Aksum University

College of Agriculture

Department of Agricultural Economics

Value Chain Analysis of Movable Frame Hive Honey: the Case of Ahferom Woreda, Tigray, Ethiopia

By: Atsbaha Mehari

A thesis

Submitted in Partial Fulfillment of the Requirements for the Master of Science degree in Agribusiness and Value Chain Management

Principal advisor: Abebe Ejigu (PhD)

Co-advisor: Berhanu Gebremedhin (PhD)

June, 2015

Shire, Ethiopia

DECLARATION

This is to certify that this thesis entitled "Value Chain Analysis of Movable Frame Hive Honey" submitted in partial fulfillment of the requirements for the award of the degree of MSc., in **Agribusiness and Value Chain Management** to the College of Agriculture, Aksum University, through the Department of Agricultural Economics, done by Mr. Atsbaha Mehari, Id.No. AKU/SC/PG/02/13 is an authentic work carried out by him under my guidance. The matter embodied in this project work has not been submitted earlier for award of any degree or diploma to the best of my knowledge and belief.

Atsbaha Mehari	_____	29/5/2015
Name of the student	Signature	Date
Abebe Ejigu (PHD)	_____	29/5/2015
Name of the major supervisor	Signature	Date
Berhanu Gebremedhin (PHD)	_____	_____
Name of Co-advisor	Signature	Date

As member of the Board of Examiners of the MSc Thesis Open Defense Examination, we certify that we have read and evaluate the thesis prepared by Atsbaha Mehari and examined the candidate. We recommended that the thesis to be accepted as fulfilling the thesis requirement for the degree of Master Science in Agri-business and value chain management.

_____	_____	_____
Name of External Examiner	Signature	Date
_____	_____	_____
Name of Internal Examiner	Signature	Date
_____	_____	_____
Chairperson	Signature	Date

BIOGRAPHY

The author was born on December 29, 1983 in Wukro town of Eastern Zone, Tigray region. He attended his elementary and junior education at Wukro town. After successfuly passing ESLCE, he joined Haromaya University in 2003 and graduated in B.Sc. in Animal Science in July, 2006. After graduation he was immediately employed in Tselemti Woreda Office of Agriculture and rural development where he worked for about three years and then after, he joined Shire Agricultural Technical Vocational Educational Training (TVET) College in November 20, 2010. Finally he joined Aksum University for his MSc. Study in Agri-Business and value chain management.

DEDICATION

I dedicate this thesis to my families for their continuous contribution throughout my life.

ACKNOWLEDGMENT

First of all I would like to express my heartfelt gratitude to the Almighty God and His Mother St. Virgin Mary for giving me health, patience and strength to complete this work.

My deepest gratitude goes to my principal advisor Dr. Abebe Ejigu for his valuable comments, guidance and encouragement from title selection, proposal write up and questionnaire development up to submission of the final thesis write up. I am also indebted to thank my co-advisor Dr. Berhanu Gebremedhin for his effort on finding graduate fellow. I would like also to acknowledge ILRI-LIVES for funding the cost of this study.

I want also to thank Woreda Ahferom bureau of agriculture and rural development staffs for their help during data collection, especially developmental agents and beekeeping technicians of Sero, Laelay Megaria Tsemri and May suru.

My special thanks also go to Gidey Beyene, Zekiros Fikadu, Hailemariam Gebrehaweria, Girma Gezmu, Selamawit Girmay and Mewael Kiros for their support during the study.

Finally I extend my gratitude to my family/ my mother Hiryt H/silasie and my brothers Hadush Mehari, Kahsay Mehari, G/medhin Mehari; and my sister Hiwot Tesfay, Tarik for their ever living love and support.

LIST OF ABBREVIATIONS AND ACRONYMS

AD	After Death
AAFC	Agriculture and Agri-Food Canada
ARSD	Apiculture Research Strategy Document
BoARD	Bureau of Agricultural Rural Development
GDP	Gross Domestic Product
GTZ	German Technical Cooperation
IPMS	Improving Productivity and Market Success
KG	Kilo gram
MFH	Movable Frame Hive
M.a.s.l	Meter above Sea label
MM	Mile Meter
MoRAD	Ministry Of Agriculture and Rural Development
MSPA	Mauritius Sugar Producers' Association
MTs	Metric tons
ND	No Date
OoARD	Office of Agriculture and Rural Development
Qts	Quintals
REST	Relief Society of Tigray
SCP	Structure, Conduct and Performance (Analysis Approach)
SNV	Netherlands Development Organization
SPSS	Statistical Package for Social Sciences
TMPA	Tigray Market Promotion Agency
UNCTAD	United Nations Conference on Trade and Development
UNIDO	United Nations United Industrial Development Organization
US$	United States Dollar
VIF	Variance Inflation Factor

