandarban, 2014

The above Table shows that acreage and production of maize is increasing with period of time. It was highest in acreage and production in 2012-13. It was lowest in 2008-09. Now it is increasing again in terms of acreage and production.

## 1.3 Nutritional content of maize

Good nutrition is an important part of leading a healthy lifestyle. Combined with physical activity, diet can help to reach and maintain a healthy weight, reduce risk of chronic diseases (like heart disease and cancer), and promote overall health. So, it is important to determine the nutritional status of any food before consumption. Maize is nutritionally balanced food with its high percentage of potassium, carbohydrate, magnesium and vitamin.

**Table 1.2 Nutritional content of maize, amount per 100gm**

| Particulars | Daily value % |
|---|---|
| Total fat | 7% |
| Cholesterol | 0% |
| Sodium | 1% |
| Potassium | 8% |
| Total carbohydrate | 24% |
| Protein | 18% |
| Vitamin A | 0% |
| Calcium | 0% |
| Vitamin B-12 | 0% |
| Vitamin C | 0% |
| Iron | 15% |
| Vitamin B-6 | 30% |
| Magnesium | 31% |

Source:https://www.google.com.bd/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=nutritional+content+of+maize+

## 1.4 Sugarcane cultivation in the study area and in Bangladesh

Sugarcane is one of the important cash crops which are getting very popular among the farmers of Bangladesh. Sugarcane is only the single dependable economic crop in north-west and south-west where rainfall is low. Three fourth sugar and molasses industry are directly depending on sugarcane production. In 2012-13 periods total 27,634 acres lands were under sugarcane cultivation in Bangladesh with a 73 metric ton sugarcane production (BSRI, 2014). In 2010-11, 2011-12, 2012-13 period total 2679.95 acres, 3487.64 acres and 5273.45 acres land was under sugarcane cultivation in Chittagong Hill Tracts (BSRI, 2014). Here it is observed that sugarcane cultivation is increasing with the span of time. The quality seed supply and support services from sugarcane research institute in Khagrachari and Bandarban encouraged farmers to sugarcane production. In Khagrachari and Bandarban district, a large proportion of sugarcane is produced. In 2012-13, 1815 acres of land were under sugarcane cultivation and the total production was 71400 ton in Khagrachari. On the other hand,

in 2012-13 tenure the total production of sugarcane was 124950 tones and total cultivable land under sugarcane was 1753 acres in Bandarban.

**Table 1.3 Sugarcane cultivation areas**

| Year | Sugarcane | | |
|---|---|---|---|
| | In Bangladesh (acres) | In Khagrachari (acres) | In Bandarban (acres) |
| 2008-09 | 312439 | 1037 | 691 |
| 2009-2010 | 290354 | 1243 | 712 |
| 2010-2011 | 287243 | 1457 | 899 |
| 2011-2012 | 279765 | 1573 | 1432 |
| 2012-2013 | 270634 | 1815 | 1753 |

Source: BBS (2013) & Bangladesh Sugarcane Research Institution (BSRI), Badarban, 2014.

## 1.5 Nutritional content of sugarcane

Macronutrients such as carbohydrates, protein and fat are needed in larger amounts. The body cannot function properly if one or more nutrients are missing. A healthy and balanced diet provides foods in the right amounts and combinations that are safe and free from disease and harmful substances. Sucrose, water and other non-carbohydrate substances are present in sugarcane in major portion.

**Table1.4 Sugarcane composition, amount 100 gm**

| Component | % |
|---|---|
| Sucrose | 46.9 |
| Glucose | 5.2 |
| Fructose | 6.7 |
| Ashes | 11.5 |
| Other non-carbohydrate substances | 16.4 |
| Water | 14.5 |
| pH | 5.5 |

Source:https://blissreturned.wordpress.com/2012/02/02/sugarcane-health-benefits-of-eating-sugarcane-and-drinking-its-juice/

## 1.6 Statement of the problem

The maize and sugarcane growers in the Chittagong Hill Tracts (CHT's) region will get fair prices of their produces if the agro-processing industry and proper marketing channel can be developed. The agricultural stake holder and government authority should help to develop a proper marketing channel and value addition activities so that the farmers can sell their produces at fair prices. Maize and Sugarcane growers count losses every year in CHT's as they often are compelled to sell their crops in lower prices comparing with production costs due to lack of processing industry, poor infrastructure, lack of traders and middleman, lack of variation in consumption patterns. The farmers are losing their interest to cultivate maize and sugarcane as they are denied fair prices and turned into tobacco cultivation. If this tradition is going on, it will be very alarming for the environment, soil fertility and human health in the hilly area. Evidently, there is good scope to increase income of the poor farmers by value chain and entrepreneurship development through appropriate use of product diversification and set of proper marketing channel for maize and sugarcane. If small processing industries are establish in this area and variation may be created in maize and sugarcane consumption and use, farmers will be benefitted more. Hundreds of valley land remains fallow and cultivating them will make Bangladesh a cereal product exporter. Promotion of appropriate marketing

knowledge, availability of processing materials and set up of small processing plant may increase farmers and entrepreneur's income in the long run.

In the CHT's there is absence of food processing industries, low level of entrepreneurship, poor communications facilities and high amount of post harvest looses of crops are happened. If sugarcane processing industries and poultry feed meal can be established in this area, more farmers will intend to cultivate maize and sugarcane. The situation stated above is further compounded by poor marketing infrastructures and lack of middleman or traders. Due to seasonal crops and no storage system for sugarcane, many hector of sugarcane are remaining in the field for lack of traders. An action research initiatives needs to be commissioned to determine the feasible practices/technologies for CHTs. The research study is helpful to assess the present status of value chain of maize and sugarcane, existing supply chain that explain the total area of production of the selected crops. The study can be a supportive study for new entrepreneurs by establishing a new entrepreneurship model by developing value chain of maize and sugarcane crops. Thus, the study is a pioneer study in CHT's, both growers and entrepreneurs will be benefited by the research. The study can also be a supportive research for national policy as well as for further research.

## 1.7 Rationale of the study

In many countries of the world, agriculture still plays a crucial role in economic development and a tool of poverty alleviation. However, agriculture individually is not sufficient to address the poverty and inequality but can contribute to reduce of poverty in a great extent. Because of the two third portion of the world population are engaged in directly or indirectly with agriculture. According to WFP report (2012), the total food production in the world is greater than the total demand of world food. Despite this situation, many people in the world are passing their day starvation or little amount of food. This is occurs due to post harvest losses or less amount of food processing industries. It is becoming increasingly crucial for policy makers to focus immediate attention on agro-processing industries. Such industries, can established efficient value chains, can increase significantly the rate and scope of

industrial growth. Agro-processed products offer much better prospects of durability and growth than primary commodities. In addition, the production processes into specific tasks opens up new opportunities for developing countries in employment creation, value addition and take a more profitable share in global market.

In developing countries like Bangladesh, a major portion of national funds are used to support agricultural production inputs – primarily seeds, fertilizers and irrigation systems. If, little attention can be given to the value chains activities by which agricultural products reach to final consumers and to the intrinsic potential of such chains can generate more value added and create vast employment opportunities. While high-income countries add nearly US$185 of value by processing one ton of agricultural products, developing countries add approximately US$40. Furthermore, while 98 percent of agricultural production in high-income countries undergoes industrial processing, barely 38 percent is processed in developing countries (Table 1.6). These data indicate that well developed agro-value chains can utilize the full potential of the agricultural sector (UNIDO**,** Vienna, 2009).

**Table1.5 Comparative data on processing of agricultural products in industrialized and developing countries**

| | Industrialized Countries | Developing Countries | Banglades h |
|---|---|---|---|
| Agricultural product processed (percent) | 98 | 38 | 0.5 |
| Post-harvest losses (percent) | Min. | 40 | 23.6-43.5* |

Source: UNIDO**,** Vienna, 2009. *Hassan, 2010 (NFPCSP-FAO).

By identifying strengths and weaknesses, value chain analysis helps participating actors to develop a shared vision of how the chain should perform and to identify collaborative relationships which can lead to improvements in value chain performance.

The study investigates the value chain system, different market participants, efficient channel of maize and sugarcane marketing, value added activities by the farmers and the intermediaries, their influence in market participation and identify the capable entrepreneurs in that area. However, the study will have important

implications for farmers, entrepreneurs, intermediaries, researchers, policy makers and different market participants in the study area. There are some arguments supporting the importance of this study are presented below:

- Firstly, it is very much important to know, how many channels in maize and sugarcane marketing exist in CHT's and how many of these are prominent, who are the market functionaries in maize and sugarcane market, what are the functions performed by different market intermediaries, how maize and sugarcane is transported throughout the market, how market information was collected and how price is determined in the market. This study will help to understand this marketing system better.
- Secondly, there is a huge scope of production and marketing of sugarcane and maize in the study area. But, There are absent of value chain studies of maize and sugarcane in this area. The study was new for that region; it will enhance the existing sugarcane and maize production.
- Thirdly, this study will help to identify the efficient entrepreneurs in maize and sugarcane processing. More importantly, it is urgently needed to identify inefficiencies of the farmers and existing entrepreneurs for improving their present situation.
- Fourthly, the study would be helpful for policy makers for strengthening study area's food policy programs as well as national food policy programs.
- Finally, the study would also help the researchers and development workers to formulate appropriate policy measures for uplifting the livelihoods of poor indigenous households for this region.

## 1.8 Objectives of the study

1. To document socioeconomic profile of maize and sugarcane growers and potential entrepreneurs in the selected areas.

2. To estimate profitability of maize and sugarcane for producers and different market intermediaries in the selected areas.

3. To analysis value chain performance of maize and sugarcane.

4. To identify the factors affecting value chain and entrepreneurial growth performance of maize and sugarcane.

## 1.9 Organization of the study

The study is divided into eight chapters. After this introduction, review of literature is presented is presented in Chapter 2. Chapter 3 deals with the research methods of the study. A brief description of the study area and socioeconomic profiles of the sample households is presented in Chapter 4. Chapter 5 deals with the marketing system and marketing efficiency of maize and sugarcane. The marketing system and supply chain of maize and sugarcane in the study area are investigated in that chapter. Value addition and entrepreneurship opportunity of maize and sugarcane are discussed in chapter 6. Factors affecting value chain development are investigated in chapter 7. Finally, Chapter 8 presents the summary, conclusion and recommendations of the study.

# CHAPTER 2

# REVIEW OF LITERATURE

# CHAPTER 2

# REVIEW OF LITERATURE

## 2.1 Introduction

The main purpose of this chapter is to review the available studies related to present research. In any research, review of literature is essential because it provides a scope for reviewing the stock of knowledge and information relevant to the proposed research. Literature on the value chain and entrepreneurship development of crops in CHT's is considerably inadequate particularly in Bangladesh, because very little research has been done on these issues. Whatever attempts have been made to investigate related topics is remain scattered and inadequate. However, some relevant studies in respect of value chain, supply chain and entrepreneurship of crops are available from Bangladesh as well as in other countries. This chapter is concerned with the review of literature related to value chain, entrepreneurship development, economic analysis, supply chain, marketing and marketing system of crops.

**Oxfam (2013)** reported on 'Maize value chain in Northern Char area of Bangladesh' to identify the root causes of constrains and opportunities and also assess the potential environmental and policy impacts of maize value chain. In the report, it is indicated that the major buyers of maize from the char areas are poultry and fish feed processors and bakeries. There are numerous market actors involved in the value chain in-between maize farmers and industrial processors. *Farias (*middle man), small traders, whole sellers and contractors are the common intermediaries in this process, each performing a distinct role and value addition across the chain.

**Shahreen (2012)** carried out a study on value chain analysis of banana in selected areas of Khustia and Tangail districts during the month on June to July 2012. Simple random sampling technique was used and total number of sample size is 230.Tabular analysis and cost and return analysis were done. He found that, *Aratdar* was received highest return followed by the wholesaler and then retailer in the value chain activities. The most common constraints of banana value chain are the financial problems faced by the growers and the intermediaries.

**IFPRI (2010)** identified in their report "Maize value chain potential in Ethiopia" that there is a significant post harvest loss of 15 to 30 percent of production due to lack of processing industries and appropriate marketing channel. There is a lack of fully functioning maize market and reflecting a weak industry structure. The report also revealed that improve storage management practices and continues efforts to increase market information can improve the maize value chain in Ethiopia.

**Akhter (2009)** carried out a study on value chain analysis of dairy sector in Rangpur with 90 respondents who were both randomly and purposively selected. Sample included 50 milk producer and 40 value chain actors. He found total cost per day per cow was Tk 108.66 and Tk. 106.66 net return was Tk. 93.62 and Tk. 76.18 for independent and contract farming respectively. The value addition per liter of milk by milk producers, traders and retailers were Tk. 14.39, Tk. 13, Tk. 24 and Tk. 4.33 respectively. Net margin obtained per liter of milk were Tk. 12.21, Tk. 7.86, Tk. 17.50, Tk. 3.99 for producer, traders, processor and retailers respectively.

**According to UNIDO (2009)** a positive or desirable change in a value chain to extend or improve productive operations and generate social benefits: poverty reduction, income and employment generation, economic growth, environmental performance, gender equity and other development goals. Value chain development interventions can focus on improving business operations at the level of producers, processors and other actors in the chain and/or the (contractual) relationships among them, flow of knowledge and information and innovation. Value chain development can also foster overall coordination in the chain; participation of selected beneficiaries in local, national or global value chains; reduction of entry barriers and a higher share of value addition for certain actor.

**USAID (2007)** made a study on sugarcane value chain finance analysis in Uganda. The study revealed that the directed governance structure of the sugar value chain provided the lead firms with ability to screen and monitor farmers, and to offer a credible of a serious sanction in case of default. The study also indicate that even in a direct value chain when production aspects of contracts was broken by delaying the harvest, value chain finance was likely to fail also. The "two way street" of value

chain relationships require that agreement around both finance and production are respected by both parties.

**Montpellier Panel (2014)** defined that, Agriculture is a dynamic sector, offering a multitude of opportunities for entrepreneurship along the enter agribusiness value chain. Agricultural supplies, innovation in farming technologies, especially in the information and communication technology (ICT) sector, or working in commodities market as well as employment in processing, transport, marketing and retailing along the agribusiness value chain can offer attractive careers to young people.

**Parsmehr M and et. al., (2012)** found that in their paper titled on "Guidelines of entrepreneurship development of agricultural products in rural regions" to reduce the rural severe poverty entrepreneurship development of agriculture is the main and effective factor. Strengths such as products insurance and educational centers are the effective factors in forming of agricultural entrepreneurship. They also revealed that extension and appropriate consultation create significant opportunities in reinforcement of agricultural entrepreneurship in the city. Inappropriate polices and laws in the distribution of resources, services and industry are the most important threat factors in informing of agricultural entrepreneurship.

**Getachew (2012)** visualized the analysis of supply chains is intended to provide a systematic knowledge of the flow of goods and services from their origin (producer) to their final destination (consumer). This knowledge is acquired by studying the participants in the process, i.e. those who perform physical marketing functions in order to obtain economic benefits. This channel may be short or long depending on the kind and quality of the product marketed, available marketing services, and prevailing social and physical environment.

**Nagurney (2006)** explained a supply chain is a system of organizations, people, activities, information, and resources involved in moving a product or service from supplier to customer. Supply chain activities transform natural resources, raw materials, and components into a finished product that is delivered to the end customer. In sophisticated supply chain systems, used products may re-enter the

supply chain at any point where residual value is recyclable. Supply chains link value chains.

**Kotler and Armstong (2003)** reported that supply chain is a business structure of interdependent organizations from the point of product origin to the consumer with the purpose of moving products to their final consumption destination.

**Haque and Raha (1997)** investigated the maize marketing in Bangladesh- a micro level study. The marketing study of maize was mainly based on data of 97 samples, which were randomly selected from the study areas in Dinajpur district. The sample included 52 farmers, 6 *Fairas,* 10 wholesalers, 9 retailers, 20 feed processors and organized traders of BRAC and GKF. In Dinajpur the net margin earned by the *Farias,* wholesalers, retailers and BRAC were Tk. 10.00, Tk. 16.25, Tk. 64.00, and Tk. 131.50 per quintal respectively.

**Reza and et.al (2013)** reported on 'Productivity and Profitability of Sugarcane Production in Northern Bangladesh' found that farmers gain profit from sugarcane production and the profit margin increases if the farmers grow inter-crop with sugarcane. Fertilizer, seed and pesticides significantly affect the sugarcane production where the use of fertilizer positively and seed are negatively related with sugarcane production. In case of sugarcane production with inter-crop, tilling and pesticides are positively and significantly and human labor is significantly but negatively related with sugarcane production.

**Ferdausi (2011)** conducted an economic study on maize production in some selected areas of Bogra district. According to her findings, cost and return analysis revealed that maize is a profitable crop for all categories of farmers. Net returns for the farm size groups of small, medium and large were calculated at Tk. 67592, 64694 and 74089 for small, medium and large farmers respectively. BCR was highest (2.40) for the small farmers followed by medium (2.01) and large (2.32) respectively. Her analysis indicated that out of nine variables, the effects of using seed, manure, fertilizer, irrigation and insecticide has significant impact on gross return from maize production of all farmers. Efficiency analysis indicated that most of the farmers inefficiently used their inputs. Some of them made excessive and some them made

less use of these inputs. The findings of the study revealed that large farmers earned higher profit than those of small and medium farmers.

**Kausar (2011)** conducted a study determining the marketing and transaction cost analysis of maize in Gaibandha district. His survey period was August to September 2012, and samples were selected purposively. Total sample size was 50. He found that Marketing problems of farmers and intermediaries were low local demand, poor transportation facilities, market toll, lack of credit facilities, absence of storage facilities, lack of adequate market information and lack of available market place. Establishment of feed mills nearest to the production point, advertising through electronic and print media, improvement of road and communication facilities, lessening of market toll, credit facilities from credit institution, improvement of storage facilities and quick and appropriate market were the possible measures to solve those problems.

**Minten, B. et al. (2010)** conducted a study on the agricultural marketing, price stabilization, value chains and global/regional trade in Bangladesh in which they observed that per capita food grain consumption has been stable in the last three decades in Bangladesh. Price seasonality for food grains had decreased, the quantities of food marketed had increased, and the direct role of the public sector in agricultural markets had declined. They also showed that the importance of high-value commodities, such as fruits and vegetables, fish, meat, and dairy products is rising with their volume of consumption. To stimulate the efficiency of potential food grain markets and to provide enormous benefits for producers as well as consumers, continuous investments were recommended. Various interventions and investments were also needed to meet the challenges of production and marketing of high-value products, especially relating to food quality and safety, they recommended. Several interventions like change in policies toward an enabling environment conducive to private trade, infrastructure development; improved access to credit; research and development; and capacity building were needed to establish a better integrated system of marketing and production to exploit the unrealized potential of the country. They also focused on the role of agricultural trade to improved food security and price stability by emphasizing further investment.

**IDAF (2009)** reported that, a weak agricultural credit system, unorganized market structure, unfavorable weather, small land holding sizes and inadequate technology development contributes to low productivity in the smallholder sector. The absence of more productive agricultural technologies has resulted in land degradation due to continuous cultivation, soil erosion, deforestation and limited technology adoption on land and water management. There has been also been an erosion of extension services. Smallholder agriculture is associated with a lack of value addition in agricultural products with little agro-processing and with most smallholders selling raw agricultural produce without adding value receiving no additional payment for quality.

**Haque (2009)** conducted a comparative economic study of hybrid maize Uttaran and 900 M cultivation in the area of Sherpur Upazilla in Bogra district. The major findings of the study revealed that per hectare average total costs were Tk. 39035.49 and Tk 42,807.92 for Uttaran and 900 M maize growers, respectively. Per hectare average net returns from Uttaran and 900 M were Tk. 48911.40 and Tk. 55906.09 respectively. The study revealed that, 900M maize growers earned relatively higher per hectare profits than the Uttaran maize growers.

**Hasan (2008)** completed a study on economic efficiency and constraints of maize production in the northern region of Bangladesh. He reported that all the farmers used hybrid seeds for maize cultivation with an average yield of 6.27 tonne per hectare, which is higher in Dinajpur (6.35 tonne per hectare), compared to Panchagar district (6.18) tone per hectare. The returns to scale of the selected inputs were 0.72 and 0.68 for Dinajpur and Panchagarh respectively. The technical efficiency was found on an average 0.84 at Dinajpur and 0.80 at Panchagarh. It was also found that, farmers in the study area had scope to increase maize productivity by attaining full efficiency through reallocating the resources.

**Uddin (2008)** conducted an economic study on maize production under different farm size groups in a selected area of Bangladesh. He determined the profitability, productivity and resource use efficiency under different farm size groups. This study showed that per hectare average net returns of maize were estimated at Tk. 31583, Tk. 47583 and Tk. 41648 for small, medium and large

farmers respectively. The study revealed that selected explanatory variables have impacts on maize production of all categories of farmers. The findings of the study revealed that medium farmers earned higher profit than those of small and large farmers. Finally some recommendations were made for the development of maize production in Bangladesh.

**Islam (2006)** conducted a study on impact of maize production on income and livelihood of farmers in a selected area of Lalmonirhat district. He reported that maize production has brought positive changes in different aspects of livelihood such as capital, food intake etc. The study revealed that positive change in income took place due to maize production. He also reported average annual income increases for maize growers was 63 percent while it was 37 percent for non-maize growers. The study suggested encouraging production of maize, irrigation facilities needed to be extended and provided post-harvest low cost technologies.

**Shohag (2006)** conducted a study on production and marketing of maize in a selected area of Gaibandha district. The study showed that the rate of changes of area, production and yield of maize increased dramatically for the increasing of potential demand in the various sector. Gross margin and net return were also calculated at Tk. 36425 and Tk. 29591 respectively. He also recommended the availability of input at reasonable prices, supply of credit at low interest, supply of adequate fertilizer in the production period, supply of good quality seed, increases in market demand, improvement of storage and market facilities, availability of post harvest technology and pesticides are important measures which can encourage maize production.

**Nazma (2003)** conducted an economic study of sugarcane production in selected areas of Natore district. In this study found that the BCRs of sugarcane small, medium and large farms were 1.29, 1.30 and 1.21 respectively which indicate that the medium farmers possess the higher BCR which is higher than the average BCR of all farmers 1.26.

**Shamim (2001)** conducted a study on sugarcane production under Traditional Technology and the spaced transplanting (STP) method in Dinajpur district. He found

that the total costs per hectare of sugarcane cultivation were Tk. 43059.61 and Tk. 45084.44 for the traditional and the STP methods, respectively. He also found that the net returns per hectare were Tk. 8187.24 and Tk. 2374.11 for the traditional and the STP methods, respectively.

**According to Hobbs *et al.* (2000)** referred to the entire vertical chain of activities: from production on the farm, through processing, distribution, and retailing to the consumer. In other words, it is the entire spectrum, from gate to plate, regardless of how it is organized or how it functions.

**Joarder (1998)** studied that both sugarcane and alternative crops were profitable enterprise. But sugarcane was more profitable than alternative crops i.e., Aus paddy cum and lentil. In the study areas per acre total cost of production of sugarcane and alternative crops were Tk. 21850.29 and Tk. 11890.68, while gross return and net return per acre were 27457.84 and Tk. 14667.21, Tk. 5067.55 and Tk. 2776.54, respectively.

**Fokhrul and Haque (1995)** compared the economic performance of maize with other crops. The study revealed that net return and benefit cost ratio (undiscounted) of broadcast Aus rice (2.18) was very close to maize (2.25) but per hectare total cost of maize cultivation was about 40 percent higher than that of broadcast Aus rice.

Value chain is very important in the context of Bangladesh. A brief review of important studies reveals that the previous studies discussed mainly in the economic analysis, productivity and profitability of maize and sugarcane. Some studies were conducted on marketing and value chain analysis of maize and sugarcane in the northern part of the country. No specific studies were found to have addressed the value chain and entrepreneurship development in the CHT's area. So, the present study is an attempt to explore the potentiality of value chain and supply chain development, value addition practices of maize and sugarcane, entrepreneurship development practices in CHT's Bangladesh.

# CHAPTER 3

# METHODOLOGY

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# METHODOLOGY

Methodology is the systematic steps of action which involves collection of data from the selected respondents as per objectives of the study. It is an indispensable and integral part of any research. The reliability of any scientific research depends on a great extent on the appropriate methodology. The researcher of the study has a careful consideration in following a scientific and logical methodology. The design of the survey for the present study involved some necessary steps, which are presented in the following. This chapter provides a detailed account of the description of the study area, selection of the study area, selection of respondents, data collection procedure and analytical techniques followed in this study.

## 3.1 Description of the study area

Khagrachhari subdivision was turned into a district in 1983. The district of Chittagong hill district was established in 1860 by Remrochai Chowdhury, under the 'Frontier Tribes Act 22 of 1860'. Following the district of Chittagong Hill Tract Regulation Act the Chittagong Hill Tract was divided into three subdivisions (included Khagrachhari District) in 1900. The Khagrachhari District Local Government Legislative Council was formed in 1989 (in accordance with the Khagrachhari Districts Council, Act 20), which, on the basis of the historic 'Chittagong hill district Peace Accord', was turned into Khagrachhari District Council on 2 December, 1997. The district consists of 8 upazilas, 34 union parishads, 123 mouzas, 953 villages, one municipality, 9 wards and 61 mahallas. The Upazilas are Dighinala, Khagrachhari District sadar, Lakshmichhari, Mahalchhari, Manikchhari, Matiranga, Panchhari and Ramgarh.

Khagrachhari District with an area of 2699.55 square kilometers is bounded by the Indian State of Tripura on the north, Rangamati and Chittagong districts on the south, Rangamati district on the east, Chittagong district and the Indian State of Tripura on the west. Annual average temperature: maximum 34.6 DC, minimum 13 DC; annual rainfall 3031 mm. The hills of this region are composed of folded

sedimentary rocks. Notable hill ranges AluTila, Bhanga Mura (416.66 m), Matai Pukhiri (213.36m), Matai Lakho (274.32 m); main rivers are Chingri, Maini, Feni and Halda; lake Mataipukhiri (Debotarpukur).

Khagrachari (Town) was established in 1860 by Remrochai Chowdhury. Khagrachari town consists of 9 wards and 61 mahallas. It has an area of 67.99 square kilometers. The town has a population of 39654; male 57.20 percent and female 42.80 percent; population density per sq km 583. Literacy rate among the town people is 50 percent. The district is about 266 km away by road from Dhaka and 112 km from Chittagong. The district of Khagrachari represents the natural, wild, beauty of Bangladesh.

Bandarban is a district in South-Eastern Bangladesh and a part of the Chittagong Division. It is one of the three districts that make up the Chittagong Hill Tracts. Bandarban is regarded as one of the most attractive travel destinations in Bangladesh. Bandarban (meaning *the dam of monkeys*), or in Marma or Arakanese language as "Rwa-dawMro" is also known as Arvumi or the Bohmong Circle. Bandarban town is the home town of the Bohmong Chief (currently King, or Raja, U Cho PrueMarma) who is the head of the Marma population. It also is theadministrative headquarters of Bandarban district, which has turned into one of the most exotic tourist attractions in Bangladesh since the insurgency in Chittagong Hill Tracts has ceased more than a decade back. Bandarban subdivision was turned into division in 1951.The districts consists of 7 upazilas, 31 union parishads, 96 mouzas, 1482 villages, two municipality. The Upazilas are BandarbanSadar, Lama, Alikadam, Naikhagchari, Ruma, Roangchari, and Thanchi. The total area of Bandarban district is 4479.01 $km^2$.The districts is bounded with the Myanmar state Arakan in the south and India in the east and Rangamati districts on the north and Chittagong and Cox'sbazar in the west. Annual average temperature of Bandarban districts is 34.6$^o$is highest and 13$^o$ is lowest. Average annual rainfall of Bandarban districts is 3031mm. It is said that the queen of natural beauty of Bangladesh is Bandarban. The main attractive tourist place of Bandarban are Boga Lake,Nilachal, ShoilaPropat, Chimbuk, Golden temple, Nilgiri, Rijuk Fall and many others. The main rivers of Bandarbans are Sangu, Matamuhuri and Bakkhali.Bandarban is 421.5 km away from the capital city of Dhaka.

### 3.2 Selection of the study area

Selection of the study area is an important step for conducting any research because it indicates a premise from where required data would be collected. The study areas were purposively selected considering the maize and sugarcane production and marketing and the easy access for the author. In other words, the area selection must serve the objectives of the study. Maize and sugarcane is grown highest inKhagrachari and Bandbarban, significantly to the total production in CHT's. The selected Upazilasof Khagrachari and Bandarbans were Khagrachari sadar, Dighinalaand Baddarban sadar for maize and Khagrachari sadar, Panchari and Baddarban sadar for sugarcane considering the concentration of maize and sugarcane cultivation. The area has been selected based on following considerations:

- Easily accessible and thus facilitate the researcher to complete the field work;
- Favorable for maize and sugarcane production and marketing;
- Most of the grower'svillages are nearby to the road.

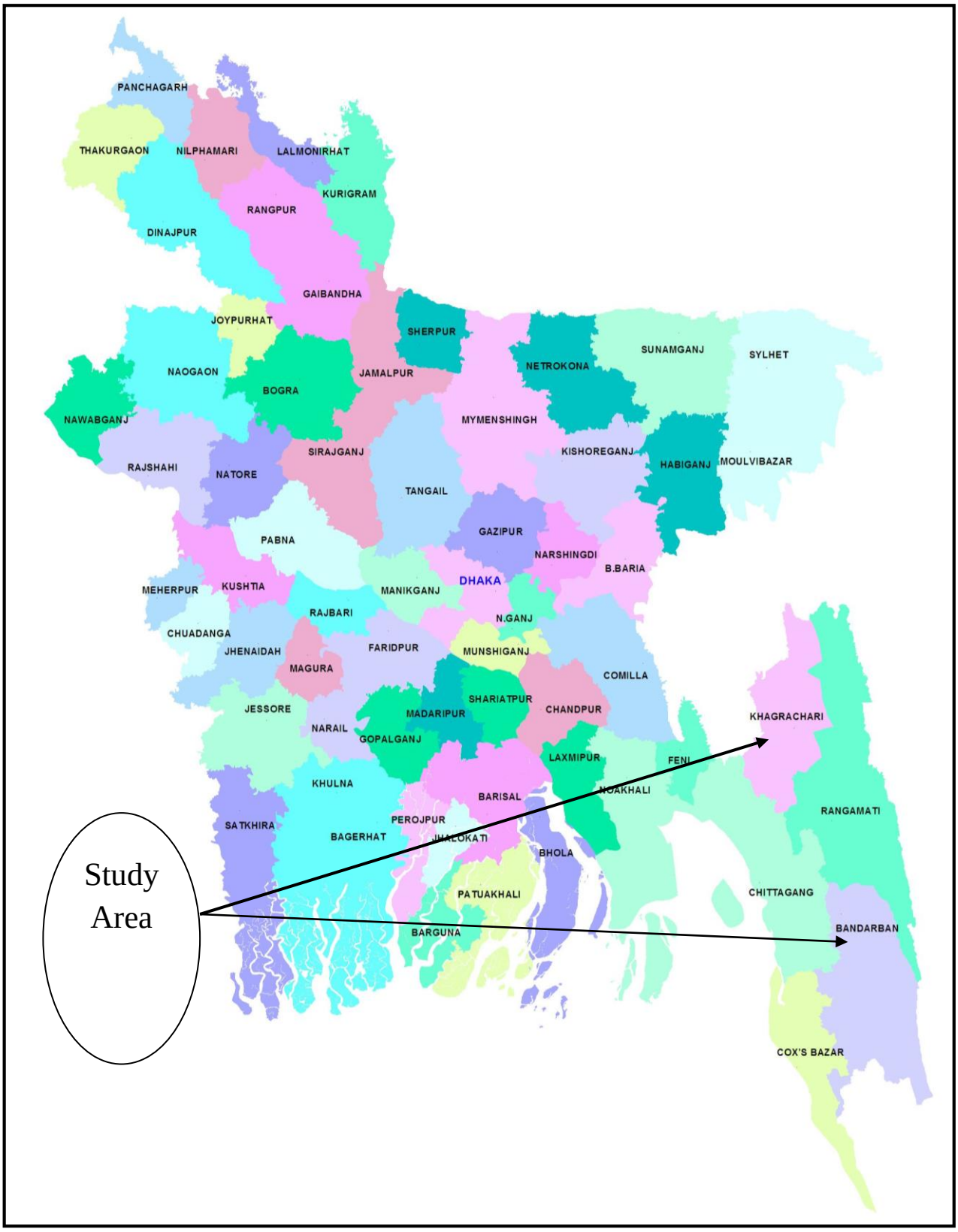



Fig 3.1: Map of the study area

## 3.3 Source of data and collection Procedure

### 3.3.1Sampling technique and sample

Sampling is an important part of survey work. It was not possible to interview all the farmers and traders of the study area due to time and resource constrains. Both the maize and sugarcane farmers and intermediaries (*Farias*, *Bepari*, Wholesalers, *Aratdars*and Retailers) were selected purposively. In Khagrachari and Bandarban, the author had collected all the data with the help of two Scientific Assistant named Sujon Chakma and Abdullah Al-Noman (growers production cost, cost of buying and selling at different marketing level, cost of processing, number of intermediaries, buying and selling price of different intermediaries in different channel etc.) to study maize and sugarcane value chain and supply chain analysis in CHT's Bangladesh. Table 3.1 shows the total number of sample that was selected purposively from both the District.

**Table 3.1Distribution of sample**

| Respondent Category | KhagrchariSadar | | Dighinala | Panchari | BandarbanSadar | | Chittagong/ Feni | Total |
|---|---|---|---|---|---|---|---|---|
| | Maize | Sugarcane | Maize | Sugar Cane | Maize | Sugar cane | Maize/ Sugarcane | |
| Farmers | 23 | 25 | 25 | 27 | 21 | 22 | 0 | 143 |
| *Farias* | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 12 |
| *Bepari* | 1 | 2 | 1 | 2 | 1 | 1 | 2 | 10 |
| *Aratdars* | 1 | 1 | 1 | 1 | 2 | 1 | 3 | 10 |
| Whole-salres | 1 | 0 | 1 | 0 | 1 | 0 | 2 | 5 |
| Total | | | | | | | | 181 |

Source:Field Survey, 2015

### 3.3.2 Survey instrument

The successof a study and survey depends on the proper design of the survey schedule. Keeping in mind the study objectives, a preliminary structured interview schedule was carefully designed for collecting data. The preliminary survey questionnaire was pre-testedwith a few farmers and traders by the author himself. During interview, if any correction, change or modifications were needed then field editing was done and thus some parts of the draft questionnaire were improved, modified and re-arranged in the light of the actual and practical experience gained from the pretesting. The questionnaire was finally developed in a simplemanner so that accurate information could be obtained without repetition and misunderstanding. Author followed the main aspects of a questionnaire viz. the general form, questionsequence and question formulation and wording to prepare schedule etc. Four set of questionnaires were prepared for different intermediaries. Questionnaire contained such type of questions which are relevant to the study objectives.

### 3.4Types of data

Tofulfill the stated objectives of the present study primary data were collected from the study areas and secondary data were gathered from the different sources of published materials.

### 3.5 Sources of data

### 3.5.1 Primary data

Primary data were collected through personal interview with the respondents using questionnaire. The data collected through a questionnaire survey included the following:

a) Data on quantity of sugarcane and maize marketed, price of sugarcane and maize supplied, distance from market, size of output, access to market, market information, land holding, credit access were collected.

b) Data on output produced and sold and marketing costs were collected and used to analyze the net returns (profitability) of sugarcane and maize production and the cost and price information used to construct marketing costs and margins of different intermediary.

c) Data on transaction cost of different intermediaries from their buying to selling, the item which occupy the highest among the transaction cost items were also collected.

d) Data on marketing channel exits in the study area was also collected to identify the efficient channel.

### 3.5.2 Secondary data

In this study, besides primary data, secondary data were also collected from different sources. Data include monthly wholesale average price of maize and sugarcane, world maize statistics, acreage and production of maize and sugarcane, rice and wheat over the years etc. The sources of secondary data were:

- Bangladesh Bureau of Statistics (BBS), Statistical Yearbook of Bangladesh, Yearbook of Agricultural Statistics
- DAM (Department of Agricultural Marketing) reports
- Bangladesh Agricultural Research Institute (BARI)
- Bangladesh Sugarcane Research Institute
- Different United Nations and Non-Government Organizations Reports and
- Internet

### 3.6 Period of data collection

Data were collected from Khagrachari in November-December 2014 and from Bandarban in January-February 2015. Secondary data were collected from different secondary sources in the time of report writing.

## 3.7 Collection of data

Data were collected from the respondents through face to face interview. During data collection the objectives of the study were clearly explained to the respondents so that they could understand and respond freely. The traders were interviewed in markets and *Hats*. Farmers were interviewed at the selected village under Khagrachari and Bandarban district. Primary data were collected from the market actors including growers and intermediaries using pre-tested semi structured questionnaires;through focus group discussion (FGD) and by Key Informants Interviews (KII). The respondents were interviewed during their leisure time so that they could respond easily. The questions were asked systematically and in a very

simple manner and the information was recorded on the interview questionnaire. In order to minimize errors, data were collected in local units. However, those units were later converted into standard unit.

After completion of each interview, each schedule was checked and verified to make sure that answer to each item had been properly recorded. Adequate measures were taken to make the information reliable and accurate and thereby to make them meaningful.

### 3.7.1 Data collection from growers

Maize and sugarcane growers were selected from Khagrachhari and Bandarban district. Formalsurveydatawascomplementedbykey informant discussions with the growers. Growers selected from different Upazilla in Khagrachhari district includingKhagrachariSadar, Diginala and Panchari and BandarbanSadar district. As the population size was not readily available, the sugarcane and maize growers and market intermediaries were selected considering availability at the first sight. There were 183 respondents, where 69 respondents were maize growers, 74 were sugarcane growers and 34 were intermediaries.

### 3.7.2 Data collection from intermediaries

The intermediaries refer to those people who act between the growers and consumers. The important intermediaries are *Faria, Bepari, Aratdar*, Wholesaler and Retailer. Information was collected on trade volume, marketing costs (depreciation on investment capital, interest on running capital, transport cost, office cost, commission, market toll, wastage, etc.), mode of sales, purchase and sale prices, price formation, gross and net margins and marketing constraints.For *Bepari*, *Faria*, *Aratdar* Wholesaler and Retailers, similar methods were followed.

## 3.8Market Intermediaries and their roles

In this study, different sugarcane and maize market participants were identified in the exchange functions between farmer and final consumer/processor. Market participants in the study areas include: growers, local collectors, wholesalers, retailers, processors and final consumers of the product. Even though, each participant was involved in different activities (*Faria, Aratdar,* Wholesaler, Retailer and *Bepari*), based on major activity undertaken, the sampled market participants were categorized into different categories.

**Growers:** These are the primary or first link actors who cultivate and supply sugarcane and maize in the market. The land for the abovementioned commodities was on its own plot to produce the already mentioned crops. Since the sugarcane cannot store, producers sell their produce right after harvest either at farm gate or local market. The process of maize selling had different selling procedures; most cases the farmers harvest from the field and took in to local market or *Aratdar* premises. Some of the farmers store through traditional practices. After that the wholesaler or company agent come and took it through trucks. These things happen per market day during the maize and sugarcane harvesting season. Similarly, due to lack of adequate, reliable and timely market information, maize and sugarcane growers are forced to dispose their produce within limited period at low selling price. Bamboo basket (locally called thurong/hallong), gunny sacks, plastic bag are the customary packaging material for maize selling in the study areas. Sugarcane is tied with rope or leaf of sugarcane and pick up to truck.

**Wholesalers**: Wholesalersis major actors in the channel and they purchase maize and sugarcane either directly from maize and sugarcane growers, *Bepari* or *Faria.* They are relatively large intermediaries having fixed establishment in the market and have permanent staff. Generally, the large share of their purchase was sold to Chittagong market and Fenny market (for sugarcane).They procures and consign large amount of maize and sugarcane to the local Bazar and to town markets.

**Retailers**: They are known for their limited capacity of purchasing and handling products with low financial and information capacity. Besides, these are the ultimate actors in the market chain that purchase and deliver boiled maize or small

piece of sugarcane to the consumers. In the study area, they had small permanent or temporary shops located in town market or some of them have no fixed place to sell. During *Hat* day they sit under the sky and sell their product. They purchase maizeand sugarcane from producer, *Faria, Bepari*and sell it to the ultimate consumers. Most of them were also involved in trading of commodities like pulses, oil, papayaor different types of necessary things.

***Aratdar*:** *Aratdar*are those people who purchased the product from the *Bepari*or *Faria.* They store the product from a certain period of time and after that they sale it to the wholesaler. They are large businessman and lead the business.

***Faria*:** They are small intermediaries who have no fixed establishment and staff. They purchase crops from sugarcane and maize growers at the farm gate or in the local market and sold them to wholesaler,

***Bepari****:* In the study area, a number of *Bepari*were involved in maize collection and supplied it to other district, they were not permanent resident in the Khagrachari district, came from Fenny, Comilla, Chittagongand other district to trade maize, sugarcane and wheat. This process was going on mostly in the season time.

**Processors:** In the study area, there are no processing centers or feed mill for maize or sugarcane. Maize producer boiled maize with salt or process maize to maize mash. Some of them eat maize by processing it to popcorns. Sugarcane growers usually not habituated with processing. Some *Gur* businessman processing sugarcane and produce *Gur.* But it is very few in number. Those who were involved with processing sugarcane they personally purchased sugarcane from local market and made sugarcane juice product and sold it to local market, in front of school and offices.

**Consumers:** From the consumers' point of view, the shorter the marketing chain, the more likely is the retail price going to be affordable. Consumers for this particular study mean those households who bought and consume boiled maize or sugarcane juice or*Gur*. They are individual households; they bought the commodity for their own consumption only.

## 3.9 Editing and tabulation of data

After data collection each questionnaire was verified for the sake of consistency and completeness. Editing and coding were done before putting the data in computer. All the collected data were summarized and scrutinized carefully to eliminate all possible errors. The summary tables were made in Microsoft word, Excel work sheet. Interpretation, discussion of findings was presented in simple terms and finally all were arranged and compiled in the form of the thesis.

## 3.10 Data analysis

Data obtained from questionnaire interviews were coded where appropriate, entered into a database system using Microsoft EXCEL and analyses using SPSS Statistical Software. Descriptive statistics (percentage, mean, range, standard deviation, correlation co-efficient, co-efficient of variation, etc.) was used to describe the variables. For the estimation of comprehensive marketing costs, the method described by Dawe et al. (2008) was followed.

### 3.10.1 Statistical analysis

**Production costs and margins of maize and sugarcane growers**

In the present study, the costs and margins of the growers of maize and sugarcanewere calculated. The methods are briefly described in the following:

**Production cost**

Production costs include both variable and fixed costs. The variable costs include costs for seed, cost of human labor, cost of cultivation, cost of fertilizer, cost of irrigation, cost of insecticide and pesticide, etc. The fixed costs include mainly land use cost, interest on running capital and depreciation.

**Profitability of maize and sugarcane growers**

The following profit equation was used to estimate the profitability of production of maize and sugarcane

$$\prod = PF.QF - (TVC+TFC)$$

Where

$\prod$ = Profit of producer per unit per year

PF = Per unit price of maize/sugarcane

QF = Quantity of maize/sugarcane

TVC = Total variable cost

TFC = Total fixed cost

**Gross returns of maize and sugarcane growers**

Gross return was calculated by multiplying the total volume of output by the per unit price of the commodity at the time of harvest. The following equation was used to estimate gross return (GR):

$$GR = \sum P_b . Q_b$$

Where

GR = Gross return from maize/sugarcane

$P_b$ = Per unit price of maize/sugarcane

$Q_b$ = Quantity of maize/sugarcane

**Gross margin of maize/sugarcanegrowers**

The argument for using gross margin analysis is that the maize/sugarcane growers were more interested to know their return over variable cost. The following equation was used to assess the gross margin.

$$GM = TR - VC$$

Where

GM = Gross margin

TR = Total return

VC = Variable cost

### 3.10.2 Marketing margins of market intermediaries

The net marketing margins of the intermediaries (after physical losses) were calculated by the following formula:

Net marketing margin = Sales price - (Purchase price + Marketing cost)

The marketing costs mainly include costs for various market operations like transportation, loading and unloading, market toll, rents, staff salary, electricity, generator cost, commission, wastage, depreciation, and other miscellaneous costs. The items of the marketing costs vary with the type of intermediaries.

### 3.10.3 Marketing performance

Marketing performance was evaluated using different measures of marketing efficiency as described by Shepherd (1972), Harris.B (1982), and Acharya and Agarwal (2000). In the present study, the efficiency of marketing were investigated by examining price spread, growers' share, Acharya's methods for estimating efficiency. The methods for studying these estimates are given in the following.

**Price spread**

Price spread = Price paid by consumers – Price received by the growers

**Grower's share**

$$\text{Grower's share (percent)} = \frac{\text{Price received by the growers}}{\text{Customer's price}} \times 100$$

### 3.10.4 Acharya's method for estimating marketing efficiency

In this method, the marketing efficiency will measure using the following formula:

$$Marketingefficiency = \frac{FP}{(MC + MM)}$$

Where, FP = Prices received by the farmers

MC = Total marketing cost

MM = Net marketing margin

### 3.10.5 Factor analysis

Factor analysis is a multivariate statistical technique that addresses itself to the study of interrelationships among a total set of observed variables. The technique allows looking at groups of variables that tend to be correlated to one another and identify underlying dimensions that explain these correlations. While in multiple regression model, one variable is explicitly considered as dependent variable and all the other variables as the predictors; in factor analysis all the variables are considered as dependent variables simultaneously. In a sense, each of the observed variables is considered as a dependent variable that is a function of some underlying, latent, and hypothetical set of factors. Conversely, one can look at each factor as dependent variable that is a function of the observed variables.

If $\{X_1, X_2, ----, X_n\}$ be a set of n observed variables and $\{F1, F2, -----, F_m\}$ be a set of unobservable variables then the factor analysis model can be expressed as

$$\left.\begin{aligned} X_1 - \mu_1 &= l_{11}F_1 + l_{12}F2 + ------ + l_{1m}F_m + \varepsilon_1 \\ X_2 - \mu_2 &= l_{21}F_1 + l_{22}F_2 + ------ + l_{2m}F_m + \varepsilon_2 \\ &---------- \\ &---------- \\ X_n - \mu_n &= l_{n1}F_1 + l_{n2}F_2 + ------ + l_{nm}F_m + \varepsilon_m \end{aligned}\right\} \text{---------- (2.1)}$$

where $\mu_i$ is mean of $X_i$, $\varepsilon_i$ is error or specific factor. The coefficient $l_{ij}$ is the loading of i-th variable on the j-th factor. In matrix notation the factor analysis model can be expressed as

$$X - \mu = LF + \varepsilon \text{ ---------- (2.2)}$$

where $L_{n\times m}$ is the matrix of factor loadings.

Several methods are available in literature to estimate factor loadings and factor scores. The study considers principal component method to estimate the factor loadings and communalities [ $h_i^2 = \sum_{j=1}^{m} l_{ij}^2$ ], a measure of the variation of observed variables through factors. 'Varimax', factor rotation is adopted to find estimate of factor loadings.

# CHAPTER 4

# SOCIO-ECONOMIC PROFILE OF GROWERS AND INTERMEDIARIES

# CHAPTER 4

# SOCIO-ECONOMIC PROFILE OF GROWERS AND INTERMEDIARIES

## 4.1 Socio-demographic characteristics of maize and sugarcane growers

The socio-economic information is very important; since it has used in many purposes. It is used for research in the social sciences, helps to formulate new policy, identification of potential factors which play key role in socio-economic context. It is a guide to and starting point for research about basic information on the areas of investigation. This section provides the basic socio-demographic profile such as ethnicity, gender of the households, age, family size, workable man, occupation, education level etc. of the respondents.

### 4.1.1 Ethnicity of the maize and sugarcane growers

An ethnic group or ethnicity is a socially defined category of people who identify with each other based on common ancestral, social, cultural or national experience. It is important to determine the ethnicities of the respondent because different ethnicities have different values, norms, attitude in production, consume and food habit.

**Table 4.1 Ethnicity of maize and sugarcane growers**

| S.N. No. | Categories | Maize Respondents | | Sugarcane Respondent | |
|---|---|---|---|---|---|
| | | Number | Percentage | Number | Percentage |
| 1. | Bangali | 8 | 11.59 | 9 | 12.2 |
| 2. | Chakma | 28 | 40.58 | 39 | 52.7 |
| 3. | Marma | 17 | 24.64 | 20 | 27.0 |
| 4. | Tripura | 8 | 11.59 | 2 | 2.7 |
| 5. | Bawm | 5 | 7.25 | 2 | 2.7 |
| 6. | Others | 3 | 4.35 | 2 | 2.7 |
| Tot | | 69 | 100 | 74 | 100.0 |

Source: Field Survey, 2015

From the above table it is found that Chakma ethnicities were highest in percentage for both maize and sugarcane growers. Marma ethnicities were second position and Bangali growers were third in sugarcane and maize growing. It is also found that Tripura, Bawm and some other ethnicities also were cultivated maize and sugarcane but they were very few in numbers.

### 4.1.2 Gender of the maize and sugarcane growers

In the survey area 94 percent maize growers were male, only 6 percent maize growers were female. In sugarcane production 97 percent growers were male and rest only 3 percent were female. The participation of female in maize and sugarcane production is very low in comparing to male (Table 4.2).

### 4.1.3 Age of the crop growers

Age is important in cultivation of the cash crops. Because better management in farming activities is depend upon the young and middle age. One of the major demographic factors such as age, measured in years, provided a clue on working ages of households. The average age of maize growers were 38.41 years and 43.38 years were for sugarcane growers under the sampled households (Table 4.2).

**Table 4.2 Socio-demographic characteristics of maize and sugarcane growers**

| S.L. No. | Characteristics | Maize and sugarcane growers | | | |
|---|---|---|---|---|---|
| | | Maize (n=69) | | Sugarcane (n=74) | |
| 1. | Gender (no.) | | Percentage | | Percentage |
| | Male | 65 | 94.2 | 72 | 97.29 |
| | Female | 4 | 5.8 | 2 | 2.71 |
| 2. | Age (average) | | | | |
| | 24-35 | 29 | 42.0 | 21 | 28.4 |
| | 36-55 | 37 | 53.6 | 40 | 54.1 |
| | 56-75 | 3 | 4.3 | 13 | 17.6 |
| 3. | Marital status (no.) | | | | |
| | Married | 67 | 97.2 | 69 | 93.24 |
| | Unmarried | 2 | 2.8 | 5 | 6.74 |
| 4. | Family size | 5.67 | | 5.15 | |
| 5. | No. of Workable man | 2.5 | | 2.76 | |

| | | | | | |
|---|---|---|---|---|---|
| 6. | Occupation (Main) | | | | |
| | Agricultural Production | 59 | 85.5 | 66 | 89.2 |
| | Service Holder | 7 | 10.1 | 5 | 6.8 |
| | Business | 3 | 4.3 | 3 | 4.1 |
| | Occupation (Secondary) | | | | |
| | None | 46 | 66.7 | 52 | 70.3 |
| | Business | 10 | 14.4 | 8 | 10.9 |
| | Service | 9 | 13 | 12 | 16.2 |
| | Others | 4 | 5.9 | 2 | 2.8 |
| 7. | Educational level (no.) | | | | |
| | Class 1-5 | 26 | 37.7 | 31 | 41.9 |
| | Class 6-10 | 38 | 55.1 | 32 | 43.3 |
| | Graduation or above | 5 | 7.2 | 11 | 14.9 |

Source: Field Survey, 2015

### 4.1.4 Marital status of crops growers

From the total 143 respondents only 2.8 percent maize growers were unmarried; whereas 6.74 percent sugarcane growers were unmarried. The large portions of the growers were married. From the total respondents, 97.2 percent maize growers were married and 93.24 percent sugarcane growers were married. The categories of widow were also found from respondents. All of them were female (Table 4.2).

### 4.1.5 Family size

A family size ranging between two to nine is witnessed in the farming households; the available data indicated that average family member in each family was 5.67 for maize growers, around 5.15 for sugarcane growers. Bigger family size has positive impact on production of maize and sugarcane. More people can participate in intercultural operation, irrigation and other activities on crops production and marketing (Table 4.2). Thus existence of larger family size has

positively affected the total farm production and the supply of marketable surplus mainly due to effective family member.

### 4.1.6 No. of workable man per family

No of workable man is positively correlated with crop production, family income and family status of the growers. Large number of workable man indicates high income growth of family. It is found from the study area that the workable man for maize growers is 2.5 per family and in sugarcane 2.76 (Table 4.2).

### 4.1.7 Occupation of growers

The farmers are involved in different types of income generation activities. Occupation category is divided in to two: main occupation and subsidiary occupation. According to the field survey, about 85 percent to 89 percent maize and sugarcane grower's main occupation is farming, 7 to 10 percent main occupation is service and near about 5 percent main occupation is business. In the study area, it is revealed that 66 to 70 percent farmers are not involved in any secondary occupation, 11 to 15 percent are involved in business, 13 to 16 percent are involved in service and 3 to 6 percent do other type activities as their secondary occupation (Table 4.2)

### 4.1.8 Educational status of growers

Education is important for every people to live in a healthy life. Education plays a key role in decision making and can contribute to ensuring food security at household level directly or indirectly. A literate person is more aware about nutrition, earnings, savings etc. than an illiterate person. In the survey area, 37.7 percent maize growers were passed class five, 55.1 percent maize growers have completed their secondary education and only 7.2 percent have completed graduation or above. In sugarcane growers, 41.9 percent have passed class five, 43.3 percent have passed SSC and HSC and 14.9 percent have completed their graduation or above studies (Table 4.2).

The more attendances in schooling ensure that occupying new knowledge of cultivation, gathering market information, proper irrigation practices. Thus enhance the crop production and facilitate the marketing channel.

### 4.1.9 Land ownership status of growers

In the survey area 66.67 percent growers has their own land for maize cultivation. There were 23.19 percent farmers cultivate maize in rented land. Only 10.14 were percent growers leased in land for maize production. On the other hand, 74.32 percent farmers were grown sugarcane in their own land. And 25.68 percent farmers were leased in land for sugarcane production. No farmer was found rented in land for sugarcane cultivation. From the above information we see that, Most of farmers grow crops in their own land. Few farmers were rented in land crop production and leased in activity were rare. About 39.1 percent maize growers land size was 0-100 decimal followed by 37.7 percent land size was 101-200 decimal, 14.5 percent land size was 201-250 decimal and only 8.7 percent land size s above 250 decimal. On the other hand, 48.6 percent sugarcane growers land size was 0-100 decimal, 32.4 percent sugarcane growers land size was 101-200 decimal, 13.5 percent growers land size 201-250 decimal and only 5.4 percent growers land size was 250 decimal above (Table 4.3).

**Table 4.3 Land ownership Information**

| S.L. No. | Characteristics | Growers | | | |
|---|---|---|---|---|---|
| | | Maize(69) | | Sugarcane(74) | |
| 1. | Land ownership (Size, Decimal) | Total | Percentage | Total | Percentage |
| | 0-100 | 27 | 39.1 | 36 | 48.6 |
| | 101-200 | 26 | 37.7 | 24 | 32.4 |
| | 201-250 | 10 | 14.5 | 10 | 13.5 |
| | >250 | 6 | 8.7 | 4 | 5.4 |
| 2. | Land ownership (no.) | | | | |
| | Own | 46 | 66.67 | 55 | 74.32 |
| | Rent | 16 | 23.19 | 0 | |
| | Govt./NGO | 0 | | 0 | |
| | Leased in | 7 | 10.14 | 19 | 25.68 |

Source: Field Survey, 2015

## 4.2 Contextual Information of maize and sugarcane farming

### 4.2.1 Experience on farming

Experience of farming is important for better crop production. It is helpful to determine the seed and fertilizer dose, irrigation facilities and other intercultural operation. In the study area it was found that near about 50 percent maize growers were 15 years or above experience in cultivation, about 40 percent farmers were involved in farming for last 6-10 years and about 12 percent growers were grown crops last 1-5 years. On the other hand for sugarcane growers, 20.27 percent growers were involved with agriculture for 1-5 years, 45.95 percent were for 6-10 years and 33.78 percent were cultivated crops last 15 years or above (Table 4.4).