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDIX TABLES

ABSTRACT

This study aims at analyzing value chain of movable frame hive honey in Ahferom Woreda of Tigray region with specific objective of identifying the honey value chain actors, functions, activities, and degree of coordination; assessing profit distribution of participants in the honey value chain; identifying factors affecting market channel choice decision of honey producers and identifying constraints and opportunities of honey value chain in the study area and to propose mechanisms to upgrade the value chain. The data were collected from both primary and secondary sources. The primary data for this study were collected from120 beekeepers, 6 traders, 45 consumers using pre-tested questioner. This was supplemented by secondary data from different published and unpublished sources. The result of the descriptive statistics showed that, the majority of the honey producers in the study area were male households. Value chain analysis revealed that the major actors in the Woreda are input suppliers, beekeepers, local collectors, retailers and consumers. The activities performed by the actors in the survey period were input supply, production, marketing and consumption. It is also found that honey passes through intermediaries with little value being added before reaching the final users. The result of market structure-conduct-performance indicates the presence of strong oligopoly market structure. The multinomial logit model result indicates that, the probability to choosing collector channel was positively and significantly affected by producers' previous agreement with buyers and negatively and significantly affected by average monthly income and market information compared to consumers' outlet. Similarly, the probability of choosing retailers channel was positively and significantly affected by age, beekeeping experience, distance to nearest market and market information compared to consumers' outlet. The result of ranking index indicated that, honey production was constrained by prevalence of pests and predators, agro chemical application and lack of beekeeping tools and equipments. Despite this there are also opportunities such as availability of area closures, easy access to modern beekeeping materials, availabilities of bee's forages, motivating government policy, and high demand for quality and quantity of honey. Therefore, policy aiming at gender consideration, capacity development, establishing honey collection centers, developing and improving infrastructure, market information and adequate supply of beekeeping tools and equipments are recommended to accelerate honey value chain development.

Key Words: Movable frame hive, Honey value chain, Market channel, Ahferom Woreda

CHAPTER I – INTRODUCTION

1.1. Background

Livestock is an important economic sector in Ethiopia which contributes to economic development. Ethiopia is generally considered to have the largest population of livestock than any country in Africa (Hartman, 2004).

Ethiopia has a longstanding beekeeping practices that has been an integral part of other agricultural activities, where more than one million households keep honeybees. The beekeeping subsector is also creating job opportunities in both rural and urban areas through organizing jobless urban and landless rural youth and women to involve in them in bee equipment production and beekeeping activities (Gemechis, 2015).

About 5.0 million hives are estimated to be found in the rural sedentary areas of the country and from this total hives, 95.57%, 1.63%, and 2.8%are reported to be kept in traditional, transitional and modern hive respectively. The total estimated honey production is also 39.89 million kilograms of which the greater portion is harvested from traditional hives. In Tigray there are more than 219,036 hived colonies out of which 77,525 are found in central zone of Tigray (CSA, 2012).

Tessega (2009) stated: because of lack of technological changes, institutional supports and access to market and value chain development, the district in general and the rural beekeeping households in particular have not been sufficiently benefited from the sub sector. This was reflected by the various indigenous knowledge practices, production of quality honey, and diverse distribution of honeybee floras (in most part of the district), bee product processing and handling, and presence of different type of honeybees in the area. The major constraints to exploit the untapped potential of beekeeping activity in the district are lack of beekeeping equipment, agrochemical bee poisoning, shortage of bee forage, incidence of pest and diseases.

Beekeeping as a business is a recent development in the country and presently, honey is a cash crop for almost all beekeeping households. Households consume less than 10% of their total harvest at home (mainly for medicinal, ritual or cultural ceremonies), and the remaining is

available for sale. The large portion of the marketed honey goes to the production of local beverage called (*tej*) and small portion is used as a table honey (Beyene and David, 2007).

In general, the potential segregation of small-scale producers to the growing market is the main concern for the people concerned with development of poor farmers in developing countries (Reardon and Berdegue, 2005). This shows that there is a need to meet diverse consumer demand which requires commercial interactions/coordination along the value chain and this coordination will become core to competitiveness in the global market (Mesfin, 2012).

Value chain is useful as a poverty-reduction tool if it leads to increase on and off farm rural employment and income. Increased agricultural productivity alone is not a sufficient route out of poverty within the context of globalization and increasing natural resource degradation. A focus on post-harvest activities, differentiated value added products and increasing links with access to markets for goods produced by low-income producers would appear to be the strategy open to smallholders (Lundy *et al*., 2002).