### 4.2.2 Experience on maize and sugarcane cultivation

From the surveyed farmers it was found that, 52.17 percent were growers cultivated maize for last 6-10 years, 28.99 percent were 1-5 years and 18.84 percent were 1-15 years. For sugarcane, 35.14 percent farmers were grown sugarcane last 1-5 years, 55.41 percent growers were grown sugarcane last 6-10 years and 33.78 percent were grown sugarcane 11-15 years (Table 4.4).

#### 4.2.3 Source of finance of the growers

Finance is needed for any kind of production or business. It is the integral part of cultivation. Without enough finance, it is not possible to grow good crops. Near about 80-85 percent farmers were cultivated with their own finance. About only 8-10 percent growers said that they were borrowed money from bank, or NGO's (Table 4.5). Financial institutions like Sonali Bank, Bangladesh Krishi Bank and some NGO's like BRAC, ASA etc were provided loan to maize and sugarcane growers in the study area. About 3 percent to 6 percent growers were reported that they were borrowed money from their relatives (Table 4.4).

**Table 4.4 Farming information of maize and sugarcane grower**

| S.L. No. | Particulars | Maize and Sugarcane Growers | | | |
|---|---|---|---|---|---|
| | | Maize(n=69) | | Sugarcane(n=74) | |
| 1. | Experience on farming | | | | |
| | 1-5 years | 8 | 11.59 | 15 | 20.27 |
| | 6-10 years | 27 | 39.13 | 34 | 45.95 |
| | 11-15 years or above | 34 | 49.28 | 25 | 33.78 |
| 2. | Experience on sugarcane and maize growing | | | | |
| | 1-5 years | 20 | 28.99 | 26 | 35.14 |
| | 6-10 years | 36 | 52.17 | 41 | 55.41 |
| | 11-15 years or above | 13 | 18.84 | 7 | 9.45 |
| | 3.Source of Finance | | | | |
| | Own | 58 | 84.1 | 61 | 82.43 |
| | Bank | 3 | 4.2 | 3 | 4.05 |
| | Relatives | 3 | 4.2 | 2 | 2.7 |
| | NGO | 5 | 7.1 | 8 | 10.81 |
| 4. | Experience on Marketing | | | | |
| | 1-4 Years | 20 | 31.25 | 24 | 32.43 |
| | 5-8 Years | 40 | 57.95 | 45 | 60.81 |
| | 9-12 Years | 9 | 20 | 5 | 6.75 |
| 5. | Selling Point | | | | |
| | Local Market/Farm gate | 38 | 55.1 | 47 | 63.5 |
| | District market | 15 | 21.7 | 19 | 25.7 |
| | Company agent | 10 | 14.5 | 1 | 1.4 |
| | Chittagong | 0 | | 1 | 1.4 |
| | Others | 6 | 8.7 | 6 | 8.1 |
| 6. | Payment System | | | | |
| | In cash | 33 | 47.8 | 55 | 74.32 |
| | On credit | 32 | 46.4 | 12 | 16.21 |
| | Payment after harvest | 4 | 5.8 | 7 | 9.46 |
| 7. | Information Source (Price and marketing) | | | | |
| | Friends | 11 | 15.9 | 16 | 21.6 |
| | Relatives | 5 | 7.2 | 14 | 18.9 |
| | Business Community | 28 | 40.6 | 39 | 52.7 |
| | Company Agent | 23 | 33.3 | 2 | 2.8 |
| | Others | 2 | 2.9 | 16 | 21.6 |
| 8. | Information on Service providing Organization | | | | |
| | | Have | Don't Have | Have | Don't' |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | have |
| | Informed | 55(78.3) | 14 (21.7) | 66(89.18) | 8(10.82) |
| | Training on Agriculture | 40(58) | 29(42) | 48(64.86) | 26(35.13 ) |
| | Training on processing | 5 (7.2) | 64 (92.8) | 12(16.22) | 62(83.78 ) |
| | Proper Help | 41(59.4) | 28(54.6) | 55(74.32) | 19(25.68 ) |

Source: Field Survey, 2015

### 4.2.4 Experience on marketing

Few years ago maize and sugarcane growers in hill tracts produce maize and sugarcane only for own consumption or to meet up only local demand. Few of them were sold maize mash in the market or sold sugarcane in very little amount. But the situation has been changed now. Now, maize and sugarcane growers were sold their crops directly to the wholesaler or company agents in a commercial scale. There is a big market in the district bazar and other upazilla's bazar for maize and sugarcane. Different *Bepari* and Wholesaler were come from the Chittagong, Feni and some other districts in Khagrachari and Bandbarban to buy maize and sugarcane. They took it in the Chittagong market or supplied to the commercial company. According to the result, a good number of the growers have 4-8years experience in sugarcane and maize marketing, which was 57 to 64 percent (Table 4.4).

### 4.2.5 Selling point

From the study area it was found that most of maize and sugarcane sold to local market or farm gate by the growers and it is 55-64 percent. About 22-26 percent maize and sugarcane growers sell their crops to the district market. Very few number of buyer and seller sale their product to the company agents or the other district market (Table 4.4).

### 4.2.6 Source of information

Source of information about maize and sugarcane marketing and their price is very important because growers need to know about the marketing situation, selling place, price, location of trading etc. In case of maize trading 40.6 and 33.3 percent information were gathered by farmers from business community and company agents respectively. For sugarcane marketing, 52.7 percent information was collected from business community, 21.6 percent from friends and 18.9 percent from relatives. Rest of information was shared by the friends, relatives, neighbors and others (Table 4.4).

### 4.2.7 Trading type

About 40-70 percent trading were performed in cash payment during marketing. In most cases the *Bepari* or *Faria* provide some money in advance or trade on credit. About 46 percent maize traders or company agents were trade on credit and after collect the money from the wholesaler or company they were provided to the growers. In sugarcane trading, more than 70 percent cases the *Bepari* were come from Chittagong or other district market and provide one fourth in advance to the sugarcane growers and in the day of harvesting they pay full money to the growers. Trade on credit was happened around 47 percent for maize but only 16 percent for sugarcane. Contact trades were accounted only for sugarcane and it was accounted 43 percent (Table 4.4).

### 4.2.8 Training and support services

Training and support services play a notable role to the development of agricultural practices for a country. It helps to develop the efficiency of the farmers, introduce modern technology, know the processing techniques etc. It was observed that both Government institution including Department of Agricultural Extension (DAE), Hill Agricultural Research Station (HARS), Bangladesh Sugarcane Research Institute (BSRI), NGOs, commercial companies provide training on maize and sugarcane growing. About 58-67 percent farmers have basic training on agriculture. But getting of training on processing is very low. Only 7-16 percent growers get training on processing. The study reported that about 60-74 percent famers get proper help from the both government and non-government organization in the study area (Table 4.4).

## 4.3 Distribution of varieties

Certainly the better production of crops depends on good quality seed. Sometimes for lack of good quality seed, production fall half in amount. In the study area it was found that most of the farmers still depend on local variety for maize cultivation. Near about 41 percent farmers were grow maize with local variety, 36.23 were percent used Hybrid CP-808, 23.18 percent were used Hybrid CP-838 and 11.59 percent maize growers were used Mirakhel variety seed for maize production. For sugarcane cultivation, Rang Bilash variety was used highest in percentage and it was 56.75 percent. Some other variety also used by the farmers. These were CO-42(6.76%), China(10.81%),Vietnam(8.10%), and Kali kushal(5.4%).Local sugarcane variety Desi-28 was used as second in highest for sugarcane cultivation in CHT's(Table 4.5).

**Table 4.5 Different cultivated varieties of maize and sugarcane**

| S.L.No. | Crops | | Total | Percentage |
|---|---|---|---|---|
| 1. | Maize | Hybrid CP-808 | 25 | 36.23 |
| | | Hybrid CP-838 | 16 | 23.18 |
| | | Mirakhel | 8 | 11.59 |
| | | Indian Maize/Local variety | 28 | 40.57 |
| 2. | Sugarcane | Rang Bilash | 42 | 56.75 |
| | | CO-42 | 5 | 6.76 |
| | | China | 8 | 10.81 |
| | | Vietnam | 6 | 8.10 |
| | | Kali Kushal | 4 | 5.40 |
| | | Desi-28 | 9 | 12.16 |

Source: Field Survey, 2015

## 4.4 Sources of input

For any kind of production inputs are required. Agricultural inputs are essential elements for agricultural production. Direct inputs include seed, water, fertilizers and pesticides. Indirect inputs include equipment and fuel. Most of the farmers from Khagrachari and Bandarban were reported that, there was scarcity of irrigation facilities. They depend for irrigation on river and *charas*. With the diesel pump they were irrigated their field from river and *charas*. Most of the inputs were collected from the nearby market. Around 80- 85 percent input were purchased from local or town market. Almost all the inputs like fertilizers, pesticides, fuel, rope, and bamboo were collected from market. In most cases seed were collected from commercial company, department of agricultural extension, Bangladesh sugarcane research institute, neighbors and local market. Around 60 percent inputs were purchased from local market or local small bazar, rest 20-25 percent were used their own inputs because of lack of financial (Table 4.6).

**Table 4.6 Input sources**

| S.L. No. | Particulars | Growers | | | |
|---|---|---|---|---|---|
| | | Maize (69) | | Sugarcane (74) | |
| 1. | Seeds | | | | |
| | Own | 12 | 17.39 | 42 | 56.75 |
| | Local Market | 23 | 33.33 | 15 | 20.27 |
| | Commercial company | 20 | 28.98 | 0 | |
| | HARS/DAE/BSRI | 14 | 20.28 | 17 | 22.97 |
| 2. | Source of Irrigation | | | | |
| | Diselpump+Chara | 32 | 46.27 | 23 | 31.08 |
| | Diselpump+Canal | 8 | 11.59 | 10 | 13.51 |
| | Diselpump+River | 29 | 42.02 | 41 | 55.41 |
| 3. | Fertilizer/Insecticides/ Pesticides | | | | |
| | Own | 5 | 7.24 | 0 | |
| | Local Market | 48 | 69.54 | 65 | 87.84 |
| | Relatives/ neighbors | 7 | 10.14 | 5 | 6.75 |
| | Others(RARS,BSRI,DAE) | 9 | 13.04 | 4 | 5.4 |

Source: Field Survey, 2015

## 4.5 Socio-economic characteristics of market intermediaries

Marketing intermediaries, also known as middlemen or distribution intermediaries are an important part of the product distribution channel. Intermediaries are individuals or businesses that make it possible for the product to make it from the manufacturer to the end user, essentially facilitating the sales process. There are four basic types of marketing intermediaries are agents, wholesalers, distributors and retailers. In the study area *Faria, Bepari*, wholesaler and *Aratdar* were found.

### 4.5.1 Age of market intermediaries

The analysis on this demographic characteristic highlighted that the average age of types of intermediaries were36years to 45years. The maximum and minimum age of market intermediaries were reported as 52 and 33 years of age. (Table 4.7)

### 4.5.2 Educational level of market intermediaries

Education is a crucial factor of skill development and enhancing marketing decisions. Literate people can have a better access to the relevant information regarding food and livelihood security. The respondents reported that 100 percent of intermediaries (*Faria*, wholesaler and retailer) were entitled to formal education (Table 4.7). Around 60 percent of intermediaries have secondary level education and rest 40 have completed higher secondary or above. The increase educational entitlement has supported the ability to acquire new idea in relation to market information and new technology. Their average business experience was 8 years to 12 years.

**Table 4.7 Socio-demographic characteristics of market intermediaries (Sugarcane and Maize Traders)**

| S.L. No. | Characteristics | Market Intermediaries | | | |
|---|---|---|---|---|---|
| | | *Faria* (n=12) | Wholesaler (n=5) | *Aratdar*(n=10) | Bepari (n=10) |
| 1. | Age (years) | 35.67 | 42.53 | 36.78 | 44.7 |
| 2. | Educational level (no.) | | | | |
| | Class 1-5 | 5 (41.67) | 0 | 4(40) | 2(20) |
| | Class 6-10 | 4(33.33) | 2(40) | 3(30) | 6(60) |
| | HSC or above | 3(25) | 3(60) | 3(30) | 2(20) |
| | Business Experience (Average) | 8 | 10 | 9 | 12 |

Source: Field survey, 2015

## 4.6 Year of establishment

In the study area, mainly four types of market intermediaries were active in maize and sugarcane marketing; *Faria, Bepari*, Wholesaler and *Aratdar*/Retailer. The respondent reported that large number of *Faria* started their business from the 1-5 years (Table 4.8). Majority of wholesaler and retailer were doing their business from 3-10years.

**Table 4.8 Total Year of Business experience of Intermediaries (Sugarcane and Maize Traders)**

| S.L. No. | Years of Business Doing | Market Intermediaries | | | |
|---|---|---|---|---|---|
| | | *Faria* (n=12) | Wholesaler (n=5) | *Bepari* (n=10) | Aratdar (n=10) |
| 1. | 1-5 Years | 6(50) | 3(60) | 7(70) | 6(60) |
| 2. | 6-10 Years | 4(33.33) | 2(40) | 3(30) | 4(40) |
| 3. | 11-15 Years | 2(16.67) | 0 | 0 | 0 |

Source: Field Survey, 2015

## 4.7 Business type

In the study area intermediaries run their business as a contract business for a season or a year. Result showed that *Faria* were run 21percent contract business, rest 79 percent were run sole business. Wholesaler and *Aratdar* were run 81 and 19 percent sole business and partnership business respectively. In the study area, 100 percent *Bepari* were run their sole business (Table 4.9).

### 4.7.1 Experience of business

The percentage of respondents indicates that most of the intermediaries do sole proprietorship business. Only *Faria* (33 percent) and *Bepari* (20 percent) have partnership business experience. According to the research maximum retailers and wholesaler do sole proprietorship business (Table 4.9).

### 4.7.2Trading type

From the result it was observed that, *Faria* had done their transaction in cash 41 percent and on credit 25 percent. Wholesalers were done their business 100 percent on cash payment. Retailers were practiced 50 percent business on cash payment and 30 percent on credit. *Bepari* were practiced 70 percent on credit transaction and contractual 30 percent business (Table 4.9)

**Table 4.9 Mode of business of market intermediaries (Maize and Sugarcane)**

| S.L. No. | Particulars | Market Intermediaries | | | |
|---|---|---|---|---|---|
| | | *Faria* (n=12) | Wholesaler (n=5) | *Aratdar* (n=10) | *Bepari* (n=10) |
| 1. | Business type | | | | |
| | Sole Proprietorship | 8(66.67) | 5 (100) | 10 (100) | 8 (80) |
| | Partnership | 0 | 0 | 0 | 2 (20) |
| | Contractual | 4 (33.33) | 0 | 0 | 0 |
| 2. | Trading type | | | | |
| | Cash | 5 (41.67) | 5(100) | 5 (50) | 0 |
| | On credit | 3 (25) | 0 | 3 (30) | 7(70) |
| | Advance | 0 | 0 | 0 | 0 |
| | Contract | 4(33.33) | 0 | 2(20) | 3(30) |
| 3. | Source of finance | | | | |
| | Own | 7(58.33) | 1(20) | 6(60) | 2(20) |
| | Bank | 0 | 3(60) | 0 | 4(40) |
| | NGO | 3 (25) | 1(20) | 4(40) | 4(40) |
| | Relatives | 2(16.67) | 0 | 0 | 0 |
| 4. | Crops Collection Point | | | | |
| | Farm gate | 8(66.66) | 0 | 0 | 5(50) |
| | Local Market | 4(33.34) | 2(40) | 8(80) | 3(30) |
| | Town market | 0 | 3(60) | 2(20) | 2(20) |

Source: Field Survey, 2015

### 4.7.3 Source of finance

Above 58 percent intermediaries source of finance was own finance. About 40 to 60 percent intermediaries reported that they borrowed money from the bank and NGOs respectively. From the respondents, 16.67 percent *Faria* were borrowed money from their relatives (table 4.9).

### 4.7.4 Crops collection point

Collection point of crops is obligatory factor for intermediaries because this is related to cost. If intermediaries collect crops from farm gate, cost are lower than markets but it requires more transport cost, packaging cost, handling cost etc. Though

these costs are unavoidable majority of intermediaries prefer farm gate as a main source for sugarcane collection.

According to the result, 66 percent of *Faria* and 50 percent *Bepari* were collected sugarcane and maize from farm gate or house yard. The second major source of crops collection point was local bazar, 40 percent of wholesaler and 80 percent retailer were collected maize and sugarcane from local bazaar respectively. And some retailer who had own or rented shop in local or town market they collected other regions maize. It was worth to mention that all types of intermediaries were collected crops from various sources due to the availability of pricing variation.

## 4.8 Conclusion

Among all the ethnicities Chakma were highest in maize and sugarcane cultivation. Most of the farmers were male and completed secondary education. The respondent's main occupation was farming. Most of the farmers were cultivated with their own finance. The selling point of maize and sugarcane were district market. About 60-70 percent cash payment were performed in trading. The government and private organization were provided continuous support to the farmers in maize and sugarcane cultivation. There were four types of market intermediaries including *Faria, Bepari,* Wholesaler and Retailer/*Aratdar.* Their modes of business were sole proprietorship and some were partnership. Most of the intermediaries were borrow money from the bank to run their business.

# CHAPTER 5

# MARKETING SYSTEM AND MARKETING EFFICIENCY OF MAIZE AND SUGARCANE

# CHAPTER 5
# MARKETING SYSTEM AND MARKETING EFFICIENCY OF MAIZE AND SUGARCANE

## 5.1 Introduction

Marketing of any product is essential to transfer it to the final consumers from widely, scattered production points. Agricultural marketing can be defined as comprising of all activities involved in supply of farm inputs to the farmers and movement of agricultural products from the farmers to the consumers (Acharya and Agarwal, 2000). It is both a physical distribution and an economic bridge designed to facilitate the movement and exchange of commodities from farm to the fork. Marketing system composed of alternative product flows; marketing channels, a variety firm (intermediaries) and numerous business activities (marketing function).The main objective of this chapter is to present total cost of maize and sugarcane growers, profitability of growers and market intermediaries, marketing margin and marketing efficiency of intermediaries. Profitability of growers and market intermediaries has been measured in terms of gross margin, net return etc.

## 5.2 Channels of maize

Marketing channels are routes through which agricultural products move from producers to consumers (Acharya and Agarwal, 2000). In Bangladesh, maize is mostly used in preparing poultry and fish feed. Sometimes, maize has been processed into popcorn and also consumed in roasted form. In the hilly area in Chittagong, immature maize is harvested, boiled and make it in liquid form and adding with it some spices or salt to eat. About more than 60 percent maize growing family do it. Marketing channel refers to the sequential arrangement of various marketing intermediaries involved in the movement of products from producers to consumers or user (poultry farms). The marketing channel may be short or long for a particular commodity depending on quality of the product, nature and size of consumers and producers, intermediaries, marketing services needed, etc.

The marketing channels of maize as observed in the study area are presented in Table 5.1

**Table 5.1Maize identified channel in the study area**

| | |
|---|---|
| Channel I | Growers → Consumers (local) |
| Channel II | Growers → *Bepari* → Feed mills |
| Channel III | Growers → *Faria* → *Aratdars* → Feed mills |
| Channel IV | Growers → *Faria* → Wholesalers → *Aratdar* → Feed mills |
| Channel V | Growers → *Farias* → Wholesalers → Poultry Farms |
| Channel VI | Growers → Wholesalers → AratdarsPoultry → Farms |

## 5.3 Maize market participants

Apart from farmers and consumers a number of intermediaries were involved in marketing of maize in the study area. Likewise the marketing systems of other agricultural products the intermediaries involved in maize marketing were *Farias*, *Bepari*, Wholesalers, and *Aratdars*. A brief description of market participants is given below.

### 5.3.1 Farmers

Maize marketing channels started from the farmers. Farmers sell their maize to intermediaries both at market and farmyard. Farmers were sold 80.5% of their maize to *Farias, Bepari,* Wholesalers and *Aratdars*. Farmers were sold 45%, 30%, 15% and 10% of their produce to the *Bepari*, *Farias,* wholesalers and *Aratdars* respectively.

### 5.3.2 *Bepari*

*Bepari* are those people who purchased maize in their own yard and sell their maize in a specific company or wholesaler. *Bepari* were found mostly in the Khagrachari district. They were collected maize from the farmers on credit on a predefined market rate and after one month or more when company paid to the *Bepari* then they provide the price of maize to the farmers. They were purchased 45% of maize from the farmers. *Bepari* had *Chatal* of their own and all processing activities such as drying, cleaning, and packaging were done at *Chatal* for sending to the feed mills. Sometimes, *Bepari* were incurred all the expenses of selling maize to feed mills.

### 5.3.3 *Farias*

*Farias* were found in the Dighinala and Khagrachari Sadar upazilla and Bandarban district those purchased maize from producer at the farm gate or in the local village market and were sold to the *Bepari*, wholesalers and *Aratdars*. They did their business independently and were self-financed in maize trading. Apart from maize trading most of the *Farias* were engaged in trading of other agricultural commodities such as paddy, jute, wheat etc. They had no permanent staff.

### 5.3.4 Wholesalers

The wholesalers had fixed establishments in the market places with adequate storage facilities. Apart from maize trading, most of the wholesalers were engaged in trading of other agricultural commodities like paddy, jute, pulses, groundnut, soybean and wheat etc. They purchased large amount of maize from farmers in the local market and a small amount was purchased from *Farias*. They had permanent staff and did their business largely. They sold large amount of maize to feed mills and small amount to *Aratdars* at local markets.

### 5.3.5 *Aratdars*

Maize *Aratdars* were the last intermediary in the channel before the feed mills or ultimate users of maize. They had permanent business premises in the district market or Chittagong. Generally, they purchased maize from *Bepari* and wholesalers. Sometimes they bought wet maize from the farmers on the understanding that the farmers could ask them for immediate cash any time. They supplied dry maize to the feed mills within one to two days of taking an order. Those *Aratdars* who worked with feed mills had little freedom in their purchasing and selling decisions. They followed the decisions of the feed mills. All time they were stay connected with the feed mills to take decisions whether they would purchase maize or not at the prevailing market prices. The agent of feed mills came to the *Aratdars* premises for taking maize and sometimes sent purchase volume through truck or pick-up along with the buying receipt and the feed mills paid money later. Then the *Aratdars* sent maize to the feed mills as their purchase volume and collected money at the notified date. The *Aratdars* stored maize for some days, if undelivered at their business premise.

### 5.3.6 Retailer

The retailers were the last link in the marketing of maize. They were the specialized sellers who were directly connected with the consumers. Retailers were the small types of all traders. Sometimes, they purchased maize from the wholesalers at the district level. They bought the maize in small volume on the basis of open bargaining and sold it directly to the ultimate consumers at their retail shops. The retailers were the professional traders sold their purchased maize to consumers directly. Most of the retailers were independently organized having permanent shops usually in the open market place and labor for performing retailing activities. There were some retailers who had no permanent shop usually use open market place for their sale. Most of the retailers (both Khagrachari and Bandarban) had been doing business for more than 5 years. In spite of being self-financed they borrowed money from friends, relatives and other non-institutional sources at the time of need.

## 5.4 Functions of maize marketing

Any single activity performed in carrying a product from the point of its production to the ultimate consumer may termed as a marketing function (Acharya and Agarwal, 2000). In this study, maize marketing functions has been broken down into various functions such as buying and selling, transportation, storage, packaging, market information and pricing.

### 5.4.1 Buying and selling

Buying and selling are the functions of exchange. Both have their primary objectives of negotiating terms of exchange. In Khagrachari and Bandarban district, farmers were producer as well as consumer of maize. They consume a small amount of maize in popcorn form or juice form; they were sold 80-85 percent of their maize to *Bepari*, *Farias*, wholesalers and *Aratdars*. The ultimate buyer of maize were feed mills, they bought dried maize from the *Bepari*, agents, wholesalers and *Aratdars*. Wholesalers were bought their maize from farmers, *Bepari*, *Farias* and *Aratdars*. The wholesalers and *Aratdars* sold a little percentage of their maize to poultry farms because there were a few poultry farms in the study area. It was also known from the *Aratdars* and wholesalers that they did not want to sell their maize to poultry farm due to their small amount of purchase.

### 5.4.2 Drying, cleaning and processing

After harvesting maize the farmers cleaned their maize in their farmyard with their family members or female labors. Few farmers dried maize in other's farmyard. Then they packed their maize with plastic, bamboo basket or jute sack to prepare for selling. *Farias* bought maize from the farmers. *Farias* did not dry or clean maize. They only bought maize from farmers and sold those to the *Bepari* or wholesalers. The wholesalers dried and cleaned maize in their shop or premises with their permanent or temporary labors. Sometimes they dried maize in others *Chatal* to finally process maize for selling to *Aratdars* or feed mills. Finally, *Aratdars* dried, cleaned and packed those for selling to the feed mills. In doing this, they used their own labors. The *Aratdars* used jute sack for packing with jute ropes. They had permanent labors to do those activities.

### 5.4.3 Storage

Farmers and *Farias* generally did not store maize in a large amount. But local variety maize which the farmers or other people used to eat as popcorn is stored. Sometimes *Bepari* and wholesalers stored maize in their shop for selling maize later. *Aratdars* stored maize at their *Godown* (store house) for two or three months for selling later to get higher price.

### 5.4.4 Transportation

Transportation is the lifeblood of modern marketing system. It creates place utility to the producer. Adequate and efficient transportation systems are the corner stone of modern marketing system. Farmers were transported their maize by using Van and auto-charger. The *Farias* were used Van, *Votvoti* and power tiller for marketing their maize. Maize was produced scattered in different valley land areas nearby the river or *charas*. It was very tough for the farmers to carry maize from scattered areas to the local markets. Wholesalers used pick-up and truck for carrying maize to the terminal market and used Van, power tiller for carrying maize to the village market. Feed mills carried their maize by truck and pick–up as the main roads to the feed mills were developed enough that the truck and pick-up can travel easily.

### 5.4.5 Packaging

*Farias* and wholesalers usually packed their maize with plastic and jute sack. *Aratdars* were usually packed their maize with jute sack. Plastic sack was less costly than jute sack. Plastic sack could bear a weight of 60/70 kg of maize which cost Tk. 15/20 per bag. Jute sack could bear a weight of 75/80 kg of maize which cost Tk. 60 per bag. Jute sack was more preferable to plastic sack in terms of storing and easiness to carry.

## 5.5 Channels of sugarcane marketing

In Bangladesh, Sugarcane is mostly used for sugar production. Molasses also produce from sugarcane. Now a day's sugar bit is also used for sugar production. But in the hilly area in Khagrachari and Bandarban, mostly chewing type sugarcane is produced. Because there is no sugar mill in three hill districts. About more than 80 percent farmers grow chewing type sugarcane. So, here sugarcane produced for eating juice or chewing through mouth, not for sugar production. But few areas in Panchari and Khagrachari Sadar produced molasses with the local produced sugarcane.

The marketing channels of sugarcane as observed in the study area are presented in table 5.2, from this table the following channels are identified.

**Table 5.2 Sugarcane identified channel in the study area**

Channel I Growers → Consumer (local)

Channel II Growers → *Faria* (local) → Retailer (local) → Consumer (local)

Channel III Growers → *Bepari* (local) → Consumer (local)

Channel IV Growers → *Bepari* (local) → Wholesaler (Chtg) → Retailer (Chtg) → Consumer (Ctg)

Channel V Growers → Bepari (local) → Wholesaler(Feni) → Retailer (Feni) → Consumer(local)

## 5.6 Sugarcane market participants

In sugarcane supply chain, from farmers to consumers a number of intermediaries were involved in marketing of sugarcane in the study area. Likewise the marketing systems of other agricultural products the intermediaries involved in sugarcane marketing were *Bepari*, *Farias*, wholesalers and small businessman.

### 5.6.1 Farmers

Sugarcane marketing channels started from the farmers. Farmers sell their sugarcane to intermediaries both at market and farmyard. Farmers most of the sugarcane sell to *Farias, Bepari* and wholesalers. Farmers were sold 50%, 20%, 15% and 15% of their produce to the *Bepari, Farias,* Wholesalers and small businessman respectively.