Ayalew (2008), Ministry of Agriculture of Ethiopia suggested the presence of 10 million bee colonies while the recent unofficial information from the same office is indicating to be about 12 million. Production and supply of honey by regions shows that Oromia accounts for over 55% of the bee colonies and 53% of the Honey production, followed by Amhara which accounts for about 20% of the colonies and 21% of the honey production. The Southern Nations, Nationalities Peoples Regional State, on the other hand, accounts for about 15% of the bee colonies and 17% of the honey production. Tigray and Benshangul accounts for 4.5% and 3.6% of the total bee colonies: and 5.5% and 3% of the total honey production respectively.

In Tigray, honey has been harvested in almost all Zones of the region but the most potential source of honey is eastern, central, and southern zones. Almost all the Woredas of Tigray produce honey of various colors from white to red/amber. This potential offers wider market range to producers of honey in Tigray (BoARD, 2001).

Ahferom OoARD report (2014) indicated that, apiculture is an important agricultural activity in this Woreda and it is practiced as an integral part of farming activities. In this Woreda alone, approximately more than 8546 farmers are engaged in modern and traditional honey production. At present there are 31090 traditional hives of which only 9000 colonies are used for honey

production and the rest is for colony production and there are also 8399 modern hives (movable frame hive) of which only 7217hives are with colony. The annual crude honey yield from total number of traditional and modern beehive at 2013/14 was 1202.74 and 1271.8 Quintals, respectively.

Basing on the theory of value chain analysis, this study mainly focuses on identifying the actors, processes, activities, and degree of coordination, assessing profit margin of participants of the chain, identifying factors that affects market outlet choice decision and identifying constraints and opportunities of honey value chain in Ahferom Woreda.

1.2. Statement of the problem

Even if apiculture presents an opportunity for small producers, for many African beekeepers the potential to create a significant livelihood from selling honey remains out of reach. Some of the issues facing small honey producers are similar to those facing other small commodity producers, while some aspects are specific to the honey trade. Beekeeping is often promoted as being a pro-poor income generating activity because it is accessible to marginalized members of communities, has low start up costs and requires little land or labor. However, without access to a market, these benefits cannot be utilized (UNCTAD, 2006).

Tessega, (2009) reported that: because of lack of technological changes, institutional support and access to market and value chain development, the district in general and the rural beekeeping households in particular have not been sufficiently benefited from the sub sector.

Gidey and Mekonen (2010) added that: major constraints affecting honey production which includes inadequate availability of production technologies, limited beekeeping Knowledge, limited availability of vegetation, limited training and technical assistance in beekeeping and honey marketing lack of proper bee management and marketing facilities are also problems facing the honey sub sector in the region.

Mengistu (2010) indicates that: establishing bee product marketing system would be a very valuable tool for producers, collectors and processors to plan and take gain of the products´ seasonal flow. An improvement in marketing efficiency, thus, attracts the attention of many governmental and NGOs and viewed as an important national development strategy.

In most cases producers have no access to any up-to-date market price information that would enable them to bargain with traders and consumers. For many years, government and private sector development initiatives and programs in Ethiopia have emphasized actions to increase small scale farmers' access to training, finance services, business development services, and other important elements. The recent focuses have also included helping small and medium enterprises link with global markets and improving markets and business environments (Mengistu, 2010).

Mesfin (2012) indicates that: there are also major market problems identified which includes, adulteration of honey, poor linkage of producers with other chain actors, high costs of modern beekeeping equipments, lack of access to rewarding markets, colony absconding due to poor hive management.

According to LIVES report of (2013), in Central Zone Ahferom Woreda is one of the selected action district of LIVES project and has great beekeeping potential. In the LIVES districts of central Tigray there are about 55,913 bee colonies Out of which 33,882(60%) of the colony population is found in Ahferom Woreda.

Even though the Woreda is believed to have diversified type of vegetation and cultivated crops as potential for beekeeping activities, so far there is no research study conducted on honey value chain in the study area. Furthermore in this area beekeepers are still suffering with input, production and market related problems. So honey value chain analysis is unique research tool to identify the happening bottleneck problems of each honey value chain actors so as to propose possible upgrading interventions. Hence, the purpose of this study is to identify the actors', functions, activities and degree of coordination, assessing the profit margin of participants in the chain, identifying factors affecting channel choice decision of the producers, identifying constraints and opportunities of honey value chain and propose mechanisms on how to upgrade the value chain in Ahferom Woreda.