### 5.6.2 *Faria*

*Faria's* buy small amount of sugarcane from the farmers and they were sold it to the juice maker or the *Gur* producer. *Faria's* are mostly local people. In some cases they acts as agents for the *Bepari*, they find out the farmers and help the *Bepari* to buy sugarcane from the farmers.

### 5.6.3 *Bepari*

Most of the *Bepari* comes from in Chittagong or Fenny district to buy sugarcane directly from farmers at the farm gate. *Bepari* makes in advance with the farmers before harvesting the sugarcane by giving some portion of money and in the day of harvesting they paid full amount of money to the farmers. Sugarcane *Bepari* are the mostly middleman in the study area.

### 5.6.4 Wholesaler

Sugarcane wholesaler is mostly found in the district market like Chittagong or Fenny. They buy sugarcane from the *Bepari* or sometimes from the *Faria's.* Then they sell it to small businessman, juice producer or *Aratdar.*

## 5.7 Functions of sugarcane marketing

### 5.7.1Transportation

Transportation is important for moved product from one place to another place. In the hilly area in most cases the *Bepari* were used pick up and small truck was for the transport of the sugarcane. The farmers were used Van and auto bike to take sugarcane in the local market in a small scale.

### 5.7.2Bundling

To make a bundle, 25-30 sugarcane is tied up with rope or leaf of the sugarcane and then it took into the truck. Before tied up sugarcane were cleaned by the farmers or with the labor. The leaves in the top were cut down and roots were cleaned.

### 5.7.3 Price determination

Demand, supply and quality of maize and sugarcane influenced the market prices. All the traders involved in maize and sugarcane marketing followed the open bargaining method for fixing the price at the time of buying and selling of maize. The price was mainly determined by the number of buyers attending the market and the volume of maize and sugarcane offered for sale. Due to lack of local buyers in the hilly area of maize and sugarcane, the sellers had usually low bargaining power compared to buyers.

Farmers, *Farias,* wholesalers and *Aratdars* were the market participants in the study area. Marketing of maize started from farmers and it reached to the feed mills through different channels. Farmers take part in processing activities only for their own consumption not for commercial scale. Van, *Votvoti*, pick-up, truck and by-cycle were the common modes of transportation. Market information's were collected through mobile phone, personal visit to the market, fellow farmers and traders. Price was determined through the supply and demand situation. For fixing the buying and selling price, open bargaining method was used in the study area.

## 5.8 Marketing system and supply chain of maize and sugarcane in CHT's

### 5.8.1 Supply chain

A supply chain is the complete sequence of processes and events that a manufacturer relies upon to obtain raw materials from suppliers and ultimately deliver a finished good to the final purchaser. A variety of organizations, individuals, resources, distributors and logistics networks can comprise a start-to-finish supply chain. The primary function of a supply chain is to transform raw materials into purchased products and to do so in the most efficient, quality-assured and cost-effective manner possible. For agricultural product, supply chain starts from the farmers, move the product through different intermediaries including *Faria, Bepari, Aratdar* Wholesaler, Retailer, processor and end with the ultimate consumers. The analysis of supply chains is

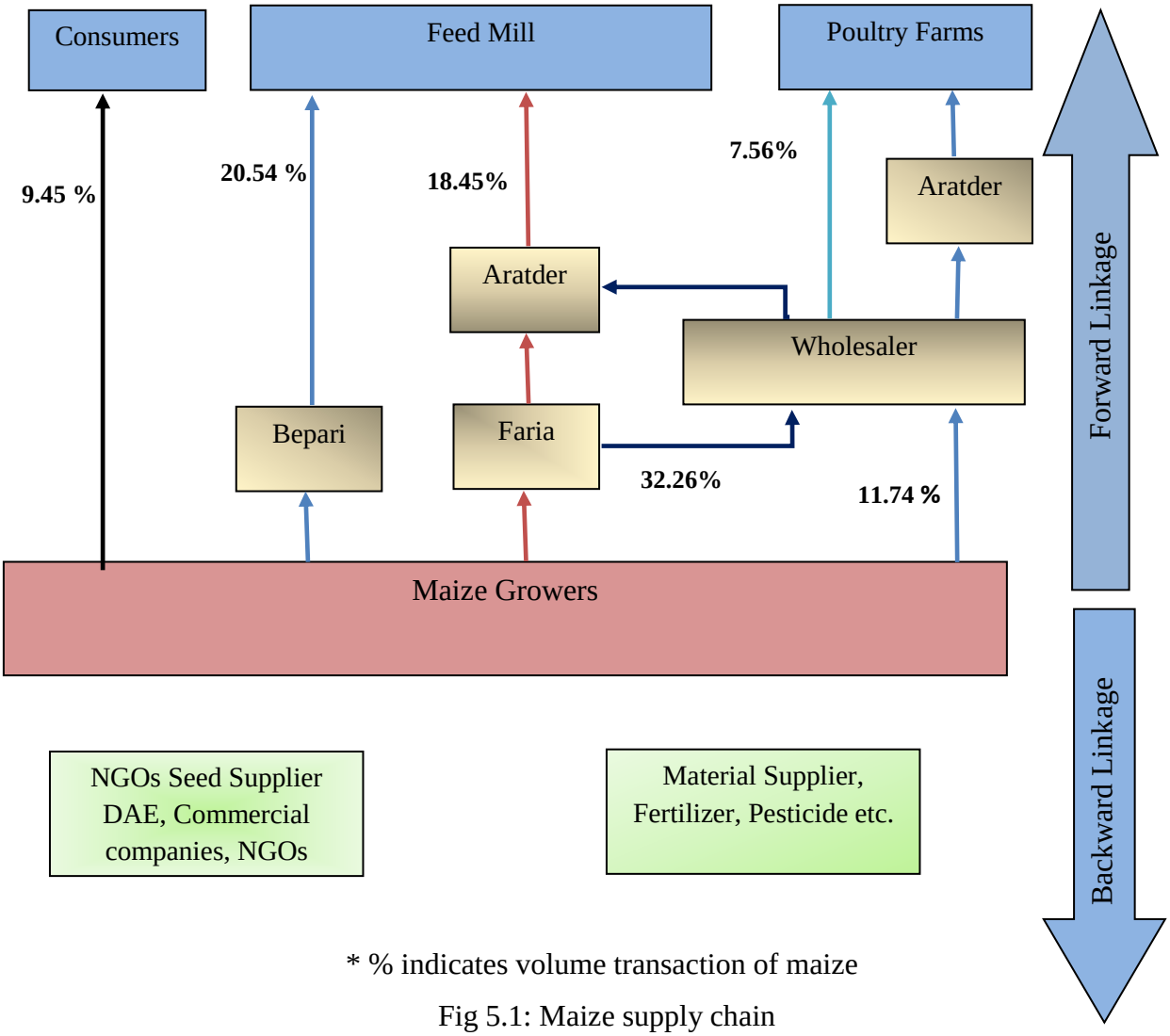
intended to provide a systematic knowledge of the flow of the goods and services from their origin (producer) to the final destination (consumer). For identifying supply chain of maize and sugarcane it is important to identify both raw material supplier and market intermediaries. For the cultivation of maize, seeds are collected from local market, commercial companies, DAE and for sugarcane cultivation seed are collected from BSRI, HARS, neighbors, local market, relatives etc. Fertilizer, pesticide, equipments and other irrigational materials were collected from both local market and district market. The maize and sugarcane market channels, depicted in Table 5.1, 5.2wereconstructedbasedonthedata collected in two district markets, three local markets and two *Aratder* markets in Chittagong. The result showed that there are 6 and 5 major supply chains for maize and sugarcane which found from intermediaries' filed survey. The estimated total volume of supplied crops was counted as 100 percent for estimating percentage of crops supplied of each growers and intermediaries. Each followed their own channels, they are treated separately, and the result obtained was the following.

### 5.8.2 Maize supply chain

Six supply chains were identified for maize in Chittagong Hill Tracts. The comparison of the channels was made based on percentage of volume that passed through each channel. According to the field survey Grower-local consumer channel is the shortest channel and Growers –*Faria* -Wholesalers –*Aratdar*-Feed mill channel is the longest channel.

1. **Growers-Consumer (local)channel:** Growers- consumer channel is the channel which have almost no transaction cost and both growers and consumers enjoy highest profitability. This channel represented 9.45 percent of total maize supplied to the market during the survey period. The channel was found to be the fifth important supply chain in terms of importance.

2. **Growers - *Bepari* - Feed mills:** According to survey, this channel accounted for 20.54 percent of total maize supplied to the market. *Bepari* act local collector of maize for the company. Some company like CP and other provide some share of profit to the agent. This channel is the second important in maize trading.




* % indicates volume transaction of maize

Fig 5.1: Maize supply chain

3. **Growers -*Faria* –*Aratdars* -Feed mills:** This channel represented 18.45 percent of total maize supplied to the market and feed mill. It is the third important supply chain for maize trading in hilly area.

4. **Growers –*Faria* -Wholesalers –*Aratdar*-Feed mill:** This channel accounts for 32.26 percent of maize supplied to the district market and feed mill. It is the highest important supply chain for maize trading.

5. **Growers –*Faria* - Wholesalers -Poultry Farms:** Represented 7.56 percent of total maize supplied to market and found to be sixth maize Supply chain in the survey area.

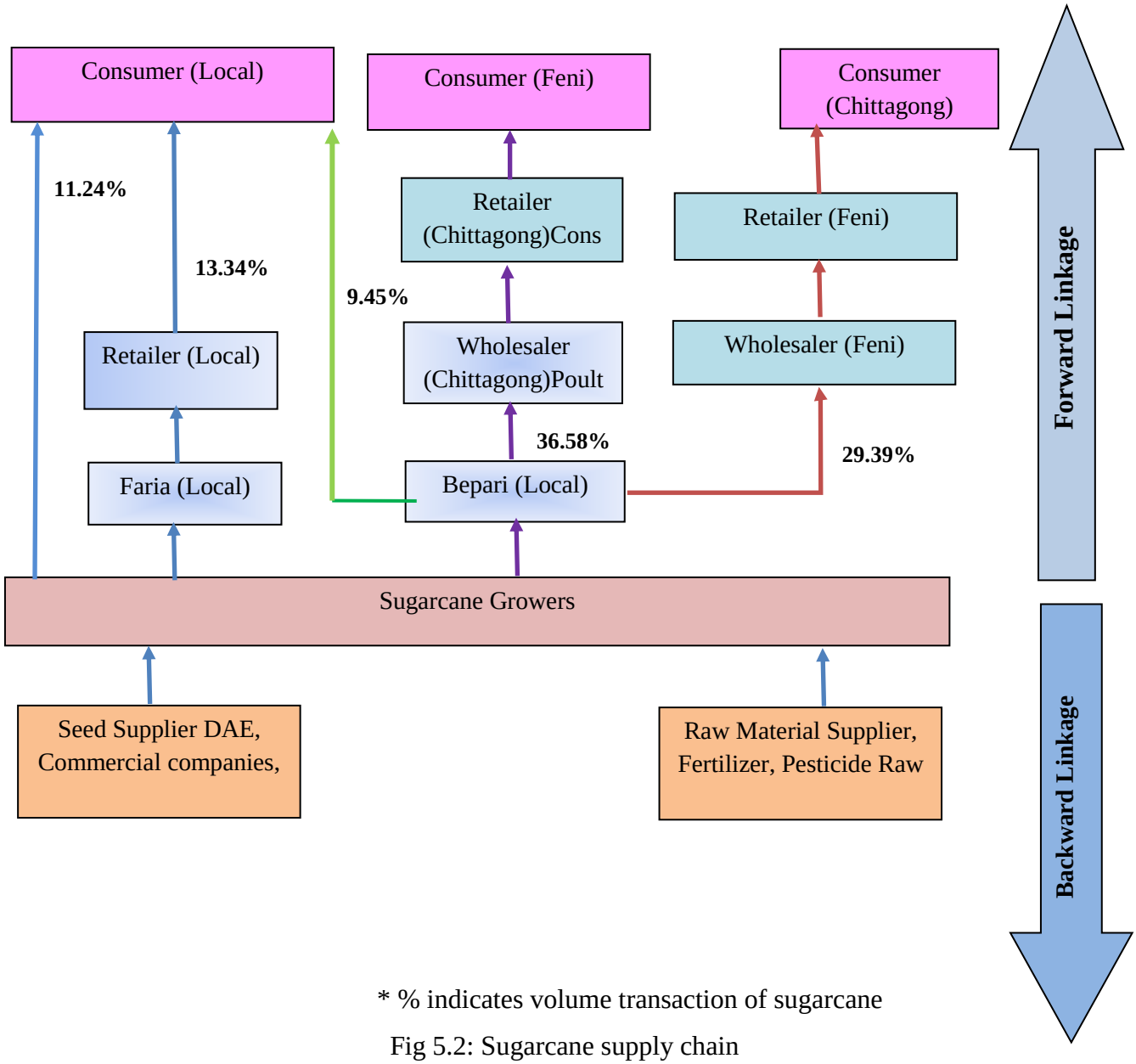
6. **Growers -Wholesaler– *Aratdar*-Poultry farms:** This channel represented 11.74 percent of total maize supplied to the ultimate maize users and found to be fourth most important maize channel.

### 5.8.3 Sugarcane supply chain

Six supply chains were identified for sugarcane supply of which two have gone out of the region. The channel comparison was made based on percentage of volume that passed through each channel. According to the survey report, the sugarcane grower-local consumer the shortest channel carried the second largest percentage of the total supply.

1. **Grower – Consumer (local) channel:** This channel represented 11.24 percent of total sugarcane supplied to the market during the survey period. The channel was found to be the fourth important Supply chain in terms of volume.
2. **Grower-*Faria* (local)-Retailer (local)-Consumer (local):** According to survey, this channel accounted for 13.34 percent of total sugarcane supplied to the market. The channel was found to be third most important sugarcane supply chain in the study area.
3. **Grower – *Bepari* (local) – Consumer (local):** This channel represented 9.45 percent of total sugarcane supplied to market and found to be fifth sugarcane supply chain in the survey area. Here the retailer are mostly the sugarcane juice seller or small business group who are selling small bundle of sugarcane in the bus terminal or corner point of the local market.

4. **Grower – *Bepari* (local) – Wholesaler (Ctg) – Retailer (Ctg)-Consumer (Ctg):** It accounted 36.58 percent of total sugarcane supplied to the Chittagong district market and placed first most important sugarcane supplied channel in CHT's.




* % indicates volume transaction of sugarcane

Fig 5.2: Sugarcane supply chain

5. **Grower – *Bepari* (local) – Wholesaler (Feni) – Retailer (Feni)-Consumer (Feni):**

   It accounted 29.39 percent of total sugarcane supplied to the Chittagong district market and placed second most important sugarcane supplied channel in CHT's.

## 5.9 Measure of profitability and marketing efficiency of maize and sugarcane

### 5.9.1 Gross return and net return of maize growers

Gross return was calculated by multiplying price of product per unit by the total quantity of product. According to survey, here the average cost of production of maize per hectare area of land is Tk. 43544.61(Table 5.3). Gross return of maize growers is Tk. 83428.80 in farm gate selling, Tk. 87210.69 when they sale at local market and Tk. 90476.7 in district market selling. If we calculate the net return of the maize growers we see that net return is Tk. 39884.19, Tk. 43666.08 and Tk. 46932.09 at selling in farm gate, local market and district market respectively. But the actual situation was quite different from the calculated value. Because, here all calculated data was average data and the actual big grower get maximum return against his cost but small scale grower get lower and sometimes does not bear all cost which ultimately lower his production as well as lower his return.

**Table 5.3 Cost of maize cultivation/hectare**

| S.L. No. | **Cost Item** | **Unit** | **Amount** | **Price(Tk/Unit)** | **Cost (Tk)** |
|---|---|---|---|---|---|
| 1. | Human Labor cost | | | | |
| | Land preparation | Man Days | 7 | 190.42 | 1332.95 |
| | Seed sowing | Man Days | 5 | 207.02 | 1035.11 |
| | Weeding / Mulching | Man Days | 6 | 208.39 | 1250.34 |
| | Insecticide | Man Days | 5 | 220.84 | 1104.17 |
| | Irrigation | Man Days | 5 | 215.53 | 1077.65 |
| | Fertilizer application | Man Days | 5 | 225.79 | 1128.96 |
| | Harvesting | Man Days | 8 | 201.65 | 1613.24 |
| | Threshing | Man Days | 6 | 232.67 | 1396.02 |
| | Drying | Man Days | 5 | 203.21 | 1016.06 |
| | Weighing, Bagging, Marketing | Man Days | 3 | 237.67 | 713.77 |

| | | | | | |
|---|---|---|---|---|---|
| 2. | Land preparation Cost | Hour's | 4 | 1046.16 | 4184.65 |
| 3. | Seed cost | Kg | 14 | 277.29 | 3869.15 |
| 4. | Fertilizer cost | | | | |
| | Urea | Kg | 131 | 19.03 | 2493.92 |
| | TSP | Kg | 60 | 36.43 | 2186.12 |
| | MOP | Kg | 112 | 16.60 | 1859.54 |
| | Boron | Kg | 4 | 242 | 968.02 |
| 5. | Insecticide | Ml | 300 | 2.5 | 750 |
| 6 | Pesticide | | | | 0 |
| 7. | Irrigation | Hour's | 22 | 301.49 | 6632.74 |
| | Total Variable cost | | | | 34616.41 |
| 8. | Fixed cost | | | | |
| | Rental value of land | Acre | 1 | 7756.10 | 7756.10 |
| | Interest of loan | Percent | | 14 | 1176.10 |
| | Total Cost | | | | 43544.61 |

Source: Field survey, 2015

Gross margin was calculated by, deducting variable cost from total cost. Here, gross margin of maize grower was Tk.46812.39, Tk.52594.28 and Tk.55860.29 in farm gate, local market and district market respectively during the survey period (Table 5.4).

**Table 5.4 Returns of maize growers (Tk./Metric Ton)**

| S.N. | Selling Place | Return of maize growers | | | | | |
|---|---|---|---|---|---|---|---|
| | | Maize | Quantity (Ton/ha) | Gross Return | Gross Margin | Production Cost | Net return |
| 1. | Farm gate | 14,560 | 5.73 | 83428.80 | 46812.39 | 43544.61 | 39884.19 |
| 2. | Local Market | 15,220 | 5.73 | 87210.69 | 52594.28 | 43544.61 | 43666.08 |
| 3. | District Market | 15,790 | 5.73 | 90476.7 | 55860.29 | 43544.61 | 46932.09 |

Source: Field Survey, 2015

## 5. 9.2 Gross return, Gross margin and net return of sugarcane growers

For sugarcane growers average cost of production is Tk. 180615.67 and average production per hectare of land is 102 metric ton (Table 5.5).

**Table 5.5 Cost of sugarcane cultivation (Per hectare)**

| S.L. No. | **Cost Item** | **Unit** | **Amount** | **Price(Tk/Unit)** | **Cost** |
|---|---|---|---|---|---|
| 1. | Human Labor cost | | | | |
| | Land preparation | Man Days | 50 | 242.10 | 12105.42 |
| | Seed sowing | Man Days | 26 | 245.43 | 6381.43 |
| | Weeding / Mulching | Man Days | 23 | 240.87 | 5540.22 |
| | Irrigation | Man Days | 14 | 244.25 | 3419.63 |
| | Fertilizer application | Man Days | 17 | 243.74 | 4143.74 |
| | Tied with Bamboo | Man Days | 22 | 241.15 | 5305.27 |
| | Harvesting | Man Days | 23 | 242.79 | 5584.28 |
| | Bamboo | Piece | 25 | 260.55 | 6513.78 |
| 2. | Seed cost | Piece | 2400 | 20.03 | 48087.38 |
| 3. | Fertilizer cost | | | | |
| | TSP | Kg | 355 | 36.31 | 12891.17 |
| | MOP | Kg | 491 | 20.12 | 9827.44 |
| | Boron | Kg | 10 | 250 | 2500.00 |
| | Zypsum | Kg | 255 | 12.04 | 3070.31 |
| 4. | Insecticide | ml | 1900 | 2.52 | 4790.91 |
| 5. | Land preparation | Hour’s | 8 | 1321.23 | 10569.91 |
| 6. | Irrigation | Hour’s | 51 | 401 | 18525.68 |
| | Total Variable cost | | | | 159256.57 |
| 6. | Fixed cost | | | | |
| | Rental value of land | Hectare | 1 | | 15437.50 |
| | Interest of loan | Percent | | 14 | 5921.60 |
| | Total Cost | | | | 180615.67 |

Source: Field Survey, 2015

. Gross returns of sugarcane growers at different market level are at farm gate Tk.375292.68, at local market Tk. 394813.44 and at district market Tk. 411324.18. Net returns achieve by the growers at different levels are Tk. 194677.01, Tk. 214197.77 and Tk. 230708.51 in farm gate, local market and district market respectively for per hectare area of production. Here, gross margin of sugarcane grower was Tk.216036.11, Tk.24056.68 and Tk.252067.61 in farm gate, local market and district market respectively during the survey period (Table 5.6).

**Table 5.6 Return of sugarcane growers (Tk. /Metric Ton)**

| S.L. No. | Selling Place | Return of sugarcane growers | | | | | |
|---|---|---|---|---|---|---|---|
| | | Sugarcane (Tk/Ton) | Quantity ( Ton/ha) | Total Return | Gross Margin | Total Cost | Net return |
| 1. | Farm gate | 3679.34 | 102 | 375292.68 | 216036.11 | 180615.67 | 194677.01 |
| 2. | Local Market | 3870.72 | 102 | 394813.44 | 24056.68 | 180615.67 | 214197.77 |
| 3. | District Market | 4032.59 | 102 | 411324.18 | 252067.61 | 180615.67 | 230708.51 |

Source: Field Survey, 2015

### 5.9.3 Profitability of maize and sugarcane Grower

By calculating profitability of maize and sugarcane grower the research result showed that, maize grower got highest profit when they sold maize in to town market in processed form and it was Tk.46932.09 per hector, but when grower sold his maize on the farm gate or home yard it required no transport cost but prices are low. On the other hand, sugarcane growers got maximum highest price when they sold sugarcane in the market to the ultimate consumers. When they sold their production at farm gate they receive lowest price. They got highest price when they sold to the district market of their production and it is 230708.51 per hectare area of production (Table 5.7).

**Table 5.7 Profitability of maize and sugarcane growers**

| SI No. | Selling Place | Selling Price | |
|---|---|---|---|
| | | Maize (Tk./ha) | Sugarcane (Tk./ha) |
| 1. | Farm gate | 39884 | 194677 |
| 2. | Local Market | 43666 | 214197 |
| 3. | District Market | 46932 | 230708 |

Source: Field survey, 2015.

### 5.9.4 BCR Calculation for maize and sugarcane growers

Benefit cost ratio is an important tool to evaluate any kind of economic, business or commercial activity. Benefit cost ratio is calculated through net margin divided by total cost. For maize growers highest BCR were found when maize are sold in district market and it is 1.078 for growers and lowest BCR were found .916 when maize were sold at farm gate (Table 5.8).

**Table 5.8 BCR for maize at different selling places**

| Selling Place | Net margin | Total cost | BCR |
|---|---|---|---|
| Farm gate | 39884.19 | 43544.61 | .916 |
| Local Bazar | 43666.08 | 43544.61 | 1.002 |
| District Market | 46932.09 | 43544.61 | 1.078 |

Source, Field Survey, 2015

For sugarcane growers highest BCR is 1.277 and lowest BCR is 1.077 for district market and farm gate market selling respectively (Table 5.9).

**Table 5.9 BCR for sugarcane at different selling places**

| Selling Place | Net margin | Total cost | BCR |
|---|---|---|---|
| Farm gate | 194677.01 | 180615.67 | 1.077 |
| Local Bazar | 214197.77 | 180615.67 | 1.185 |
| District Market | 230708.51 | 180615.67 | 1.277 |

Source: Field Survey, 2015

### 5.9.5 Marketing cost of market intermediaries

Table 5.10 and 5.11 indicates different types of marketing cost related to the transaction of maize and sugarcane by *Faria*, wholesaler, *Aratdar* and *Bepari.* The arrangement of marketing cost (maize per ton) of all intermediaries, rent cost was higher than other cost for *Faria*, wholesaler and *Bepari*, The arrangement of marketing cost (maize marketing per ton) of all intermediaries, rent cost was higher than other cost for wholesaler and *Bepari*, for retailer charges cost was higher than other cost .Total cost of sugarcane marketing per ton was not same as maize because most of the time intermediaries were only collected maize and supply to feed mill.

**Table 5.10 Marketing cost of different market intermediaries of maize (Tk. /metric ton)**

| S.L. No. | Cost item | Market intermediaries | | | |
|---|---|---|---|---|---|
| | | *Faria* | Wholesaler | *Aratdar* | *Bepari* |
| 1. | Transportation cost | 578.89 | 680.12 | 420 | 613.75 |
| 2. | Labor cost | 233.65 | 240.43 | 0 | 337.5 |
| 3. | Loading/unloading | 246.78 | 210.75 | 0 | 276.75 |
| 4. | Drying | 176.64 | 0 | 0 | 0 |
| 5. | Charges by different parties | 137.54 | 115.78 | 210.45 | 0 |
| 6. | Toll(Bazar fund) | 247.43 | 165.67 | 280.95 | 125.56 |
| 7. | Toll(Jilaporisod) | 123.45 | 78.25 | 123.67 | 65.62 |
| 8. | Bagging | 368.72 | 0 | 0 | 384.37 |
| 9. | Other cost | 78.95 | 0 | 175.25 | 230.42 |
| | Total Cost | 2192.5 | 1491.00 | 1210.32 | 2023.97 |

Source: Field Survey, 2015

That's why electricity cost; current bill, generator, commission cost, other cost etc were not happened. The highest cost was seen in case of transportation for all.

**Table 5.11 Marketing cost of different intermediaries of sugarcane (Tk. / metric ton)**

| S.L. No. | Cost item | Market intermediaries | | | |
|---|---|---|---|---|---|
| | | *Faria* | Wholesaler | Retailer | *Bepari* |
| 1. | Transportation cost | 1547.89 | 1280.34 | 1387.78 | 1678.37 |
| 2. | Labor cost | 893.65 | 643.54 | 0 | 787.50 |
| 3. | Loading/unloading | 546.71 | 410.92 | 233.12 | 456.75 |
| 4. | Cleaning | 476.34 | 0 | 0 | 0 |
| 5 | Tie-ing | 344.68 | 0 | 0 | 556.87 |
| 6. | Charges by different parties | 234.23 | 216.18 | 312.25 | 0 |
| 7. | Toll(Bazar fund) | 347.31 | 215.23 | 241.39 | 235.56 |
| 8. | Toll(Jilaporisod) | 214.45 | 118.243 | 123.61 | 175.62 |
| 9. | Other cost | 121.46 | 0 | 175.25 | 230.42 |
| | Total Cost | 4726.72 | 2884.453 | 2473.4 | 4121.09 |

Source: Field Survey, 2015

### 5.9.6 Marketing margin of market intermediaries

In this study, gross marketing margin of each trader was estimated by deducting the purchase price of maize and sugarcane from the sale price, while the net margin/profit component was estimated by deducting the marketing cost from the gross marketing margin. Table 5.12 presents the net maize marketing margin of intermediaries per ton of maize were Tk. 4367.5, Tk. 2479, Tk. 5429.68 and Tk. 5617.03 for *Faria*, wholesaler, *Aratdar* and *Bepari* respectively. It may be mentioned here that total volume handled by the *Faria*, wholesaler and *Bepari* will be much higher than *Aratdar* and thus total net margin will be higher for these three types of trades.

**Table5.12 Marketing margin of different maize intermediaries (Tk/ metric ton)**

| S.L. No. | Particulars | Market intermediaries | | | |
|---|---|---|---|---|---|
| | | *Faria* | Wholesaler | *Aratdar* | *Bepari* |
| 1. | Purchase price (Tk) | 14560 | 15780 | 15200 | 14820 |
| 2. | Sale price (Tk) | 21120 | 19750 | 21840 | 22460 |
| 3. | Gross margin (Tk) | 6560 | 3970 | 6640 | 7640 |
| 4. | Marketing cost (Tk) | 2192.5 | 1491.00 | 1210.32 | 2023.97 |
| 5. | Net margin (Tk) | 4367.5 | 2479 | 5429.68 | 5617.03 |

Source: Field Survey, 2015

For estimating marketing margin of sugarcane market intermediaries, same method was followed as like maize intermediaries. Here marketing margin of retailer was higher than other intermediaries (Table 5.13).

**Table 5.13Marketing margin of different sugarcane intermediaries (per metric ton)**

| Sl. No. | Particulars | Market intermediaries | | | |
|---|---|---|---|---|---|
| | | *Faria* | Wholesaler | Retailer | *Bepari* |
| 1. | Purchase price (Tk.) | 43560 | 45890 | 46370 | 44420 |
| 2. | Sale price (Tk.) | 55780 | 54780 | 57135 | 56624 |
| 3. | Gross margin (Tk.) | 12220 | 8890 | 10765 | 12204 |
| 4. | Marketing cost (Tk.) | 4726.72 | 2884.453 | 2473.4 | 4121.09 |
| 5. | Net margin (Tk.) | 7493.28 | 6005.55 | 8291.6 | 8082.91 |

Source: Field Survey, 2015

## 5.10 Marketing efficiency

### 5.10.1 Price spread

For measuring marketing efficiency price spread is an important measure. According to the research result, the price spread was highest when maize was transfer by the channel maize Grower–*Bepari*-- Feed mills and the amount was TK.7110 per metric ton. To make comparisons among different channels, the price spread of all other possible channels were

**Table 5.14 Price spread in marketing channel of maize and sugarcane**

| Marketing channel | Price received by growers (Tk.) | Price paid by feed mill/ Consumer (Tk.) | Price spread (Tk.) |
|---|---|---|---|
| **Maize per metric ton** | | | |
| Growers-Consumer (local) | 14560 | 21120 | 6560 |
| Growers –*Bepari* -Feed mills | 15230 | 22340 | 7110 |
| Growers -*Faria* –*Aratdars* -Feed mills | 15780 | 22760 | 6980 |
| Growers –*Faria* -Wholesalers –*Aratdar*-Feed mill | 15570 | 23670 | 8100 |
| Growers – *Faria*- Wholesalers -Poultry Farms | 16760 | 23780 | 7020 |
| Growers -Wholesaler–*Aratdar*-Poultry farms | 16230 | 22548 | 6318 |
| **Sugarcane per metric ton** | | | |
| Grower - Consumer (local) | 44670 | 60420 | 15376 |
| Grower-*Faria* (local)-Retailer (local)-Consumer (local) | 45780 | 61780 | 16000 |
| Grower – *Bepari* (local) – Consumer (local) | 46230 | 62780 | 15750 |
| Grower – *Bepari*(local) – Wholesaler (Ctg) – Retailer (Ctg)-Consumer (Ctg) | 47414 | 62790 | 16550 |
| Grower–Bepari(local)-Wholesaler(Feni)-Retailer (Feni)- Consumer (Feni) | 48753 | 64680 | 15927 |

calculated and presented in Table 5.14. Lowest price spread found for Growers -Wholesaler–*Aratdar*-Poultry farms and the amount is Tk. 6318per ton. For sugarcane marketing, price spread was highest in Grower – *Bepari*(local) – Wholesaler (Ctg) – Retailer (Ctg)-Consumer (Ctg) and the amount is Tk. 16550 per metric ton. Lowest price spread for sugarcane is channel Grower –Consumer (local) and the amount is Tk. 15376.

### 5.10.2 Grower's share

Growers share is another important measure of marketing efficiency. Results showed that grower's share was highest in Growers -Wholesaler–*Aratdar*-Poultry farms channel for maize marketing (71.97 %) (Table 5.15). The reason was may be that, when growers sold their maize in large amount in drying they get highest amount. It was observed that, in all channel maize growers share was around 68 to 72 %. During sugarcane supply, sugarcane growers share was highest found in Grower – *Bepari* (local) – Wholesaler (Ctg) – Retailer (Ctg)-Consumer (Ctg) channel which was 75.51 percent. Here the *Bepari* and wholesaler were come from Chittagong and they paid highest amount to the farmers. In local market each sugarcane is sold by the growers Tk. 10 and retailers Tk. 15 respectively. The lowest share for sugarcane growers channel is Grower – *Bepari* (local) – Consumer (local) and it is found 73.63percent.

**Table 5.15 Growers share (%) in marketing channel of maize and sugarcane**

| Marketing channel | Price received by growers (Tk.) | Price paid by feed mill/ Consumer (Tk.) | Growers share (%) |
|---|---|---|---|
| **Maize per metric ton** | | | |
| Growers-Consumer (local) | 14560 | 21120 | 68.93 |
| Growers –*Bepari* -Feed mills | 15230 | 22340 | 68.17 |
| Growers -*Faria* –*Aratdars* -Feed mills | 15780 | 22760 | 69.33 |
| Growers –*Faria* -Wholesalers –*Aratdar*-Feed mill | 15570 | 23670 | 65.77 |
| Growers – *Faria*- Wholesalers -Poultry Farms | 16760 | 23780 | 70.47 |
| Growers -Wholesaler–*Aratdar*-Poultry farms | 16230 | 22548 | 71.97 |
| **Sugarcane per metric ton** | | | |
| Grower - Consumer (local) | 44670 | 60420 | 73.93 |
| Grower-*Faria* (local)-Retailer (local)-Consumer (local) | 45780 | 61780 | 74.10 |
| Grower – *Bepari* (local) – Consumer (local) | 46230 | 62780 | 73.63 |
| Grower – *Bepari*(local) – Wholesaler (Ctg) – Retailer (Ctg)-Consumer (Ctg) | 47414 | 62790 | 75.51 |
| Grower–Bepari(local)-Wholesaler(Feni)- Retailer (Feni)-Consumer (Feni) | 48753 | 64680 | 75.37 |

### 5.10.3 Acharya's method for estimating marketing efficiency

The performance of marketing was assessed based on the Acharya's formula of marketing efficiency. Results showed that for maize marketing the most efficient marketing channel was Growers -Wholesaler–*Aratdar*-Poultry farms( 1.75) (Table 5.16). For sugarcane marketing the efficient channel was Grower – *Bepari*(local) – Wholesaler (Ctg) – Retailer (Ctg)-Consumer (Ctg) (1.67).There was a noticeable result for all channels that when maize and sugarcane were supplied through *Bepari* the channel was more efficient than other channel. This is possibly due to lower marketing cost of *Bepari*, i.e. lower marketing cost corresponding higher marketing efficiency.

**Table 5.16 Acharya's marketing efficiency of various channels in maize and sugarcane marketing**

| Marketing channel | Price received by growers (Tk) | Marketing Efficiency |
|---|---|---|
| **Maize per metric ton** | | |
| Growers-Consumer (local) | 14560 | 1.28 |
| Growers –*Bepari* -Feed mills | 15230 | 1.54 |
| Growers -*Faria –Aratdars* -Feed mills | 15780 | 1.47 |
| Growers –*Faria* -Wholesalers –*Aratdar*-Feed mill | 15570 | 1.37 |
| Growers – *Faria*- Wholesalers -Poultry Farms | 16760 | 1.71 |
| Growers -Wholesaler–*Aratdar*-Poultry farms | 16230 | 1.75 |
| **Sugarcane per metric ton** | | |
| Grower - Consumer (local) | 44670 | 1.38 |
| Grower-*Faria* (local)-Retailer (local)-Consumer (local) | 45780 | 1.23 |
| Grower – *Bepari* (local) – Consumer (local) | 46230 | 1.62 |
| Grower – *Bepari*(local) – Wholesaler (Ctg) – Retailer (Ctg)-Consumer (Ctg) | 47414 | 1.67 |
| Grower–Bepari(local)-Wholesaler(Feni)-Retailer (Feni)- Consumer (Feni) | 48753 | 1.45 |

## 5.11 Conclusion

Farmers, *Farias, Bepari,* wholesalers and *Aratdars* were the market participants in the study area. Marketing of maize started from farmers and it reached to the feed mills through different channels. Farmers take part in processing activities. Sugarcane marketing starts from farm gate and reached to the juice maker through different market channel. *Van, Votvoti,* pick-up, truck and by-cycle were the common modes of transportation. Market information was collected through company agents, business community, personal visit to the market and friends. Price was determined through the supply and demand situation. For fixing the buying and selling price, open bargaining method was used in the study area. The profit margin of farmers and traders depended on their marketing cost and margin. Among the cost items transportation cost was the highest item where the information cost was lowest. Among the market functionaries wholesalers' marketing cost and margin was highest where it was lowest for *Farias.* For maize marketing Growers -Wholesaler–*Aratdar*-Poultry farms channel is highest efficient and in sugarcane marketing Grower – *Bepari* (local) – Wholesaler (Ctg) – Retailer (Ctg)-Consumer (Ctg) is most efficient.

# CHAPTER 6

# VALUE ADDITION AND ENTREPRENEURSHIP OPPORTUNITY IN THE STUDY AREA

# CHAPTER 6

# VALUE ADDITION AND ENTREPRENEURSHIP OPPORTUNITY IN THE STUDY AREA

## 6.1 Value Chains

Investopedia defines Value Chain as: 'Value chain is a high-level model of how businesses receive raw materials as input, add value to the raw materials through various processes, and sell finished products to customers'. Value-chain analysis looks at every step a business goes through, from raw materials to the eventual end-user. The goal is to deliver maximum value for the least possible total cost. Thus, a vertical collaboration of enterprises to achieve a relatively higher rewarding position in the marketplace can be termed as value chain. Value chain is the sequential set of primary and support activities that an enterprise performs to turn inputs into value-added outputs for its external customers. A value chain is characterized by a market-focused collaboration of a set of enterprises working together to produce, process and market products and services in an effective and efficient manner. Value Chains allow businesses to respond to the marketplace by linking production, processing and marketing activities to market demands.

## 6.2 Value chain concept

Value chains encompass the full range of activities and services required to bring a product or service from its conception to sale in its final markets—whether local, national, regional or global. Value chains include input suppliers, producers, processors and buyers. They are supported by a range of technical, business and financial service providers. Value chains have both structural and dynamic components. The structure of the value chain influences the dynamics of firm behavior and these dynamics influence how well the value chain performs."

Value chains comprises of two key concepts: value and chain. The term value is synonym to "value added" in the Value Chain Analysis (VCA) as it characterizes the incremental value of a resultant product produced from processing of a product. Price of the resultant product shows its incremental value (Haq, 2012). The term chain refers to a supply chain indicating the process and the actors involved in the life cycle (from conception to disposal) of a product ( Haq, 2012). Hence, Kaplinsky and Morris (2001) defines VCA as study of the "full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use". Identification of the actors, firms and their services also adds analysis of the institutional support to production at various stages to VCA.The macroeconomic landscape, policies, laws, regulations, standards and institutional elements such as research and innovation, human resource development and other support services form the environment in which all activities take place and therefore are also important actors and activities in the value chain. According to UNIDO**,** Vienna, 2009 Figure 6.1 below illustrates these relationships within a generic value chain.

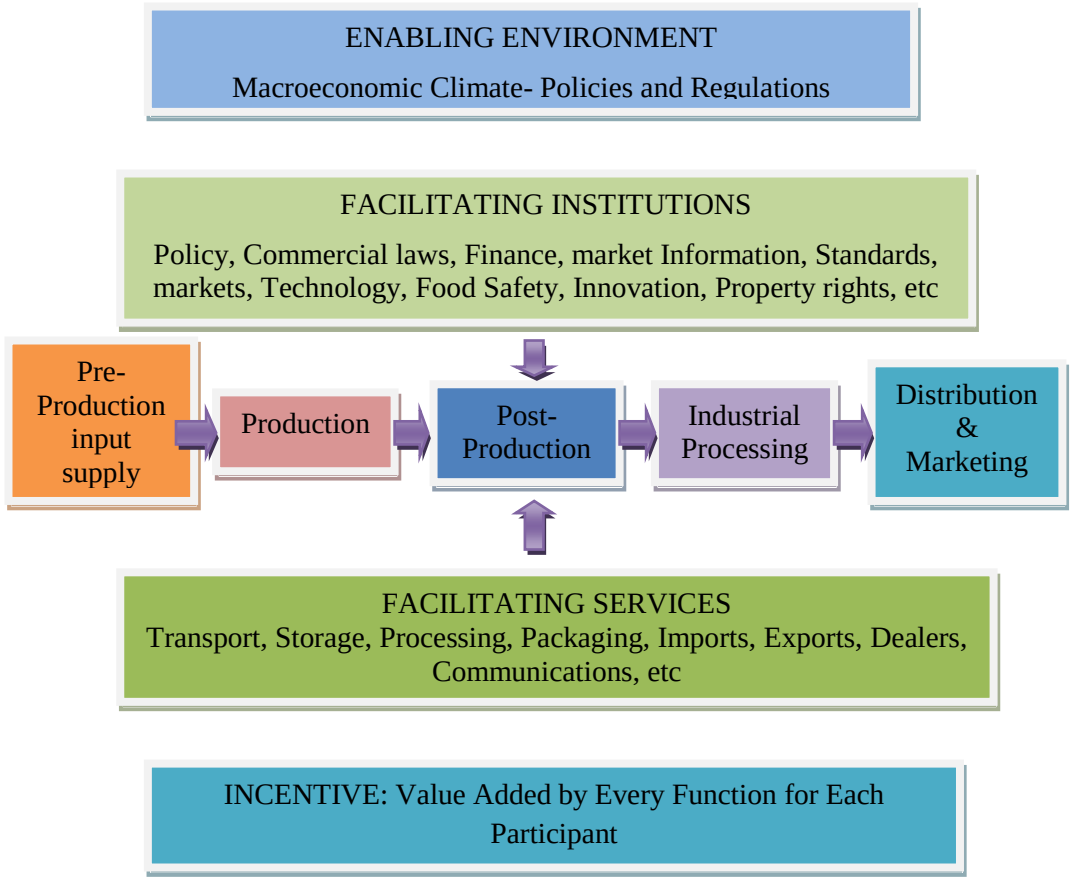



Fig 6.1: A Generic Value Chain

## 6.3 Value chain and development

Value Chain is a strategic tool which helps to alleviate poverty. Globalization makes the countries closer and open up vast opportunities for the producer and consumers. Globalization also creates open competition among the businessman both in the international and local level. Policy-makers focus increasingly on the development of agro-industries with emphasis on promoting effective agro-value chains as a means of further expanding the leading role played by agriculture in economic growth and poverty reduction. For policy-makers, value chain analysis is a means of identifying corrective measures, investment priorities and development opportunities.

Agricultural markets are rapidly globalizing, generating new consumption patterns and new production and distribution systems.Value chains, often controlled by multinational or national firms and supermarkets, are capturing a growing share of the agri-food systems in developing regions. They can provide opportunities for quality employment for men and women, yet they can also be channels to transfer costs and risks to the weakest nodes, particularly women. They often perpetuate gender stereotypes that keep women in lower paid, casual work and do not necessarily lead to greater gender equality.By revealing strengths and weaknesses, value chain analysis helps participating actors to develop a shared vision of how the chain should perform and to identify collaborative relationships which will allow them to keep improving chain performance. The latter outcome is especially relevant in the case of new manufacturers – including poor producers and poor countries – that are seeking to enter global markets in ways that can ensure sustainable income growth. **(**UNIDO**,** Vienna, 2009)

## 6.4 UNIDO Approach to agro-value chain analysis

In 2009, UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION (UNIDO) in Vienna established a technical report, “Agro-value chain analysis and development”. On that report UNIDO established some basic steps for value chain analysis so called ‘Basic steps of UNIDO’s approach to agro-value chain analysis and development’. Taking into consideration M4P (2008) ‘s four steps of value chain analysis, UNIDO’s systematic approach to agro-value chain analysis and development focuses on the relevance of agro-value chains for pro-poor growth while bearing in mind pragmatic economic parameters to ensure sustainable development. The Organization’s

aim is to focus on those areas which lead to improvements in value chain performance in terms of:

- increasing the quantity and improving the regularity and continuity of production;
- improving the quality and safety of products;
- reducing the time needed to reach the consumer;
- minimizing transactional costs;
- improving chain actors' capacity to follow/assimilate technology and market developments.

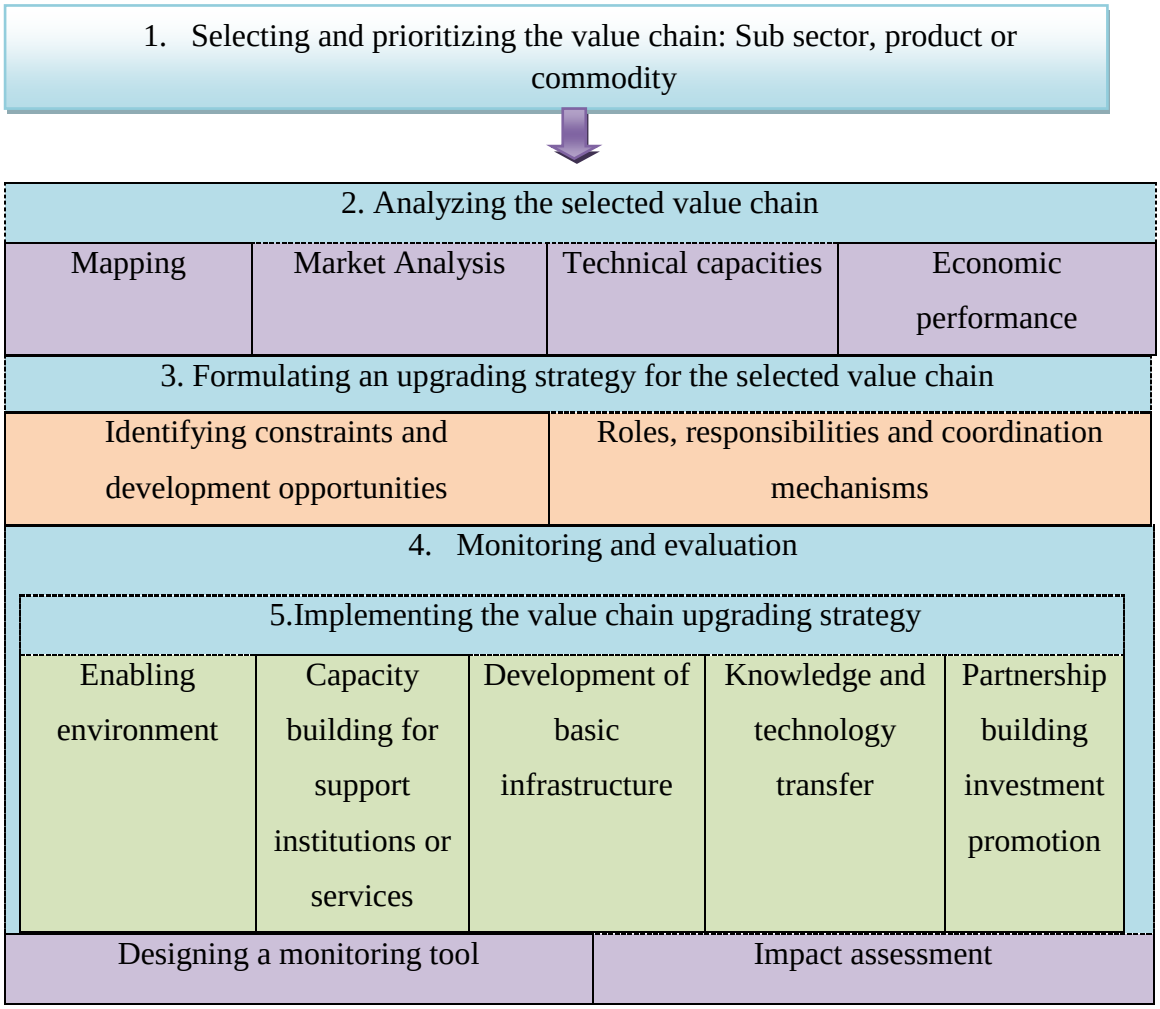


Fig 6.2:Basic steps of UNIDO's approach to agro value chain analysis and development

## 6.5 Agri-value chain

A collaboration of the producers, processors, marketers, retailers and support service providers such as transporters, researchers and even and suppliers (supply chain managers), linked together to gain a competitive advantage are termed as Agri-value chain.

## 6.6 Value chains in Bangladesh agriculture

The agriculture sector in Bangladesh has undergone significant structural changes indicating a shift from the traditional subsistence towards a market oriented one. The rural economy has moved from exclusive reliance on agriculture to a service dominated one that has a stabilizing influence on rural incomes. The decrease in agriculture's contribution to GDP has not been accompanied by a matching reduction in the share of agriculture in employment. However, within the rural economy, the share of income from non-farm activities has increased. Since agriculture forms the resource base for a number of agro-based industries and agro-services, it would be more meaningful to view agriculture not as farming alone but as a holistic value chain, which includes farming, aggregating, processing, warehousing (including logistics) and retailing.

In agriculture, value chains have always been in existence in the sense that farms carried out production and the final consumer accessed the produce, with the produce itself traversing through several channels and players. The degree of organization and governance of the value chain while improving continues to be a challenge. The existence of several middlemen, absence of information about other links in the chain and inability to invest in improving the performance in almost every part of the chain led to inefficiencies and lower incomes especially in the lower end of the chain. The recent initiatives have focused on improving technology of production, processing, quality control, creating processing.

Agricultural value chains are difficult to organize and stabilize in countries like Bangladesh with a large number of small farm holdings. The production and aggregation parts of value chains have to be made efficient in order for the small farms to realize higher returns. Building the confidence of farmers to move away from subsistence farming to market oriented farming, and increasing their awareness on application of

improved inputs and adoption of higher technology of cultivation are important interventions in creating a sustainable value chain. While approaches and applications vary, most value chain approaches have several common characteristics, including: a market perspective; a focus on end markets; a recognition of the importance of relationships between different links in the chain, attention to improving value generation for the different participants in the chain and, empowering the private sector. In the international development field, projects utilizing the value chain approach generally tend to shift the balance of power within value chains through the formation of associations; branding; alternative financing; support for market systems; market or supply diversification and changing the basis of competition from price to quality.

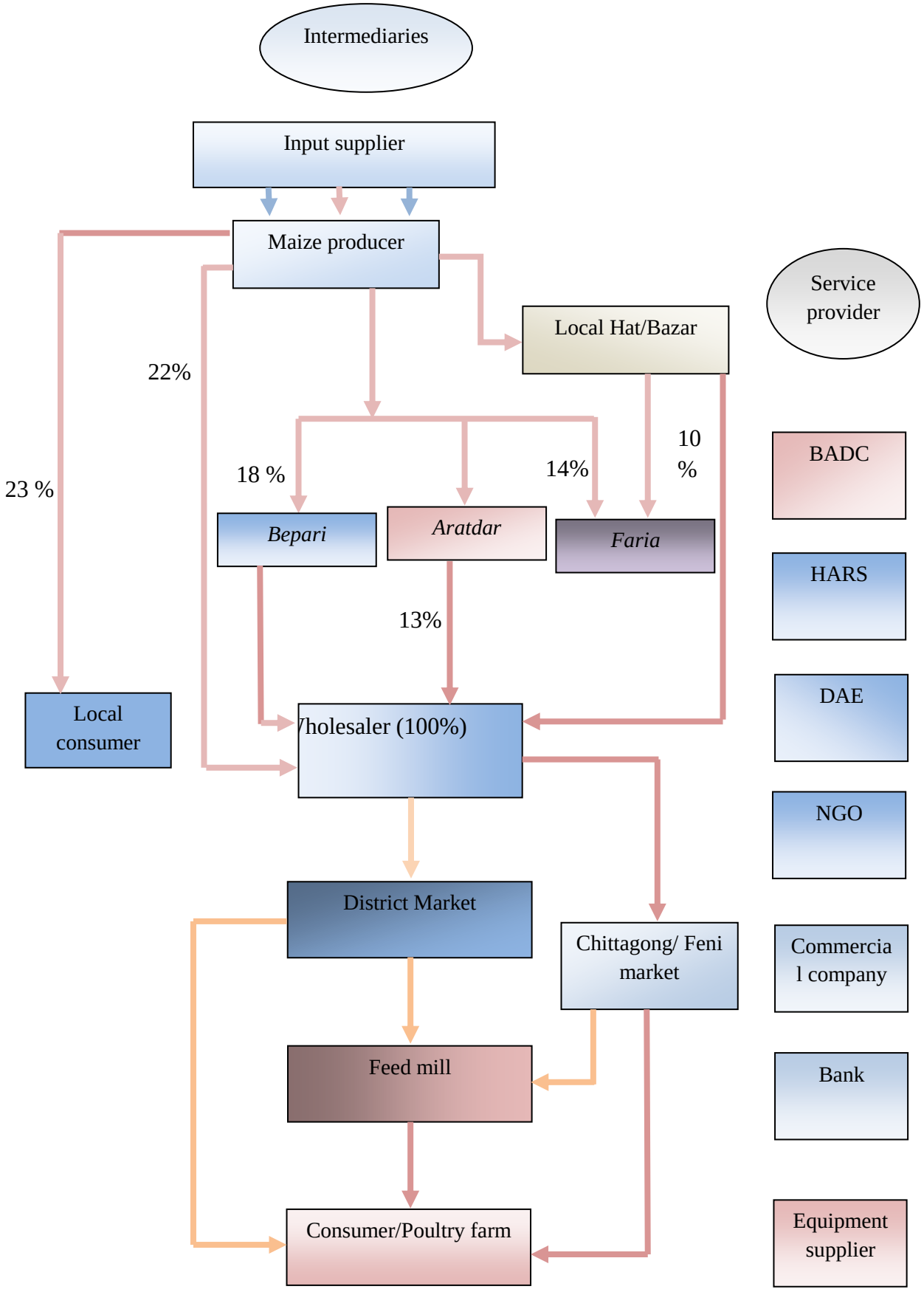
## 6.7 UNIDO's Approach to Value Chain analysis of Maize and Sugarcane in Chittagong Hill Tracts

**Selection and prioritization of value chains**

The selection and prioritization of value chains was analyzed are the first steps and they certainly entail some of the most important decisions was taken in any value chain development. The selection of sectors, sub-sectors, products or commodities determines to a large extent the prospects for a value chain's impact on socio-economic indicators(UNIDO, 2009).

## 6.8 Value chain map of the study area

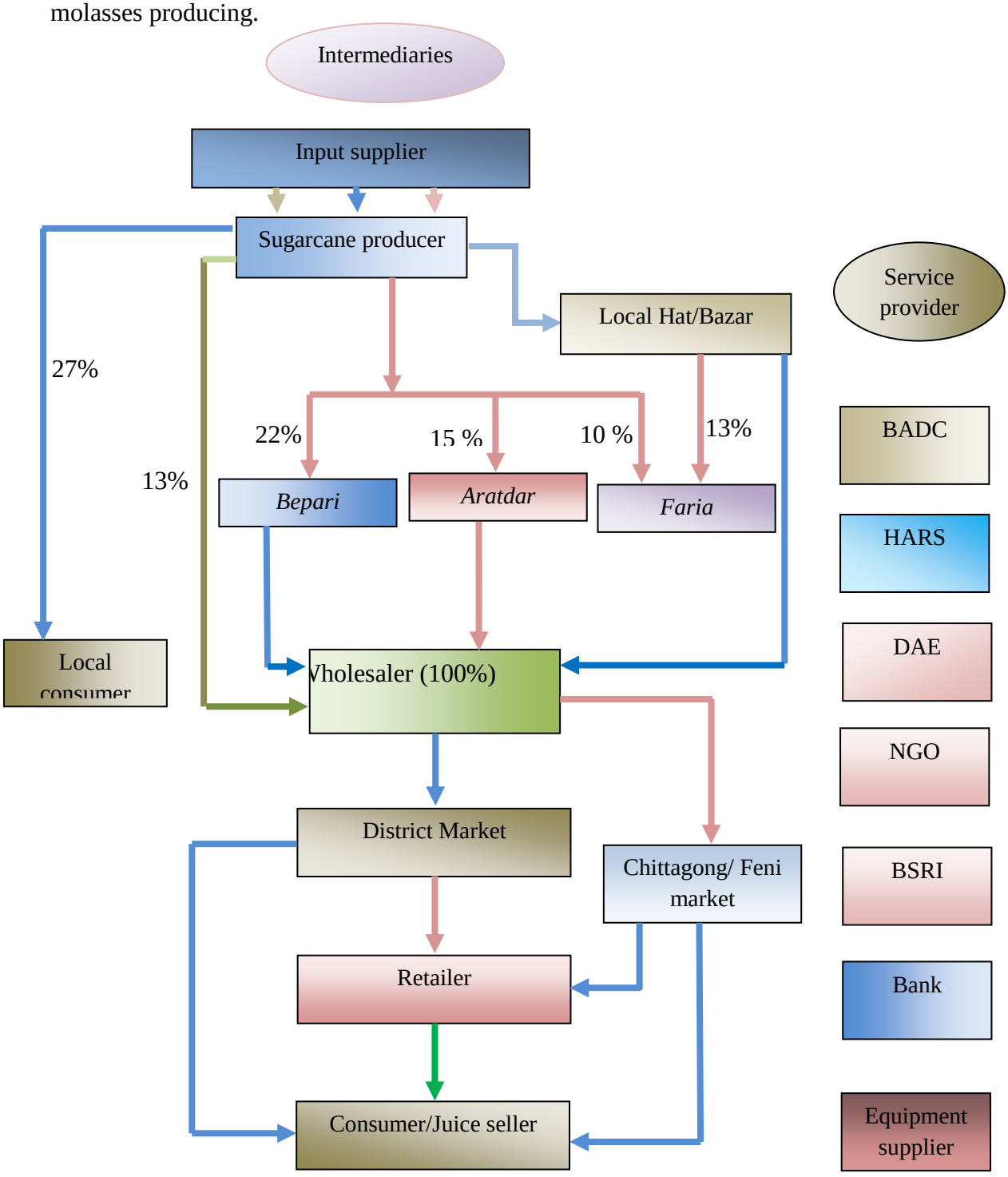
Value chain mapping is important for understanding the sequence of activities and know the key market actors and relation with the growers. In the value chain mapping of Maize and Sugarcane in Khagrachari and Bandarban district, there is a lot of govt. institution, private organization, NGO's, growers, intermediaries, retailers and consumers. Some value addition activities were done in Khagrachari and Bandarban district for both maize and sugarcane. Maize are boiled in water with salt and sold in the market at price TK. 5 per corn. In one kg there is 8-10 corn.




* % indicates price transaction of maize

Fig 6.3: Value chain mapping of maize

In normally one kg maize price is Tk. 16 but due to value addition price of one kg maize goes to 40-50 Tk. For Sugarcane, if it is sale to the Bepari per piece price goes to 7-8 Tk. but when sold in local market in small pieces per pieces price goes to 15 -20 Tk. Value is also added through maize drying, cleaning, packaging; sugarcane cleaning, grading, molasses producing.




* % indicates price transaction of sugarcane

Fig 6.4: Value chain mapping of sugarcane

## 6.9 Analyzing value chain technical capacities

Thisanalysisismadeinorderto assessthevaluechainproductionsystemandtools;evaluatetheirtechnical performance;anddeterminetheprincipaltechnicalactions thatneedtobecarriedoutto upgrade individual business withinthechainandtoenhancetheircompetitiveness.

Three aspects of production are to be assessed:

1. Utilization of inputs (raw materials and supplies, labor, water and energy, production materials, equipment etc.) In Khagrachariand Bandarbandistrict maize and sugarcane growers were purchase their input materials from local market. Most of respondents reported that they purchased their own inputs from nearby market.
2. The production system (technology and process). This is compared with systems used in the sector by the main competitors in terms of the utilization of raw materials, labor, etc; the capacity of the enterprise to provide finished products that meet the needs of consumers in terms of quality, delivery time and cost is also assessed. Respondents reported that, they transfer technology to each other for improving their maize and sugarcane production. They produce molasses and maize mash with the help of others information.
3. In the study area it was observed that both maize and sugarcane growers was personally involved in maize and sugarcane marketing. They personally carried maize and sugarcane to market and sold it in small amount.

## 6.10 Analyzing the value chain economic performance

This analysis entails the measuring of economic factors (production cost, margins, added value etc).In the study area, majority of respondents reported that from all of production cost; fertilizer cost, pesticide cost was so much high. Irrigation is a major problem in both Khagrachari and Bandarban. They totally depend on river and *charas* for irrigation facilities.Most of respondent said that they not get fair price last year due to countrywide blocked and strike. Most of maize growers were practiced drying, packaging and storing.

## 6.11 Formulating an upgrading strategy for the selected value chain

At this stage, upgrading plans are drawn up which describe the interventions required in maize and sugarcane value chain, including policy and institutional recommendation. Specific interventions at grower's level also happened in the study area. Maize and sugarcane growers were more concerned about their good quality of production. Most of respondents reported that, if Government took any initiatives for maize and sugarcane production in this area, the production of these crops also increased. Some action taken by Bangladesh Sugarcane Research Station, Hill Agricultural Research Station, Department of Agricultural Extension, different NGO's and commercial company to strength the productivity and quality for maize and sugarcane in this area.

## 6.12 Value addition practice in the study area

### Value addition

Value addition activities are mainly concerned with the changes of utilities. In economics, the sum of the unit profit, the unit depreciation cost, and the unit labor cost is the unit value added(http://en.wikipedia.org/wiki/Value_added).

In the context of macroeconomics, it refers to the contribution of the factors of production, i.e. land, labor and capital goods, to raising the value of a product and corresponds to the incomes received by the owners of these factors. The national value added is shared between capital and labor (as the factors of production), and this sharing gives rise to issues of distribution. Value added refers to the additional value of a commodity over the cost of commodities used to produce it from the previous stage of production. The value added to any product or service is the result of a particular process. (http://www.encyclopedia2.thefreedictionary.com/valueaddition).

Hence this chapter is concerned with the estimation and analysis of costs, returns and value addition of rice in different value adding stages by farmers, traders, rice millers and rice traders. In the study area, value was added in some stages of maize and sugarcane value chain. These stages are cleaning, drying,bagging, storing, transport, processing, and advertising. Some local value addition practices were done in the study area. In case of maize value addition, popcorn and maize mash is the popular food item

in hill. Another maize value addition practice was found that maize corn was boiled in hot water with salt and sold directly in consumable form to the consumer in the local market. For sugarcane, molasses were produced by the entrepreneur to meet up the local demand and in some cases they send to other district market like Chittagong and Fenny. So, molasses production is a popular value addition practice in hill for sugarcane. Besides this, some growers added value thorough sugarcane juice producing and sale it to in front of school, college and office area in Chittagong and Bandarban district. Majority (70-80 percent) farmers clean and dry their harvested maize before sellingin the market, 70 maize growers bagging their maize and storing some days for value addition (Figure and table 6.1). Grading was done by the intermediaries and in some cases they also drying the maize in their own*chatal*. For sugarcane value addition, the grower uses bamboo and rope in the growing season of sugarcane so that sugarcane is straight and tall. In the hilly area, most sugarcane producer produces chewing type sugarcane. Transportation was done by all market actors and during transport especially sugarcane were handled carefully to avoid postharvest losses.

### 6.13 Value addition by farmer for maize

The input costs were high in one hand and both the yield and output prices were not sufficient on the other. Moreover, most of the farmers have large family with limited alternative income sources. Small farmers could not store maize but large farmers added extra value with maize by storing or processing.

**Table 6.1 Value addition by farmer in different forms for maize**

| S.L. No. | Items | Price | Value addition (TK/Ton) | Value addition (%) |
|---|---|---|---|---|
| 1. | Value addition due to drying | Wet maize Price | 1317.50 | |
| | | Dry maize price | 1422.50 | |
| | | Drying cost | 47.50 | |
| | | Marketing margin (value addition) | 105.00 | 4.97 |
| | | Net marketing margin | 57.50 | |
| 2. | Value addition due to marketing | Farm gate price of maize | 1310.00 | |
| | | Market price of maize | 1410.00 | |
| | | Marketing cost | 52.25 | |
| | | Marketing margin (value addition) | 100.00 | 5.64 |
| | | Net marketing margin | 47.50 | |
| 3. | Value addition due to storing maize | Price before storing maize | 1447.50 | |
| | | Price after storing (average 1 months) | 1548.00 | |
| | | Storing and marketing cost | 65.25 | |
| | | Marketing margin (value addition) | 100.50 | 3.94 |
| | | Net marketing margin | 35.25 | |

Source: Field Survey 2015

It was found that most of the farmers were not aware about the benefits of value chain. The matter of fact that they were engaged with some traditional value adding activities e.g. drying, cleaning, storing etc. But they had no idea about modern value chain

activities. The transportation and infrastructure was not developed. Therefore, maize marketing by the farmers was expensive and in some cases it was not beneficial at all when the farmers sold in small amount. Moreover market information system was not adequate for the farmers to receive extra benefit through various value chain activities. Mostly practiced value chain activities have shown in the Table 6.1 with value addition in different forms

## 6.14 Maize trader

Maize traders are the second value chain actors in the maize value chain. In Khagrachari and Bandarban district, there were various types of maize traders such as *Faria* and *Bepari*, wholesaler and Retailer. Value addition, the cost and return pattern of maize traders are presented in table 6.2. Maize traders have the opportunity to add value among through drying, grading and packaging. They could add about Tk. 2108 per ton extra value with maize price. They add 2.13 Tk. values per kg of maize. Highest values add by the *Bepari* (27 percent) and lowest values add by the *Aratdar* 15 percent.

**Table 6.2 Value addition of maize by farmers and different intermediaries (per metric ton)**

| S.L. No. | Actors | Added value | Percentage |
|---|---|---|---|
| 1. | Farmer | 276.9 | 13 |
| 2. | *Faria* | 489.9 | 23 |
| 3. | *Bepari* | 575.1 | 27 |
| 4. | Wholesaler | 447.3 | 21 |
| 5. | *Aratdar* | 319.5 | 15 |
| | Total | 2108 | 100 |

## 6.15 Value addition by farmer for sugarcane

In sugarcane production farmers have less opportunity to adding value to sugarcane. They use bamboo and rope in the production periods which make sugarcane stick straight and there some value added. It is 12 percent of the total value added of sugarcane. They add this value through the cleaning, transportation and marketing.

**Table 6.3 Value addition of sugarcane by sugarcane farmers**

| S.L. No. | | **Items** | **Metric ton** |
|---|---|---|---|
| 1. | Marketing cost | Transportation | 24 |
| | | Loading and unloading | 13.06 |
| | | Market toll (Security charge) | 2.34 |
| | | Weighing | 3.09 |
| | | Personal expenses | 1.67 |
| | | Rent for shop | 2.43 |
| | | Un-official cost | 3.5 |
| | | Electricity | 3.65 |
| 2. | Total cost | Total variable cost | 52.12 |
| | | Total fixed cost | 10.23 |
| | | Total marketing cost | 48.19 |
| 3. | Margin | Purchasing price of sugarcane | 3740 |
| | | Selling price | 3978 |
| | | Marketing margin (value addition) | 114.61 |
| | | Value addition % | 12.275 |
| | | Gross margin | 238.67 |
| | | Net marketing margin | 123.58 |

Source: Field Survey 2015

## 6.16 Value addition by the sugarcane traders

In Khagrachari and Bandarban district, there were various types of sugarcane traders such as *Faria* and *Bepari*, wholesaler and Retailer. Sugarcane traders add most of the value in the value chain cycle. Among them, *Bepari* add highest value and it is 28 percent. Wholesaler adds less amount value and it is only 17 percent.They could add about Tk. 1780 per metric ton extra value with sugarcane price. They add 1.78 Tk. values per kg of sugarcane (Table 6.4).

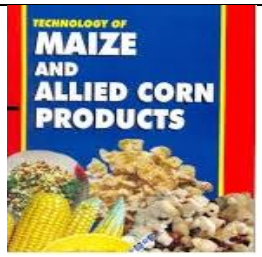
**Table 6.4 Value addition of sugarcane by farmers and different intermediaries (per metric ton)**

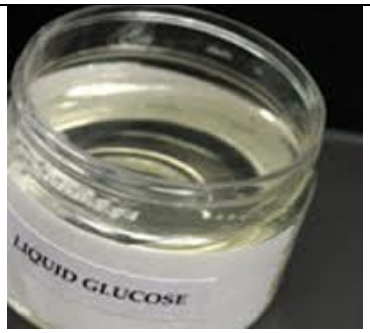
| S.L. No. | Actors | Added value | Percentage |
|---|---|---|---|
| 1. | Farmer | 267 | 12 |
| 2. | *Faria* | 373 | 24 |
| 3. | *Bepari* | 489 | 28 |
| 4. | Wholesaler | 302 | 17 |
| 5. | Retailer | 338 | 19 |
| | Total | 1780 | 100 |

## 6.17 Value addition opportunity in the study area

There is enormous opportunity to add value on maize and sugarcane in hill. There is many poultry farms which needs poultry feed on regular basis. For getting poultry feed the farm owner depend on the Chittagong and other district feed mill. If it is possible to set up poultry feed mill in the study area, then the grower will get fair prices and the poultry farm owner get in less price of poultry feed. Local demand can be meet up with local supply. Others value adding practices like popcorn producing, maize mash can be strength through supply of equipment to growers. Sugarcane growers get more prices though adding value of sugarcane in different value addition practices like molasses producing, juice s like of the  or wasted due to poor post-harvest management. Therefore, processing fruits into value-added products is one of the strategies to reduce post-harvest losses and promote consumption of fruits. Value can be added at different stages; by harvesting at proper stage, by cleaning, grading, packing, by processing of fruits, by prolonging shelf life and in processing waste. In the study area value addition happen only at first two stages. Processing of fruits industry was absent in the study area. Fruits processing like mango pickle, jackfruit chips etc made at home level. There is a huge scope for fruit juice, jam, jellies, dehydrated and freeze dried & canned products.

**Table 6.5 Different value chain opportunities of Maize and Sugarcane in the study area**

| | | | |
|---|---|---|---|
| Sugarcane Candy |  | Maize Corns |  |
| Sugarcane Juice |  | Maize Cerelac |  |
| Sugarcane Raw Juice |  | Maize Noodles |  |
| Molasses |  | Maize Chips |  |
| Molasses |  | Maize Bread |  |

| | | | |
|---|---|---|---|
| Molasses |  | Maize Starch |  |
| Molasses |  | Maize Pops |  |
| Sugar |  | Maize Bread |  |
| Maize Corn |  | Maize Popcorn |  |
| Sugarcane Candy |  | Maize Glucose |  |

| | | | |
|---|---|---|---|
| Organic Molasses |  | Maize Serelac |  |
| Sugarcane Drinks |  | Maize Corn |  |
| Sugarcane Drinks |  | Maize Corn |  |
| Sugarcane Tissue |  | Maize Oil |  |

Among the above value addition practices some are appropriate for the study area. For maize, maize corns, maize bread, maize chips are can be produced with the local maize production. In sugarcane value addition practices, sugarcane juice, molasses production and sugarcane drinks can be appropriate value addition practices for the study area.

## 6.18Problems of value chain in the study area

There were many problems which were faced by farmers and actors in the value chain of maize and sugarcane in the study area. The problems that are faced by the selected farmers and actors in the production and marketing of maize and sugarcane the solutions to these problems as suggested by them are discussed below:

### 6.18.1Problems faced by producers

The maize and sugarcane producers in the study areas were facing various problems which are broadly classified into production problems and marketing problems. Some of the production problems were inadequate capital, diseases and pest attacks, shortage of good quality seed, lack of availability of adequate inputs and high cost of inputs. Marketing problems were related to transportation cost, lower price of crops, shortage of marketing facilities, lack of processing industries and dominance of value chain actors etc.

### 6.18.2 Production problems

There were some major production problems faced by farmer. Those were as follows:

**Inadequate capital**

In the study areas maize and sugarcane producers reported that maize and sugarcane are cash crops. These crops need proper application of fertilizers, water and other inputs, in addition to special care with respect to timely agronomic practices. The production cost of sugarcane was high since input requirements were high. It was difficult to manage required capital on the part of the producers. The Table 6.6 shows that about 80 percent producers were faced inadequate of capital as a production problem.

**Diseases and pest attack**

In the study areas disease and pest attack was a major problem which producers faced in maize and sugarcane cultivation. They also reported that they were not well trained about pest and diseases control measure on their crops cultivation. From Table 6.6 it was observed that about 75 percent producers were adversely affected in their crops cultivation.

**Shortage of good quality seed**

In the study areas majority of the producers reported that high prices and lack of good quality seed was one of the major problems. They could not get the required quality of good seed, as its supply was insufficient to meet the demand of the buyers. For this reason, the producers used own preserved seeds and sometimes local variety of seeds. As a result, they received low yield of maize as well as sugarcane. 6.6 show that about 92 percent producers complained that good quality seed was not available in the market during sugarcane planting time.

**Lack of availability of adequate inputs**

In the study areas producers also reported thatlack of availability of adequate input was a major problem for crops cultivation. Table 6.6 indicates that about 97 percent producers faced this problem.

**Higher cost of inputs**

In the study area, high cost of inputs was one of the most important problems faced by the producers in their crops cultivation. Table 6.6 indicates that about 96 percent producers faced this problem.

**Table 6.6Problem faced by farmers in production and marketing of maize**

| Problem faced by producers | Percent |
|---|---|
| **Production problem** | |
| Inadequate capital | 80 |
| Diseases and Pest attack | 75 |
| Lack of availability of adequate inputs | 97 |
| Higher cost of input | 96 |
| **Marketing problems** | |
| High transportation cost | 75 |
| Shortage of marketing facilities | 71 |
| Dominance of value chain actors | 54 |

### 6.18.3 Marketing Problems

There are various marketing problem faced by value chain actors. Some major problems are discussed below.

**High transportation cost**

Transportation cost was very high in the study area. Because the transportation system in hill is not favorable like the plain land. The primary and secondary markets were not connected with the villages. There is also lack of markets and the markets are far from the villages. Due to high transportation cost and poor communication facilities, the farmers were bound to sell crops in local markets at low prices. About 75 percent of producers stated that high transportation cost and inadequate communication facility were problem in transporting their produce to the markets (Table 6.6).

**Low market price of maize and sugarcane**

All the sample farmers reported that low price was a major problem in maize and sugarcane marketing. Due to lack of remunerative price of crops, the farmers of the selected areas did not get fair returns from crops cultivation. Table 6.6 shows about 99 percent producers faced this problem.

**Lack of market facilities**

In the study areas, there was no shed to protect the producers and their maize from rain or sunshine and the producers had to sell their produce standing in the open place. So, lack of market facilities was mentioned as a problem by 71 percent producers (Table 6.6). Lack of *pucca* floor, drainage facility, supply of water and electricity in the market place also affected the farmers in selling maize and sugarcane at the markets.

**Dominance of value chain actors**

Value chain actors in the study area were very small in number but they were well organized. Whereas the farmers were scattered but in large number. The value chain actors always dominated the marketing system and they were in better position in setting the prices of sugarcane. As a result most of the producers were compelled to sell their maize and sugarcane at a lower price because there was no way to bring back the product from market as it involved extra cost of transportation and risks of damage. More than 54 per cent producers reported this as a problem.

### 6.18.4 Problems faced by value chain actors

In the study area the value chain actors were asked to mention the problems they faced in maize and sugarcane business. Table 6.7 the problems reported by actors are presented below:

**Table 6.7 Problems faced by actors in value chain**

| Problems | Percent |
|---|---|
| Inadequate good transport | 82 |
| Inadequate capital | 72 |
| Inadequate storage facilities | 68 |
| Inadequate market facilities | 70 |
| Inadequate marketing information | 75 |
| High storage charge | 56 |

**Inadequate good transport**

Table 6.7 shows that about 82 percent value chain actors reported poor communication and transportation facilities as a marketing problem of crops. A large amount of marketing cost was incurred by traders while carrying their maize and sugarcane to the desired places due to poor communication and transportation facilities.

**Inadequate capital**

Table 6.7 indicates that about 72 percent value chain actors reported inadequate of capital as a major marketing problem. They had to borrow money from the non-institutional sources at high interest rate in some special moment.

**Inadequate storage facilities**

Table 6.7 shows that about 68 percent value chain actors reported absence of storage facilities as problem they faced in maize business. Value chain actors complained that maximum amount of purchased maize was supplied with low prices in the feed mill due to lack of proper storage facilities.

**Inadequate marketing facilities**

Table 6.7 further shows that inadequate marketing facilities were considered as a problem reported by 70 percent value chain actors. They mentioned that there was no specific market place for maize or sugarcane marketing in the district market like Chittagong or Fenny, not to speak of shed and other market facilities.

**Inadequate market information**

Market information played an important role in agricultural crops trading. There was inadequate market information in maize and sugarcane business in the study area. About 75 percent of intermediaries reported lack of market information as one of the major problems they faced in maize and sugarcane business (Table 6.7).

**6.19 Entrepreneur**

An entrepreneur is one who always searches for change, responds to it as an opportunity. Entrepreneurs innovate. Innovation is a specific instrument of entrepreneurship. The words entrepreneur, intrapreneur and entrepreneurship have

acquired special significance in the context of economic growth in a rapidly changing socio-economic and socio-cultural climates, particularly in industry, both in developed and developing countries. Entrepreneurial development is a complex phenomenon. Productive activity undertaken by him/her and constant endeavor to sustain and improve it are the outward expression of this process of development of his personality.

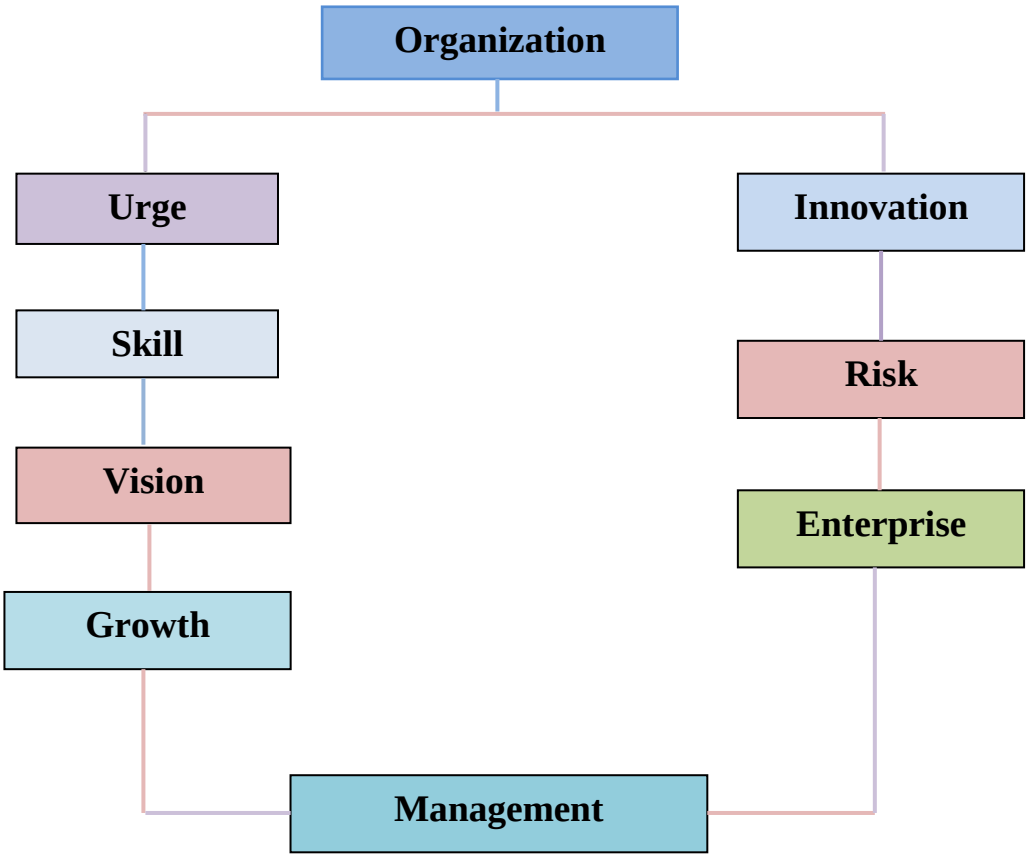
### 6.19.1 Entrepreneurship

Entrepreneurship is the collective activity done by the entrepreneur to raise and run a business smoothly.

### 6.19.2Agricultural entrepreneurship

An agricultural entrepreneurship is any business in the agricultural industry which includes production agriculture, food, fiber, the environment and natural resources. Agri entrepreneurs avoid low- risk situations because there is a lack of challenge. They avoid high risk situations because they want to succeed. They like achievable challenges. They do not tend to like situations where the outcome of a quest depends upon a chance and not on their efforts. They like to influence the outcome of their quest by putting in more efforts and then experiencing a sense of accomplishment. A risk situation occurs when agri-entrepreneur is required to make a choice between two or more alternatives whose potential outcomes are not known and must be evaluated in advance, with limited information. An agri-entrepreneur is highly creative people. They always try to develop new products, processes or markets. They are innovative, flexible and are willing to adopt changes. They are not satisfied with conventional and routine way of doing things. They involve themselves in finding new ways of doing the things for the better.

### 6.19.3Agri – entrepreneurship in General




### 6.19.4 Functions of agri entrepreneurship

In large establishments these management functions are delegated to professional managers an entrepreneur performs many useful functions such as

- ❖ Undertakes a farming venture
- ❖ Assumes risk and
- ❖ Earns profits
- ❖ Identifies agriculture business and related opportunities to start business either as a farmer or a distributor.

**Managerial Functions: -** The entrepreneur performs the managerial functions such as

a. Formulating production plans

b. Overseeing finances 5

c. Dealing with the purchases of raw materials

d. Providing production facilities

e. Organizing sales

### 6.19.5 Importance of agri-entrepreneurship in Bangladesh

Entrepreneurship is the key to success in sustainable agriculture, and the success or failure of sustainable agriculture will largely decide the fate of rural Bangladesh. Farmers know that in addition to the personal satisfaction they get from working with the soil, they are also stewards of the land and water and a crucial economic force in rural communities, providing consumers with a healthy diversity of conscientiously produced foods and fibers.

Bangladeshi farmers have proved themselves creative and resourceful in developing, adapting, and adopting successful production systems, but few have had the opportunity to hone their entrepreneurial skills business evaluation and planning, record keeping, marketing, financing, managing human resources, and the scores of other details necessary to a going concern. However, if sustainable agriculture and rural Bangladesh are to thrive, these are the very skills that farmers have to learn.

While entrepreneurship has widely been viewed by policy makers and educators alike as the creative act of an independent businessperson, Bangladeshi farmers are learning that the roots of entrepreneurship extend deep into a community's civic structure. It takes more than good ideas and some market savvy to be a successful Agri - entrepreneur. Successful entrepreneurs almost always draw upon the knowledge and resources of others. This annotated resource list is for agriculture entrepreneurs who want to expand, improve, or add a new enterprise to their farm operations.

## 6.20Entrepreneurship opportunity in the study area

There is a lot of opportunity to develop entrepreneurship with agricultural commodity in the study area hence there is surplus of production. To identify the potential entrepreneur from the growers some entrepreneurial characteristics has set and interviewed them. The result is showed in the table 6.8.

**Table 6.8 Entrepreneurship characteristics found from the growers and potential entrepreneurs**

| S.L.No. | Entrepreneurial Characteristics | Percent |
|---|---|---|
| 1. | Willingness | 75 |
| 2. | Risk taking ability | 48 |
| 3. | Foresightness | 45 |
| 4. | Physical strength | 59 |
| 5. | Optimistic | 71 |
| 6. | Financial solvency | 64 |
| 7. | Integrity | 58 |
| 8. | Knowledge and Experience | 42 |
| 9. | Leadership quality | 67 |

**1. Willingness:** Willingness is the cheerfully or eagerly compliant to do a work. In the study area it is found that 75 percent (Table 6.8) respondent show their willingness to develop an entrepreneurship or be an agri entrepreneur.

**2. Risk taking ability:** Risk taking ability is to bear the associated risk to run a venture or taking the risk for develops an enterprise. Those people, who are sound in their ambition, believe and financial condition they can take the risk. About 48 percent respondents have the ability to bear the risk (Table 6.8).

**3. Foresightness:**Foresightness is the act or power of foreseeing, perception or gets an idea before happen a work. About 45 percent (Table 6.8) respondent showed their forsightness to run a venture or do a venture.

**4.Physical strength:** Physical strength is the physical condition to take risk or the ability to continue doing something physically difficult or continue dealing with an unpleasant situation for a long time. About 59 percent (Table 6.8) respondent have physical strength to do a business.

**5. Optimistic:** Optimistic people are the hopeful and confident people about the future. They are very cheerful, confident, positive and bright. They run a business in every unfavorable situation with their own optimism. Near about 71 percent (Table 6.8) respondent are optimistic to run a business with their own grown production.

**6. Financial solvency:** For any kind of business capital is required. Finance is the blue blood for an enterprise. So, financial solvency is an important criterion to be an entrepreneur. In the study area it found that 64 percent respondent financially sound to be an entrepreneur (Table 6.8).

**7. Integrity:** Integrity is the quality of being honest and having strong moral principles. It is revealed from the study 58 percent respondent are integral about their work or activity (Table 6.8).

**8. Knowledge and Experience:** Knowledge and experience is a pre-condition for to be a successful entrepreneur. It helps them to develop a sound plan and strategy for a business and entrepreneurship. It is found from the respondent that only 42 percent posses knowledge and experience agricultural business or entrepreneurship.

**9. Leadership quality:** Leadership quality is one of the basic qualifications to be a successful entrepreneur. Among the respondent 47 percent have the leadership quality.

Through the field survey 8 potential entrepreneur have been found who posses all the above criteria. This is done through scoring table. Each character weighted value is 1. 8 farmers scored highest and it is 9. The lists of potential farmers are given below

**Table 6.9 Potential entrepreneurs in study area**

| SL. No. | Name | Village | Upazilla | Contact No. |
|---|---|---|---|---|
| 01. | Chandra MohonChakma | Foodbill | Khagrachari Sadar | 01557578882 |
| 02. | KikorChakma | Kamalcahri | Khagrachari Sadar | 01838488878 |
| 03. | BimolTalukder | Dewanpara | Panchari | 01558667618 |
| 04. | ChailPruMarma | Thakurchara | Diginala | 01556748964 |
| 05. | KrismoniDewan | Baurapara | Panchari | 01553958944 |
| 06. | Torun Joty | Reicha | Bandarban Sadar | 01552357656 |
| 07. | BimolBikash | Satkamalpara | Bandarban Sadar | 01552368910 |
| 08 | BijoyChakma | Dholopara | Bandarban Sadar | 01556613630 |

Source: Field survey,2015

## 6.21Constraints of entrepreneurship

Entrepreneurship or entrepreneual growth depends on some factors. These are directly linked with entrepreneurship development in a certain area. Low production or supply of raw materials, poor communication, lack of finance, poor infrastructures, high taxes, low level of education and much imports are some of the major constraints.

1. **Less supply of raw materials:** Availability of raw materials is the pre condition of any kind entrepreneurship development. If the raw materials are not available it is not possible to go for production.

2. **Poor communication:** Communications is positively related to the firms output or production. If the communication system is good then growth of the firm is high.

3. **Lack of finance:** Finance is the blue blood of any kind business. Credit availability is required for entrepreneurship growth.

4. **Poor infrastructure:**Good infrastructure is required for smooth production and output. It enhances the entrepreneurship growth.

5. **Low level of education:** Entrepreneurship growth highly depends on the entrepreneur's educational status. It is positively related with the production or output.

6. **High tax rate:**Tax is negatively correlated with entrepreneual growth. High taxes imposed restrict entrepreneurship development.

7. **Excess imports:**Imports directly impact on entrepreneurships growth. It is negatively correlated with entrepreneurship growth.

## 6.22Conclusions

Marketing problems of farmers and intermediaries are almost same. For these problems many of them were discouraged to maize and sugarcane marketing. They seek for solutions to local administration, government and non-government organizations for continuing maize trading and marketing. Value chain actors in the study areas were not concerned about the value chain activities but the study found that the actor's added value with the products (maize and sugarcane). If the opportunities could have been utilized would be helpful to improve the maize and sugarcane value chain.

# CHAPTER 7

# FACTORS AFFECTING VALUE CHAIN DEVELOPMENT

# CHAPTER 7
# FACTORS AFFECTING VALUE CHAIN DEVELOPMENT

For developing value chain of maize and sugarcane in Khagrachari and Bandarban District, it was observed that some causes were responsible for the value chain development. This chapter adopted factor analysis to identify the major dimensions of the causes of value chain development.

## 7.1 Factor analysis

Factor Analysis is primarily used for data reduction or structure detection. The purpose of data reduction is to remove redundant (highly correlated) variables from the data file, perhaps replacing the entire data file with a smaller number of uncorrelated variables. The purpose of structure detection is to examine the underlying (or latent) relationships between the variables. This analysis that explains most of the variance observed in the much larger number manifest variables by reducing the number of causes to a few factors. The analysis determined causes that affect value chain development of maize and sugarcane in the study area. The analysis used principle component method to extract the factors with varimax rotation technique. Table 7.1 shows the results of the factor analysis of the causes of value chain development. Based on the total variance explained, it was confirmed that, there were 7 components that influence the value chain development with 41% since their total loading is more than one. Since from 11 to $29^{th}$ component were having total Eigen values less than one. But because of lower loading factor only four components was selected from the particular variable which included as a factor was made on the basis of whether the correlation value (factor loadings) was high or not.

**KMO and Bartlett's Test:** The Kaiser-Meyer-Olkin measure of sampling adequacy is a statistic that indicates the proportion of variance in variables that might be caused by underlying factors. High values (close to 1.0) generally indicate that a factor analysis may be useful with data. If the value is less than 0.50, the results of the factor analysis probably won't be very useful. Here, the KMO value was 0.514.

**Bartlett's test of sphericity test:** The test indicates that variables are unrelated and therefore unsuitable for structure detection. Small values (less than 0.05) of the significance level indicate that a factor analysis may be useful with data. Here the significance level was 0.00 or 1%.Based on rotation matrix, it could find out the different factors. On the basis of the maximum variation of the factors, the study identified four main factors as the causes that affect value chain development in the study area. These factors are:

**Factor I (Marketing factor):** Supply of product, Demand of product, Product variety, Location of the market and number of traders were found on factor I.
**Factor II (Economic factor):** Family Member, Poverty, Market Price, Lower product price, Capital and Credit availability were found on factor II.
**Factor III (Social factor):** Education, Family size, Culture and Political system were found on factor III.
**Factor IV (Environmental factor):** Heavy rainfall, Long Time summer, High temperature and Diseases were found on factor IV.

The elements of each of the above factors were arranged in order of their respective magnitude of factor loadings indicating the importance of a particular element in a factor. The causes comprising factor I was mainly related to marketing factor; the causes comprising factor II contained the causes related to economic factor; the factor III related to social factor and the elements of factor IV included the causes related to environmental factor. The negative value of factor loadings for the variables demand of product in factor I; family member and capital in factor II; family size in factor III indicated that these variables were inversely related to factor I, factor II and factor III. Supply of products, number of traders, high input price, political system and culture were influenced highly in the value chain and entrepreneurship development in the study area as their factor loading is high. The initial eigen values indicated that the above four factors explained 41%, 28%, 25% and 21 % of the variance respectively. A total of eight factors were eliminated because they did not contribute to a simple factor structure and failed to meet a minimum criteria having a primary loading of 0.4 or above and no cross-loading of 0.3 or above.

**Table 7.1 Factor analysis for the causes that affect value chain development of selected crops**

| Causes that affect value chain development | Factor loading | Communalities |
|---|---|---|
| **F1= Marketing factor** | | |
| Supply of product | .698 | .792 |
| Demand of product | -.408 | .771 |
| Product variety | .486 | .793 |
| Location of the market | .468 | .881 |
| Number of Traders | .570 | .941 |
| **F2= Economic factor** | | |
| Family Member | -.398 | .832 |
| Poverty | .545 | .774 |
| Market price | .586 | .846 |
| Lower product price | .689 | .776 |
| High input price | .646 | .871 |
| Capital | -.526 | .836 |
| Credit availability | .525 | .707 |
| **F3=Social factor** | | |
| Education | .383 | .711 |
| Family size | -.549 | .737 |
| Culture | .786 | .700 |
| Political system | .688 | .879 |
| | | |
| **F4= Environmental factor** | | |
| Heavy rainfall | -.603 | .743 |
| Long Time summer | -.569 | .740 |
| High temperature | .650 | .782 |
| Diseases | .539 | .799 |
| Eigen value: F1= 4.190, F2= 2.846, F3= 2.540, F4= 2.180 | | |
| Percent of variation: F1= 14.450, F2= 9.815, F3= 8.759, F4= 7.518 | | |
| Cumulative percent of variation: F1= 14.450, F2= 24.246, F3= 33.023, F4= | | |
| KMO= 0.514 and only factor loading ≥41has been shown in the table, P-value=0.00 | | |

Extraction method: Principle Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
Source: Field Survey, 2015.

The result suggested that these factors were mainly responsible for affecting value chain development in the study area. Therefore, to identify these factors coefficient value and significance level here multiple logistic regression models were done. In this model factors were terms as variable. This model was also helpful to find out the relation between dependent variable and independent variable. Here, dependent variable was crop supplied (maize and sugarcane) by growers and independent variables were heavy rainfall, long term summer, disease, high temperature, education, family size, culture, poverty, political system,

high input price, capital, credit availability, product variety, location of market, lower market price, high input price, supply of the product, demand of the product, and number of traders.

## 7.2 SWOT Analysis

In light of the stakeholder analysis, mixed focus group discussions are executed with maize and sugarcane growers and intermediaries to draw points of interventions and to address constraints by promoting the strength of the chain. For this purpose, internal weakness and strengths of actors and external opportunities and threats are analyzed under categories of economic, social, technological, demographic and institutional themes. The main results of the SWOT analysis are listed under (Table 7.2).

**Table: 7.2 SWOT analysis matrix**

| **Strengths** | **Weaknesses** |
|---|---|
| **Resources:**<br><br>• Potential for growth production<br>• Increasing telecom service<br>• Accumulated traditional knowledge<br>• Organic input utilization<br>• Self store of seed<br><br>**Marketing:**<br><br>• High supply (import substitution)<br>• Multiple consumers<br>• Payments received at delivery<br>• Employment | **Production:**<br><br>• Lack of credit access<br>• Lack of financial institution than other region in the country<br>• Lack of institutional training of growers<br>• Lack of natural sources of irrigation water<br>• Insufficiency of high quality of seed<br>• Insufficient source of high quality of fertilizer<br>• Poor value<br>• Lack of technical support from Government.<br>• Low road access<br><br>**Marketing**:<br><br>• Due to hilly region transportation facilities are very low<br>• Inability to join in groups for marketing<br>• Lack of organized information catering<br>• Lack of market<br>• Competition is higher due to increasing number of intermediaries |

| Opportunities | Threats |
|---|---|
| Production:<br>• Potential to increase area and productivity<br>• Scope for processing industries (Feed mill, Sugar industry)<br>• Cooperatives can organize input supply<br><br>Business Environment:<br><br>• High value crop<br>• High opportunity to establish contract farming as like as sugarcane contract farming<br>• High prospect of establishing feed mill and processing industry<br>• High opportunity to develop agro industry which helps employment opportunity<br>• Prospect to provide assistance in technology and market information<br>• Transformation and development plan<br><br>Market:<br><br>• Scope of value added Niche product<br>• Big scope for import substitution | Production:<br>• Lack of hybrid varieties.<br>• Increased supply of credit<br>• Maize and sugarcane growers not satisfied with the price they receive.<br>• Different type of disease<br>• High supply driven channel<br>• Prevalence of heavy rainfall at harvesting time<br><br>Marketing:<br><br>• Adversarial, with hiding of information<br>• Punitive i.e. no credit extended<br>• Delays in price payments<br>• Low price<br><br>Institutional:<br>• Resource and capacity Constraints<br>• Lack of coordination<br>• Excessive local lending rate (10 percent per month).<br>• Poor Technology generation & dissemination<br>• Lack of reliable statistics on production<br>• Weak extension support service |

## 7.3 Conclusion

Number of traders is the key factor which influence directly to the value chain activities of maize and sugarcane. Locations of the market, input availability, credit availability, level poverty were some of the factors to develop the value chain and entrepreneurship growth in CHT's. Availability of labors and multiple uses is the strength of value chain development for maize and sugarcane.

# CHAPTER 8

# SUMMARY, RECOMMENDATIONS AND CONCLUTIONS

# CHAPTER 8

# SUMMARY, RECOMMENDATIONS AND CONCLUTIONS

This chapter presents the summary, conclusion and recommendations of the study. Summary of the findings are given below:

## 9.1 Summary of Study

The main objective of the study was entrepreneurship and value chain development of maize and sugarcane. The main issues were covered through the different activities under the value chain development component of the CRP hill agricultural project. The other objectives are fulfilled by the investigation through the questionnaire survey and data analysis, processing and tabulation. The data used for estimating production and marketing cost structure were based on the face to face interview with farmers, maize and sugarcane traders, of Khagrachari and Bandarban district.

The summary results of study have been presented according to the specific objectives in below:

1. To document socioeconomic profile of growers and potential entrepreneurs.

In the study area most of the farmers were male. The average age of the sample households was 38.41 years from maize growers and 43.38 years were sugarcane growers. Average family member in each family was 5.67 for maize growers, around 5.15 for sugarcane growers. No. of workable man for maize growers is 2.5 per family and in sugarcane 2.76. About 85percent to 89 percent maize and sugarcane grower's main occupation is farming. Most of the growers and entrepreneurs have completed secondary education. Most of the growers occupied less than 0.5 hectare of land. Near about 80-85 percent farmers were cultivating with their own finance. About 40 percent farmers were involved in farming for last 6-10 years. About only 8-10 percent growers said that they borrowed money from bank, or NGO's. It is found from the study area that most of the farmers (78-90 percent) were informed about the support services of the government and other private institutions. About 58-67 percent farmers have basic

training on agriculture. But getting of training on processing is very low. Around 60 percent of intermediaries have secondary level education and rest 40 have completed Higher Secondary or above. Result showed that intermediaries run 21percent contract business, rest 79 percent run sole business. From the result it was observed that, *Faria* had done their transaction in cash 41 percent and on credit 25 percent. Wholesaler does their business 100 percent on cash payment.

2. To estimate economic profitability of maize and sugarcane for producers and different market intermediaries in the selected areas.

The total production cost of maize and sugarcane were Tk. 43544.61 and Tk.180615.67 per hectare respectively. Net return of the maize growers, we saw that net return is Tk. 39884.19, Tk. 43666.08 and Tk. 46932.09 at selling in farm gate, local market and district market respectively. Net returns achieve by the sugarcane growers at different levels are Tk. 194677.01, Tk. 214197.77 and Tk. 230708.51 in farm gate, local market and district market respectively for per hectare area of production. For maize growers highest BCR were found when maize are sold in district market and it is 1.078 and lowest BCR were found .916 when maize were sold at farm gate. For sugarcane growers highest BCR is 1.277 and lowest BCR is 1.077 for district market and farm gate market selling respectively Marketing cost for maize by different intermediaries were Tk. 2192.5, Tk. 1491.00, Tk. 1210.32 and Tk. 2023.97 for *Faria*, Wholesaler, *Aratdar* and *Bepari* respectively. Marketing cost for sugarcane were Tk. 4726.72, Tk. 2884.45, Tk. 2473.4 and Tk. 4121.09 for *Faria*, Wholesaler, Retailer and *Bepari* respectively. Marketing margin of different maize intermediaries were *Faria* Tk. 4367.5, Wholesaler Tk. 2479, *Aratdar* Tk. 5429.68 and *Bepari* Tk. 5617.03. For sugarcane intermediaries marketing margins were *Faria* Tk. 7493.28, Wholesaler Tk. 6005.55, Retailer Tk. 8291.6and *Bepari* Tk. 8082.91.

3. To analysis value chain performance of maize and sugarcane.

There is enormous opportunity to add value on maize and sugarcane in hill. Value adding practices like maize corns, maize bread, maize chips are can be produced with the local maize production. In sugarcane value addition practices, sugarcane juice, molasses production and sugarcane drinks can be appropriate value addition practices for the study area. Among all the value adding actors, farmers got the lowest share. Farmers added value through various activities e.g. cleaning, drying, storing, and marketing in different

time and in different markets and by processing. Maize were boiled in water with salt and sold in the market at price TK. 5 per corn. In one kg there is 8-10 corn. In normally one kg maize price is Tk. 16 but due to value addition price of one kg maize goes to 25-27 Tk. For Sugarcane, if it is sale to the *Bepari* per piece price goes to 7-8 Tk. but when sold in local market in small pieces per pieces price goes to 15 -20 Tk. Value is also added through maize drying, cleaning, packaging; sugarcane cleaning, grading, molasses producing by the farmers. Traders were second types of actors in maize and sugarcane value chain. Mainly the *Farias, Beparies*, Wholesaler and Retailer were the traders. *Bepari* added maximum value in the marketing of maize and sugarcane. They could add about Tk. 2108 per ton extra value with maize price. They add 2.13 Tk. values per kg of maize. Highest values add by the *Bepari* (27 percent) and lowest values add by the *Aratdar* 15 percent for maize. Sugarcane traders add most of the value in the value chain cycle. Among them, *Bepari* add highest value and it is 28 percent. Wholesaler adds less amount value and it is only 17 percent. They could add about Tk. 1780 per metric ton extra value with sugarcane price. They add 1.78 Tk. values per kg of sugarcane.

4. To identify the factors affecting value chain and entrepreneurial growth

There were some factors that affect the value chain activities as well as entrepreneurial growth for maize and sugarcane. These factors are:

**Factor I:** Supply of product, Demand of product, Product variety, Location of the market and number of traders were found on factor I.

**Factor II:** Family Member, Poverty, Market Price, Lower product price, Capital and Credit availability were found on factor II.

**Factor III:** Education, Family size, Culture and Political system were found on factor III.

**Factor IV:** Heavy rainfall, Long Time summer, High temperature and Diseases were found on factor IV.

The elements of each of the above factors were arranged in order of their respective magnitude of factor loadings indicating the importance of a particular element in a factor. Supply of products, number of traders, high input price, political system and culture, level of poverty and education were influenced highly in the value chain and entrepreneurship development in the study area.

## 9.2 Recommendations of the study

On the basis of findings, the following recommendations were made for the improvement of existing production, marketing and value chain development.

i. Government should provide sufficient credit and subsidy to the farmers and other value adding actors.

ii. In the time of harvesting minimum price of maize and sugarcane should be declared by government to ensure that they can cover their production cost.

iii. Government would get important information and find the way to monitor the market to lessen the price fluctuations.

iv. Value chain analysis is an effective source of market information. So the market information obtained from it should be made available and easily accessible for all value chain actors.

v. Uninterrupted electricity and diesel supply should be made available for the maize and sugarcane producers in the time of irrigation season and also for feed millers to reduce their cost.

vi. Infrastructure and transport system should be developed to attract maize and sugarcane buyer from the different part of the country. Input costs for maize and sugarcane production should be reduced or subsidized.

vii. Diversified use of maize and sugarcane should be developed; processing technology should be made available for the farmers.

viii. Government should finance the farmers in the time of maize and sugarcane cultivation period and also after harvesting. This would reduce the price fluctuation and also ensure the demand supply equilibrium.

ix. Value chain actors are needed to informed about the value chain system and also other actors should have proper knowledge about this. If the actors were informed about value chain that would make the maize and sugarcane market more efficient and that would give good return to all kind of actors.

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x. Different Government and NGOs can provide training facilities to both market actors and processors including harvesting, grading, sorting, packaging, transportation, storage (conventional and modern), processing (small and large-scale) and nutrition is required.

xi. Development of appropriate technology by experts and conduction of training by appropriate trainers on different aspects of processing management. Agricultural University like BAU, SAU, BSMRAU etc. may play a leading role in collaboration with BARC, DAE, and BARI can help to transfer technology for different value addition practices in this area.

xii. A considerable quantity of agricultural products is lost in the marketing chain because of a lack of infrastructure such as transport facilities, roads, storage structures, cold storage and grading and packaging facilities. Government can formulate guidelines for market infrastructure planning that can be used to develop national and provincial level market infrastructure projects for mobilizing resources and implementation.

xiii. Access to right information on market price and trend in market price. Now a days, information about prices is published in news paper announced in radio and television regularly. The maize and sugarcane grower must be familiar with the prevailing prices and trend of the prices. Even though, Upazilla Information Centre is established but getting daily prices from the internet is still difficult.

## 9.3 Conclusions of the study

Bangladesh is an agro based country where maize and sugarcane are two important cash crops. Sometimes people of the hilly area directly consume maize and sugarcane as their meal. The eating habit of Bangladeshi people is still unchanged. They still prefer to eat rice as their staple food. But there is an opportunity to diversify their diet through maize and sugarcane. Though some hilly people practice it, but it is very few in number. The country's population has been increasing rapidly but agricultural land has been decreasing to meet housing necessity and industrial expansion. That is, the cultivable land is decreasing but the demand for food increasing due to increased

population. Maize is used as poultry feed in the poultry industry. So it is very essential to increase production of maize to fill up the protein deficiency. Each year Bangladesh imports a lion share of sugar. But if we able to increase our productivity we can meet our local demand. On the above, by adding value through different processing activities in maize and sugarcane we can reduce the pressure on rice and it will helps the maize and sugarcane growers to get more price. Through entrepreneurship development in maize and sugarcane, the country can go better economic growth.

## 9.4 Limitations of the study

The present study provides some important information for farmers, entrepreneurs, traders, NGOs, extension workers, governments and policy makers regarding production, processing and marketing of maize and sugarcane. There are, however, some limitations are

1. Most of the farmers and traders are illiterate and they do not keep any record of their production and marketing information. So, it was tough to collect accurate data.
2. Most of the respondent was tribal and in some cases they cannot understand Bangla well. So, language was a major obstacle to collect the data.
3. The respondent household was far from one to another and the communication system was not favorable.
4. Most of the respondents were not articulated with this type of research. So a huge amount of time had to spend to explain them about the purpose of the research and collect data.
5. Most of the traders and intermediaries were come from different district and they were available only the bazaar day and were very busy for trading. Thus collect of information from them was very tough.

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# APPENDICES

Annex 1.1 Price spread in marketing channel of maize and sugarcane

| Marketing channel | Price received by growers | Price paid by feed mill/ Consumer | Price spread |
|---|---|---|---|
| **Miaze per Ton** | | | |
| Farmers - Bepari - Feed mills: | 14560 | 21120 | 6560 |
| Farmers –Faria- *Aratdars* -Feed mills: | 15230 | 22340 | 7110 |
| Farmers -Faria –Wholesaler- *Aratdars* -Feed mills: | 15780 | 22760 | 6980 |
| Farmer –*Farias* -Wholesalers -Poultry Farms: | 15570 | 23670 | 8100 |
| Farmers -Wholesalers – *Aratdars* - Poultry Farms: | 16760 | 23780 | 7020 |
| Farmers -*Farias* - *Aratdars* - Consumers : | 16230 | 22548 | 6318 |
| **Sugarcane per Ton** | | | |
| Grower - Retailer (local)– Consumer (local) | 44670 | 60420 | 15750 |
| Grower-Wholesaler (local)-Consumer (local) | 45780 | 61780 | 16000 |
| Grower – Bepari (local) – Consumer (local): | 46230 | 62780 | 16550 |
| Grower – Faria(local) – Retailer – Consumer (local) | 47414 | 62790 | 15376 |
| Grower–Bepari(Chittagong)-wholesaler(Chittagong)- Retailer (Chittagong): | 48753 | 64680 | 15927 |
| Grower-Bepari(Local)- Wholesaler(Fenny)-Retailer (Fenny) -Consumer: | 47530 | 63570 | 16040 |
| Grower-Bepari- Bepari (Fenny) -Consumer | 46910 | 65870 | 18960 |
| Grower–Bepari(local)–Bepari (Chittagong district)–Retailer (Chittagong district)-Consumer(Chittagong district): | 45130 | 64878 | 19748 |

Annex 1.2 Growers share (%) in marketing channel of maize and sugarcane

| Marketing channel | Price received by growers | Price paid by feed mill/ Consumer | Growers share (%) |
|---|---|---|---|
| **Maize per Ton** | | | |
| Farmers - Bepari - Feed mills: | 14560 | 21120 | 68.93 |
| Farmers –Faria- *Aratdars* -Feed mills: | 15230 | 22340 | 68.17 |
| Farmers -Faria –Wholesaler- *Aratdars* - Feed mills: | 15780 | 22760 | 69.33 |
| Farmer –*Farias* -Wholesalers -Poultry Farms: | 15570 | 23670 | 65.77 |
| Farmers -Wholesalers – *Aratdars* - Poultry Farms: | 16760 | 23780 | 70.47 |
| Farmers -*Farias* - *Aratdars* - Consumers : | 16230 | 22548 | 71.97 |
| **Sugarcane per Ton** | | | |
| Grower - Retailer (local)– Consumer (local) | 44670 | 60420 | 73.93 |
| Grower-Wholesaler (local)-Consumer (local) | 45780 | 61780 | 74.10 |
| Grower – Bepari (local) – Consumer (local): | 46230 | 62780 | 73.63 |
| Grower – Faria(local) – Retailer – Consumer (local) | 47414 | 62790 | 75.51 |
| Grower–Bepari(Chittagong)-wholesaler(Chittagong)- Retailer (Chittagong): | 48753 | 64680 | 75.37 |
| Grower-Bepari(Local)-Wholesaler(Fenny)-Retailer (Fenny) - Consumer: | 47530 | 63570 | 74.76 |
| Grower-Bepari- Bepari (Fenny) – Consumer | 46910 | 65870 | 71.21 |
| Grower–Bepari(local)–Bepari (Chittagong district)–Retailer (Chittagong district)-Consumer(Chittagong district): | 45130 | 64878 | 69.56 |

Annex 1.3 Acharya's marketing efficiency of various channels in maize and sugarcane marketing

| Marketing channel | Price received by growers | Marketing Efficiency |
|---|---|---|
| **Maize per ton** | | |
| Farmers - Bepari - Feed mills: | 14560 | 1.28 |
| Farmers –Faria- *Aratdars* -Feed mills: | 15230 | 1.54 |
| Farmers -Faria –Wholesaler- *Aratdars* - Feed mills: | 15780 | 1.47 |
| Farmer –*Farias* -Wholesalers -Poultry Farms: | 15570 | 137 |
| Farmers -Wholesalers – *Aratdars* - Poultry Farms: | 16760 | 1.71 |
| Farmers -*Farias* - *Aratdars* - Consumers : | 16230 | 1.75 |
| **Sugarcane per Ton** | | |
| Grower - Retailer (local)– Consumer (local) | 44670 | 1.38 |
| Grower-Wholesaler (local)-Consumer (local) | 45780 | 1.23 |
| Grower – Bepari (local) – Consumer (local): | 46230 | 1.67 |
| Grower – Faria(local) – Retailer – Consumer (local) | 47414 | 1.62 |
| Grower–Bepari(Chittagong)-wholesaler(Chittagong)- Retailer (Chittagong): | 48753 | 1.45 |
| Grower-Bepari(Local)-Wholesaler(Fenny)-Retailer (Fenny) - Consumer: | 47530 | 1.45 |
| Grower-Bepari- Bepari (Fenny) – Consumer | 46910 | 1.52 |
| Grower–Bepari(local)–Bepari (Chittagong district)–Retailer (Chittagong district)-Consumer(Chittagong district): | 45130 | 1.32 |

**Identifying Entrepreneurs and Value Chain Development of Maize and Sugarcane in Chittagong Hill Tracts**

**Interview Questionnaire for Maize Growers-2014**

Sample No: ……..

Date:……..

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**1. Identification of respondent**

Name: Mobile No:

Village/Para: Union:

Upazilla: Zilla:

| Khagrachari | Bandarban | Rangamati |
|---|---|---|

**2. Name of the ethnicities:**

| Bangali | Chakma | Marma | Tripura | Tanchanga | Mro | Bawm | Others |
|---|---|---|---|---|---|---|---|

**3. Socioeconomic Information:**

| Gender | Age | Marital Status | Family Size | No. of Workable men | Literacy Status | Education | Occupation |
|---|---|---|---|---|---|---|---|
| | | | M: | | | | Main: |
| | | | F: | | | | Subsidiary: |

***Code:*** *Gender: Male = 1, Female = 2, Marital Status: Unmarried = 1, Married = 2, Family Member:1-3 member=1, 3-5member=2, 5-8 member=3, above 8=4, Family size: Small ≤ 4 =1,Medium 5-7 = 2,Large ≥ 8 = 3, Family member lives : With traders =1 b. Own district = 2 c. Other district = 3 Land ownership: Landlord (renting out land) = 1,Owner cultivator = 2,Share Cropper = 3 ,Tenant ( renting land) = 4 ,Landless = 5, land holdings:<1 acre = 1, 2– 5 acre =2, 6 -10 acre = 3, 11-115acre = 4, 16-20 acre = 5, 21-30 acre=6, 31-50 acre=7, 51 – 70 acre=8, above 70=9,*

*Literacy Status: Can read & write=1, Can read only=2, Can sign only=3, Cannot read & write=4, Education: Class 1-5=1, class 6-10=2, Class 11-12 =3, Graduate & above=4, Cannot read & write/ illiterate =5, Occupation: Only Agriculture = 1,Agri + Poultry = 6*

**4. Contextual Information:**

| | | |
|---|---|---|
| **a)** Experience in Farming (actual years) = | | 1-3 years=1, 3-5 years=2, 5-8 years=3, 8-10 years=4, 10-13 years=5, 13-15 years=6, Above15=7 |
| **b)** Experience in Maize growing = | | 1-3 years=1, 3-5 years=2, 5-8 years=3, 8-10 years=4, 10-13 years=5, 13-15 years=6, Above15=7 |
| **c)** Source of finance=If source of finance is bank, how much the interest rate? | | Own=1, Bank loan=2, Relatives =3, Friends=4, NGO=5, Others (Specify)=6 |
| | | |
| **d)** Selling point= | | [Place] Local market=1,District market=2, Company Agent=3, Chittagong=4, , Others (Specify)=5 |
| | | [Person] End customer=1, Bepari=2, Faria=3, Whs=4, Aratdar=5, Others(Specify)=6 |
| **e)**Quantity in production= | | 1000 kg =1, 2000kg=2, 3000 kg=3,4000 kg=4,5000kg =5, 6000kg=6,7000kg=7, 8000kg=8,9000kg=9, 10,000kg=10 |
| **f)**Selling Price | | 1. Field, 2. Market, 3. Company Agent |

| | | |
|---|---|---|
| **g)**Payment system of Sugarcane | | On Cash=1, On Credit=2, Advance payment before harvest=3, Payment after harvest=4, Both=5, Others(specify)=6. |
| **h)** Source of information (Product price and marketing) | | Friends=1, Relatives=2, Company Agent=3, Media (TV, Radio, Newspaper)=4, Business Community=5, NGO=6, Others(Specify)=7 |
| **j)** Do you know any service provider organization in agriculture? | | Yes=1 No=0 |
| **k)** Do you have any training experience on agriculture? | | Yes = 1 No = 0 |
| **l)** Do you get any training for crop production or processing? If yes, from where? | | Yes = 1 No = 0 |
| **m)** Do you get proper help from DAE/HARS/NGO's/Private Company? | | Yes = 1 No = 0 |

**5. Source of input**:

| | | |
|---|---|---|
| Seeds | | Own =1, Local Market=2, Neighbor = 3, Relatives = 4, HARS (Khagrachari) = 5, HTARS ( Ramgor) = 6, Commercial company= 7,NGO = 8, DAE = 9, Others (Specify) = 10. |
| Source of Irrigation | | Disel Pump=1 , Solar Pump=2, Tubewell=3, Leg pump=4, Chara=5, Canal=7, Pond =8, River =9 |
| Fertilizer (Chemical) | | Local Market = 1, Own =2, Relatives =3, Neighbor = 4, Others( Specify) = 5 |
| Insecticide/Pesticide | | Local Market = 1, Own =2, Relatives =3, Neighbor = 4, Others( Specify) = 5 |
| Other Equipment | | Local Market = 1, Own =2, Relatives =3, Neighbor = 4, Rent = Others( Specify) = 5 |

## 6. Information on land:

| Type of land | Area (Kani=40 Decimal) |
|---|---|
| Owned cultivated | |
| Land taken on share cropping | |
| Rented in | |
| Maize Cultivated (Own Land) Current Year | |
| Maize Cultivated (Rented Land) Current Year | |
| Maize Cultivated in Previous year | |

**7. Which variety of Maize generally do you produce in most of your land?**

1…… 2……. 3……

**8. Cost of Maize production (for 40 decimals land)**

| | **Cost Items** | Type of Labor | Price per unit | Cost(TK) |
|---|---|---|---|---|
| Variable Costs | A. Human Labour (Intercultural operation, harvesting and other purpose) | | | |
| | Land preparation | M: | | |
| | | F: | | |
| | Seed Showing | M: | | |
| | | F: | | |
| | Weeding/ Mulching etc | M: | | |
| | | F: | | |
| | Irrigation | M: | | |
| | | F: | | |
| | Fertilizer application | M: | | |
| | | F: | | |
| | Harvesting | M: | | |
| | | F: | | |
| | Threshing | M: | | |
| | | F: | | |
| | Drying | M: | | |
| | | F: | | |
| | Weighing, bagging, marketing | M: | | |
| | | F: | | |
| | Total Human Labour cost | | | |
| | **Land preparation Cost** | | | |
| | Power tiller | | | |
| | **Material inputs cost** | | | |
| | Seed | | | |
| | **Fertilizer and Manure Cost** | | | |
| | ▪ Urea | | | |
| | ▪ TSP | | | |
| | ▪ MOP | | | |
| | ▪ Zipsum | | | |
| | ▪ Boron | | | |
| | ▪ Cow dung | | | |
| | ▪ Others | | | |
| | Insecticides | | | |
| | Irrigation | | | |
| Fixed Costs | Rental value of land | | | |
| | Interest of loan | | | |
| Total | | | | |

**9. Return from Maize production**

| Total Output | Quantity | Price per 40 kg | Total value of the output |
|---|---|---|---|
| • Maize | | | |
| Total revenue | | | |

**10. Generally what type of Maize do you sell? (Put tick √)**

- Unclean Maize (without value addition)
- Clean Maize (with value addition)

**11. Why do you sell Clean and dry Maize (with value addition)?**

- ✓ To create addition value
- ✓ To get better price (storing creates time utility)
- ✓ Other (specify)……..

**12. Do you store Maize**? Yes / No

If yes then why?

- ✓ To get better price in future (By storing create time utility and add extra value)
- ✓ To ensure income through the year
- ✓ Other (specify)……..

**13. If store, Where do you store Maize**? Home / Hired store

**14. Where do you sell your Maize?** Farm gate (home) / Company Agent premises/Market

**15. Marketing cost of Maize**

| Cost items | Cost (Tk/40Kg) | Final Price(Tk/40Kg) | Price Difference |
|---|---|---|---|
| Transportation | | | |
| Loading and unloading | | | |
| Market toll | | | |
| Labour for selling | | | |
| Weighing | | | |
| Other expenses (specify) | | | |
| Total | | | |

**16. Value addition**

| Cost items | Cost (Tk/40 kg) | Without value addition price (Tk/40 kg) | Value added price (Tk/40 kg) | Value addition % |
|---|---|---|---|---|
| Cleaning/winnowing | | | | |

| | | | | |
|---|---|---|---|---|
| Weighing & bagging | | | | |
| Drying | | | | |
| Storing | | | | |
| Marketing | | | | |
| Other (specify) | | | | |

**17. Problems in Maize marketing**

**Do you face problem in**

| | **Particular** | Yes = 1 No = 0 |
|---|---|---|
| **i.** | Market price is lower during rainy season | |
| **ii.** | Post harvest loss/spoilage is high during rainy season | |
| **iii.** | Lack of transport facilities | |
| **iv.** | Lack of storage facilities | |
| **v.** | Lack of processing industries | |
| **vi.** | High market toll | |
| **vii.** | Lack of traders | |
| **viii.** | Poor regulatory marketing system ( Specific place/poor management) | |
| **ix.** | High labor cost for Sugarcane transport due to hilly area | |
| **x.** | Monopoly price of traders | |
| **xi.** | Poor communication | |

**19. Do you process your m Maize?** Yes = 1 No = 0

If yes, what type of process activities do you do?

**20. Channel and route related information**

| **Sl. No.** | **Channels using by maize growers** | **Route using by maize growers** | **Distance** |
|---|---|---|---|
| | | | |
| | | | |

*Bepari to customer =1, bepari to faria =2,bepari to faria to whs =3,bepari to faria to whs to aratder= 4,bepari to bepari=5,faria to customer=6,faria to whs=7,faria to whs to aratder=8,faria to whs to aratder to customer=9,whs to aratder=10,whs to aratder to customer=11,others =12Production area to main town (Khagrachari/Bandarban/Rangamati)= 1,Collection area to main town = 2,Collection area to main town to dhaka=3,Collection area to main town to Chittagong= 4,Collection area to main town to fenny=5,Collection area to other city =6*

**21. Factors influencing in entrepreneurs growth and value chain performance**

| | **Environmental factors**<br>Do you think that entrepreneurial growth and value chain Development influence by | Yes | No |
|---|---|---|---|
| 1 | Heavy rainfall | | |
| 2 | High temperature | | |
| 3 | Sugarcane disease | | |
| | **Social Factors:** | | |
| 4. | Education | | |

| | | | |
|---|---|---|---|
| 5. | Family size | | |
| 6. | Culture | | |
| 7. | Political system | | |
| | **Economic Factors:** | | |
| 9. | Family member | | |
| 10. | Poverty | | |
| 11. | Market price | | |
| 12. | Lower product price | | |
| 13. | High input price | | |
| 14. | Capital | | |
| 15. | Credit availability | | |
| | **Marketing Factors** | | |
| 16. | Supply of product | | |
| 17. | Demand of product | | |
| 18. | Product variety | | |
| 19. | Location of the market | | |
| 20. | Number of traders | | |

24. Do you want to be an agribusiness entrepreneur?

| Factors | Yes | No |
|---|---|---|
| 1.Willingness | | |
| 2.Risk taking ability | | |
| 3.Foresightness | | |
| 4. Physical strength | | |
| 5.Optimistic | | |
| 6.Finanacial solvency | | |
| 7.Integrety | | |
| 8.Knowledge and Experience | | |
| 9. Leadership quality | | |

**25**. What would be the recommendations for upgrading existing value chain which could help to influence entrepreneurship and reduce poverty in CHT.

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Interviewer

.....Date:.....

## Thank You for Your Kind Cooperation

**Identifying Entrepreneurs and Value Chain Development of Maize and Sugarcane in Chittagong Hill Tracts**

**Interview Questionnaire for Sugarcane Growers-2014**

Sample No: ……..

Date:……..

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**1. Identification of respondent**

Name: Mobile No:

Village/Para: Union:

Upazilla: Zilla:

| Khagrachari | Bandarban | Rangamati |
|---|---|---|

**2. Name of the ethnicities:**

| Bangali | Chakma | Marma | Tripura | Tanchanga | Mro | Bawm | Others |
|---|---|---|---|---|---|---|---|

**3. Socioeconomic Information:**

| Gender | Age | Marital Status | Family Size | No. of Workable men | Literacy Status | Education | Occupation |
|---|---|---|---|---|---|---|---|
| | | | M: | | | | Main: |
| | | | F: | | | | Subsidiary: |

***Code:*** *Gender: Male = 1, Female = 2, Marital Status: Unmarried = 1, Married = 2, Family Member:1-3 member=1, 3-5member=2, 5-8 member=3, above 8=4, Family size: Small ≤ 4 =1,Medium 5-7 = 2,Large ≥ 8 = 3, Family member lives : With traders =1 b. Own district = 2 c. Other district = 3 Land ownership: Landlord (renting out land) = 1,Owner cultivator = 2,Share Cropper = 3 ,Tenant ( renting land) = 4 ,Landless = 5, land holdings:<1 acre = 1, 2– 5 acre =2, 6 -10 acre = 3, 11-115acre = 4, 16-20 acre = 5, 21-30 acre=6, 31-50 acre=7, 51 – 70 acre=8, above 70=9,*

*Literacy Status: Can read & write=1, Can read only=2, Can sign only=3, Cannot read & write=4, Education: Class 1-5=1, class 6-10=2, Class 11-12 =3, Graduate & above=4, Cannot read & write/ illiterate =5, Occupation: Only Agriculture = 1,Agri + Poultry = 6,Agri + business = 2,Agri + Timber cutter = 7,Agri + Service = 3,Agri + Weaving = 8,Agri + Rickshaw/Van = 4,,Agri + Pig Rearing = 9,Day Labour = 5,Agri + Nursery = 10*

**5. Contextual Information:**

| | | |
|---|---|---|
| **e)** Experience in Farming (actual years) = | | 1-3 years=1, 3-5 years=2, 5-8 years=3, 8-10 years=4, 10-13 years=5, 13-15 years=6, Above15=7 |
| **f)** Experience in Sugarcane growing = | | 1-3 years=1, 3-5 years=2, 5-8 years=3, 8-10 years=4, 10-13 years=5, 13-15 years=6, Above15=7 |
| **g)** Source of finance=If source of finance is bank, how much the interest rate? | | Own=1, Bank loan=2, Relatives =3, Friends=4, NGO=5, Others (Specify)=6 |
| | | |
| **h)** Selling point= | | [Place] Local market=1,District market=2, Company Agent=3, Chittagong=4, , Others (Specify)=5 |
| | | [Person] End customer=1, Bepari=2, Faria=3, Whs=4, Aratdar=5, Others(Specify)=6 |
| **e)**Quantity in production= | | 1000 Ps =1, 2000Ps=2, 3000 Ps=3,4000 Ps=4,5000Ps =5, 6000Ps=6,7000Ps=7, 8000Ps=8,9000Ps=9, 10,000Ps=10 |
| **f)**Selling Price | | 2. Field, 2. Market, 3. Company Agent |

| | | |
|---|---|---|
| **g)**Payment system of Sugarcane | | On Cash=1, On Credit=2, Advance payment before harvest=3, Payment after harvest=4, Both=5, Others(specify)=6. |
| **h)** Source of information (Product price and marketing) | | Friends=1, Relatives=2, Company Agent=3, Media (TV, Radio, Newspaper)=4, Business Community=5, NGO=6, Others(Specify)=7 |
| **j)** Do you know any service provider organization in agriculture? | | Yes=1 No=0 |
| **k)** Do you have any training experience on agriculture? | | Yes = 1 No = 0 |
| **l)** Do you get any training for crop production or processing? If yes, from where? | | Yes = 1 No = 0 |
| **m)** Do you get proper help from DAE/HARS/NGO's/Private Company? | | Yes = 1 No = 0 |

**5. Source of input**:

| | | |
|---|---|---|
| Seeds | | Own =1, Local Market=2, Neighbor = 3, Relatives = 4, HARS (Khagrachari) = 5, HTARS ( Ramgor) = 6, Commercial company= 7,NGO = 8, DAE = 9, Others (Specify) = 10. |
| Source of Irrigation | | Disel Pump=1 , Solar Pump=2, Tubewell=3, Leg pump=4, Chara=5, Canal=7, Pond =8, River =9 |
| Fertilizer (Chemical) | | Local Market = 1, Own =2, Relatives =3, Neighbor = 4, Others( Specify) = 5 |
| Insecticide/Pesticide | | Local Market = 1, Own =2, Relatives =3, Neighbor = 4, Others( Specify) = 5 |
| Other Equipment | | Local Market = 1, Own =2, Relatives =3, Neighbor = 4, Rent = Others( Specify) = 5 |

## 6. Information on land:

| Type of land | Area (Kani=40 Decimal) |
|---|---|
| Owned cultivated | |
| Land taken on share cropping | |
| Rented in | |
| Sugarcane Cultivated (Own Land) Current Year | |
| Sugarcane Cultivated (Rented Land) Current Year | |
| Sugarcane Cultivated in Previous year | |

**7. Which variety of Sugarcane generally do you produce in most of your land?**

1…… 2……. 3……

**8. Cost of Sugarcane production (for 40 decimals land)**

| | **Cost Items** | Type of Labor | Price per unit | Cost(TK) |
|---|---|---|---|---|
| Variable Costs | B. Human Labour (Intercultural operation, harvesting and other purpose) | | | |
| | Land preparation | M: | | |
| | | F: | | |
| | Seed Showing | M: | | |
| | | F: | | |
| | Weeding/ Mulching etc | M: | | |
| | | F: | | |
| | Irrigation | M: | | |
| | | F: | | |
| | Fertilizer application | M: | | |
| | | F: | | |
| | Harvesting | M: | | |
| | | F: | | |
| | Threshing | M: | | |
| | | F: | | |
| | Drying | M: | | |
| | | F: | | |
| | Weighing, bagging, marketing | M: | | |
| | | F: | | |
| | Total Human Labour cost | | | |
| | **Land preparation Cost** | | | |
| | Power tiller | | | |
| | Draft power | | | |
| | **Material inputs cost** | | | |
| | Seed | | | |
| | **Fertilizer and Manure Cost** | | | |
| | ▪ Urea | | | |
| | ▪ TSP | | | |
| | ▪ MOP | | | |
| | ▪ Zipsum | | | |
| | ▪ Boron | | | |
| | ▪ Others | | | |
| | Insecticides | | | |
| | Irrigation | | | |
| Fixed Costs | Rental value of land | | | |
| | Interest of loan | | | |
| Total | | | | |

**9. Return from Sugarcane production**

| Total Output | Quantity | Price per unit | Total value of the output |
|---|---|---|---|
| • Sugarcane | | | |
| Total revenue | | | |

**10. Generally what type of Sugarcane do you sell? (Put tick √)**

- Unclean Sugarcane (without value addition)
- Clean Sugarcane (with value addition)

**11. Why do you sell Clean and dry Sugarcane (with value addition)?**

- ✓ To create addition value
- ✓ To get better price (storing creates time utility)
- ✓ Other (specify)……..

**12. Do you store Sugarcane**? Yes / No

If yes then why?

- ✓ To get better price in future (By storing create time utility and add extra value)
- ✓ To ensure income through the year
- ✓ Other (specify)……..

**13. If store, where do you store Sugarcane**? Home / Hired store

**14. Where do you sell your Sugarcane?** Farm gate (home) / Company Agent premises/Market

**15. Marketing cost of Sugarcane**

| Cost items | Cost (Tk/40Kg) | Final Price(Tk/40Kg) | Price Difference |
|---|---|---|---|
| Transportation | | | |
| Loading and unloading | | | |
| Market toll | | | |
| Labor for selling | | | |
| Weighing | | | |
| Other expenses (specify) | | | |
| Total | | | |

**16. Value addition**

| Cost items | Cost (Tk/40 kg) | Without value addition price (Tk/40 kg) | Value added price (Tk/40 kg) | Value addition % |
|---|---|---|---|---|
| Cleaning/winnowing | | | | |

| | | | | |
|---|---|---|---|---|
| Weighing & bagging | | | | |
| Drying | | | | |
| Storing | | | | |
| Marketing | | | | |
| Other (specify) | | | | |

**17. Problems in Sugarcane marketing**

**Do you face problem in**

| | **Particular** | Yes = 1 No = 0 |
|---|---|---|
| **xii.** | Market price is lower during rainy season | |
| **xiii.** | Post harvest loss/spoilage is high during rainy season | |
| **xiv.** | Lack of transport facilities | |
| **xv.** | Lack of storage facilities | |
| **xvi.** | Lack of processing industries | |
| **xvii.** | High market toll | |
| **xviii.** | Lack of traders | |
| **xix.** | Poor regulatory marketing system ( Specific place/poor management) | |
| **xx.** | High labor cost for Sugarcane transport due to hilly area | |
| **xxi.** | Monopoly price of traders | |
| **xxii.** | Poor communication | |

**19. Do you process your m Sugarcane?** Yes = 1 No = 0

If yes, what type of process activities do you do?

**20. Channel and route related information**

| **Sl. No.** | **Channels using by maize growers** | **Route using by maize growers** | **Distance** |
|---|---|---|---|
| | | | |
| | | | |

*Bepari to customer =1, bepari to faria =2,bepari to faria to whs =3,bepari to faria to whs to aratder= 4,bepari to bepari=5,faria to customer=6,faria to whs=7,faria to whs to aratder=8,faria to whs to aratder to customer=9,whs to aratder=10,whs to aratder to customer=11,others =12Production area to main town (Khagrachari/Bandarban/Rangamati)= 1,Collection area to main town = 2,Collection area to main town to dhaka=3,Collection area to main town to Chittagong= 4,Collection area to main town to fenny=5,Collection area to other city =6*

**21. Factors influencing in entrepreneurs growth and value chain performance**

| | **Environmental factors**<br>Do you think that entrepreneurial growth and value chain Development influence by | Yes | No |
|---|---|---|---|
| 1 | Heavy rainfall | | |
| 2 | High temperature | | |
| 3 | Sugarcane disease | | |
| | **Social Factors:** | | |
| 4. | Education | | |

| | | | |
|---|---|---|---|
| 5. | Family size | | |
| 6. | Culture | | |
| 7. | Political system | | |
| | **Economic Factors:** | | |
| 9. | Family member | | |
| 10. | Poverty | | |
| 11. | Market price | | |
| 12. | Lower product price | | |
| 13. | High input price | | |
| 14. | Capital | | |
| 15. | Credit availability | | |
| | **Marketing Factors** | | |
| 16. | Supply of product | | |
| 17. | Demand of product | | |
| 18. | Product variety | | |
| 19. | Location of the market | | |
| 20. | Number of traders | | |

24. Do you want to be an agribusiness entrepreneur?

| Factors | Yes | No |
|---|---|---|
| 1.Willingness | | |
| 2.Risk taking ability | | |
| 3.Foresightness | | |
| 4. Physical strength | | |
| 5.Optimistic | | |
| 6.Finanacial solvency | | |
| 7.Integrety | | |
| 8.Knowledge and Experience | | |
| 9. Leadership quality | | |

**25**. What would be the recommendations for upgrading existing value chain which could help to influence entrepreneurship and reduce poverty in CHT.

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Interviewer

.....Date:.....

## Thank You for Your Kind Cooperation

**Questionnaires for Entrepreneurs Survey in Chittagong Hill Tracts-2015**

Sample No:…….
Date:…….

**1. Identification of respondent**

Name: Mobile No:

Village: Union:

Upazilla: Zilla:

**2. Name of the ethnicities:**

| Bangali | Chakma | Marma | Tripura | Mro | Bom | Others |
|---|---|---|---|---|---|---|
| | | | | | | |

**3. Name of Religion:**

| Islam | Buddha | Hindu | Christian | Others |
|---|---|---|---|---|
| | | | | |

**4. Types of business product:**

| Mango | Jackfruit | Litchi | Sugarcane | Maize | Vegetables | Others |
|---|---|---|---|---|---|---|
| | | | | | | |

**5. Socioeconomic Status:**

| Gender | Age | Marital Status | Family Size | No. of Workable men | Educational Status | Education | Occupation |
|---|---|---|---|---|---|---|---|
| | | | M: | | | | Main: |
| | | | F: | | | | Subsidiary: |

***Code:*** *Gender: Male = 1, Female = 2, Marital Status: Unmarried = 1, Married = 2, Family Member:1-3 member=1, 3-5member=2, 5-8 member=3, above 8=4, Family size: Small ≤ 4 =1,Medium 5-7 = 2,Large ≥ 8 = 3, Family member lives : With traders =1 b. Own district = 2 c. Other district = 3 Land ownership: Landlord (renting out land) = 1,Owner cultivator = 2,Share Cropper = 3 ,Tenant ( renting land) = 4 ,Landless = 5, land holdings:<1 acre = 1, 2– 5 acre =2, 6 -10 acre = 3, 11-115acre = 4, 16-20 acre = 5, 21-30 acre=6, 31-50 acre=7, 51 – 70 acre=8, above 70=9,*
*Literacy Status: Can read & write=1, Can read only=2, Can sign only=3, Cannot read & write=4, Education: Class 1-5=1, class 6-10=2, Class 11-12 =3, Graduate & above=4, Cannot read & write/ illiterate =5, Occupation: Only Agriculture = 1,Agri + Poultry = 6,Agri + business = 2,Agri + Timber cutter = 7,Agri + Service = 3,Agri + Weaving = 8,Agri + Rickshaw/Van = 4,,Agri + Pig Rearing = 9,Day Labour = 5,Agri + Nursery = 10*

**6. Information on Entrepreneur:**

| S.I. No: | Description | Answer (Use code) | Codes |
|---|---|---|---|
| 1. | Enterprise established Year | | |
| 2. | Name of the enterprise | | No Name:1, Others:2,Define: |
| 3. | Total Capital (Last 1 year) | | |
| 4. | Type of Business | | Sole=1, Partnership=2, Propritorship=3, Others=4 |
| 5. | Place of Collection | | Orchard=1, Field=2, Local market=3, District market=4, Friend=5, Neighbors=6, Others=7, |
| 6. | Selling Point | | [Place] Local market=1,District market=2, Company Agent=3, Chittagong=4, , Others (Specify)=5<br>[Person] End customer=1, Bepari=2, Faria=3, Whs=4, Aratdar=5, Others(Specify)=6 |
| 7. | Experience on Selling | | 1-3year=1, 4-7 year=2,8-10 year=3,11-14 year=4, 14-18 year=5,>20 year=6 |
| 8. | Vehicle used | | Van=1,Pick up= 2, Truck=3, Others=4 |
| 9. | Source of Capital | | Own=1, Bank loan=2, Relatives =3, Friends=4, NGO=5, Others (Specify)=6 |
| 10 | Interest Rate | | |
| 11. | Payment system | | On Cash=1, On Credit=2, Advance payment =3, Conditional=4 Others (specify)=5. |
| 12. | Source of information (Product price and marketing) | | Friends=1, Relatives=2, Company Agent=3, Media (TV, Radio, Newspaper)=4, Business Community=5, NGO=6, Others(Specify)=7 |
| 13. | License cost | | |
| 14. | Validity of License(Years) | | |

**7. Cost of buying and selling:**

| Cost Items | Cost (Tk/40 kg) | |
|---|---|---|
| | Buying | Selling |
| a) Transportation | | |
| b) Loading and unloading | | |
| c) Bag/Sack | | |
| d) Market toll | | |
| e) Weighing | | |
| f) Weight loss | | |
| g) Personal expenses (mobile, refreshment etc) | | |
| h) Rent for Shop/Store if any | | |
| i) Un-official cost(Donation) | | |
| j) Interest for borrowed money | | |
| k) Others | | |

**8. Value addition Activities:**

| Cost items | Cost (Tk/40 kg) | Without value addition price (Tk/40 kg) | Value added price (Tk/40 kg) | Value addition % |
|---|---|---|---|---|
| Cleaning | | | | |
| Drying | | | | |
| Storing | | | | |
| Marketing(buying and selling) | | | | |
| Other (specify) | | | | |

**9. Information on buying and selling of last 6 months (Peak season:…….variety)**

| Month | Quantity (40 kg)/Number | Buying | Selling | Profit |
|---|---|---|---|---|
| | | Price (Tk/40 kg) | Price (Tk/40 kg) | |
| November | | | | |
| December | | | | |
| January | | | | |
| February | | | | |
| March | | | | |
| April | | | | |

**10. Factors influencing in entrepreneurs risk and growth:**

| | **Environmental factors**<br>Do you think that entrepreneurial risk and growth influence by | Yes | No |
|---|---|---|---|
| 1 | Heavy rainfall | | |
| 2 | High temperature | | |
| | **Social Factors:** | | |
| 4. | Education | | |
| 5. | Family size | | |
| 6. | Culture | | |
| 7. | Political system | | |
| | **Economic Factors:** | | |
| 9. | Family member | | |
| 10. | Poverty | | |
| 11. | Market price | | |
| 12. | Lower product price | | |
| 13. | High input price | | |
| 14. | Capital | | |
| 15. | Credit availability | | |
| | **Marketing Factors** | | |
| 16. | Supply of product | | |
| 17. | Demand of product | | |
| 18. | Product variety | | |
| 19. | Location of the market | | |
| 20. | Number of traders | | |

**11. What characteristics do you possess as an entrepreneur?**

| Factors | Yes | No |
|---|---|---|
| 1.Willingness | | |
| 2.Risk taking ability | | |
| 3.Foresightness | | |
| 4. Physical strength | | |
| 5.Optimistic | | |
| 6.Finanacial solvency | | |
| 7.Integrety | | |
| 8.Knowledge and Experience | | |
| 9. Leadership quality | | |

**12. Recommendations for improving the existing entrepreneurship in Hill area:**

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Signature:……  Dated:……

**Thank You for Your Kind Cooperation**