1.3. Objective of the study

1.3.1. General Objective

The general objective of this study is to analyze the value chain of movable frame hive honey in Ahferom Woreda.

1.3.2. The Specific Objectives of the Study

a) To identify the honey value chain actors, functions, activities, and degree of coordination in the study area
b) To assess the profit distribution of participants in the honey value chain
c) To identify factors affecting market channel choice decision of the honey producers
d) To identify constraints and opportunities of the honey value chain in the study area and to propose mechanisms to upgrade the value chain.

1.4. Research questions

This study will answer the following questions.

- ✓ Who are the honey value chain actors, functions and their activities in the study area?
- ✓ What the coordination of actors in value chain looks like?
- ✓ Who is benefiting more among the chain actors in the study area?
- ✓ What are the factors affecting producers market channel choice decision?
- ✓ What are the main constraints and opportunities of honey value chain in the study area?
- ✓ What mechanisms are needed to be applied to upgrade the existing value chain?

1.5. Scope of the study

The scope of the study was described geographically, conceptually and methodologically as follows. Geographically, this study was conducted in Ahferom Woreda, Central Zone of Tigray Regional state. Conceptually, the scope of the study was bounded only on analyzing the value chain of movable frame hive honey in Ahferom Woreda. Methodologically, the study involves on analyzing the value chain which starts from input suppliers, beekeepers, locale retailers and consumers of that particular Woreda. However, the district may not represent the whole honey value producers in Tigray and Ethiopia in general. Nevertheless, it is believed that the honey

value chain analysis which has been conducted in the district may give a picture on the honey value chain actors, functions, governance, constraints, profit distribution, channel choice decision and possible intervention areas on how to upgrade the honey value chain so as to improve the rural livelihood.

1.6. Limitations of the Study

Although large sample size is required to deal with the subject matter exhaustively, due to limitation of resources and time, the sample size was restricted to120 beekeepers of the Woreda. And hence, the generalizations of the finding are limited to the study area and locations with similar socio economic characteristics.

1.7. Significance of the Study

The focal point of the public policy is job creation, production and productivity improvement, creating market access for the produced products so as to alleviate poverty. This study was conducted on the value chain analysis of movable frame hive honey (MFH) honey and the results of the study would be significant for the local value chain supporters, governmental organizations and NGOs who aim to improve the performance of beekeepers, to see where the higher value and profit exists and to take corrective actions and improve the identified constraints so as to exploit the opportunities from the huge honey potential the district possesses. Finally, the result of this study may also be used as a base for further research by other researchers in the beekeeping development program.

1.8. Organization of the thesis

With the above brief introduction, the remaining part of the thesis is organized as follows.

Chapter 2 presents review of literature on value chain analysis from different sources. Subsequently, description of the study area and methodologies are presented in Chapter 3.

In Chapter 4, both descriptive and econometric results are presented and discussed in detail. Chapter 5 summarizes the main findings of the study and draws conclusion and appropriate recommendations.

CHAPTER II- REVIEW OF LITERATURE

2.1. Definitions of Terms and Concepts

2.1.1. Value Chain

Porter (1998), has defined value as the amount buyers are agreeable to pay for what a firm provides, and he conceived the value chain as the amalgamation of generic value adding activities operating within a firm activities that work together to provide value to customers.

The value chain describes the full range of activities that are required to bring a product or service from conception, through the different phases of production (which involves a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use (kolinsky and Morris, 2000).

The value chain is a concept which can be simply described as the entire range of activities required to bring a product from the initial input-supply stage, through various phases of production, to its final market destination. The production stages entail a combination of physical transformation and the participation of various producers and services, and the chain includes the product's disposal after use (UNIDO, 2009).

2.1.2. Agricultural Value Chain

A typical agricultural value chain consists of all the firms and individuals and their activities involved in input supply, production, assembly, processing, wholesaling, retailing, and utilization (consumption), with export included as another stage for commodities that are destined for export (Berhanu *et al.*, 2012).

The value chain concept entails the addition of value as the product progresses from input suppliers to producers and consumers. A value chain, therefore, incorporates productive transformation and value addition at each stage of the value chain. At each stage in the value chain, the product changes hands through chain actors, transaction costs are incurred, and generally, some form of value is added. Value addition results from diverse activities including bulking, cleaning, grading and packaging, transporting, storing and processing (Anandajayasekeram and Berhanu, 2009).

Value chains encompass a set of interdependent organizations, and associated institutions, resources, actors and activities involved in input supply, production, processing, and distribution of a commodity. In other words, a value chain can be viewed as a set of actors and activities, and organizations and the rules governing those activities (Anandajayasekeram and Berhanu, 2009).

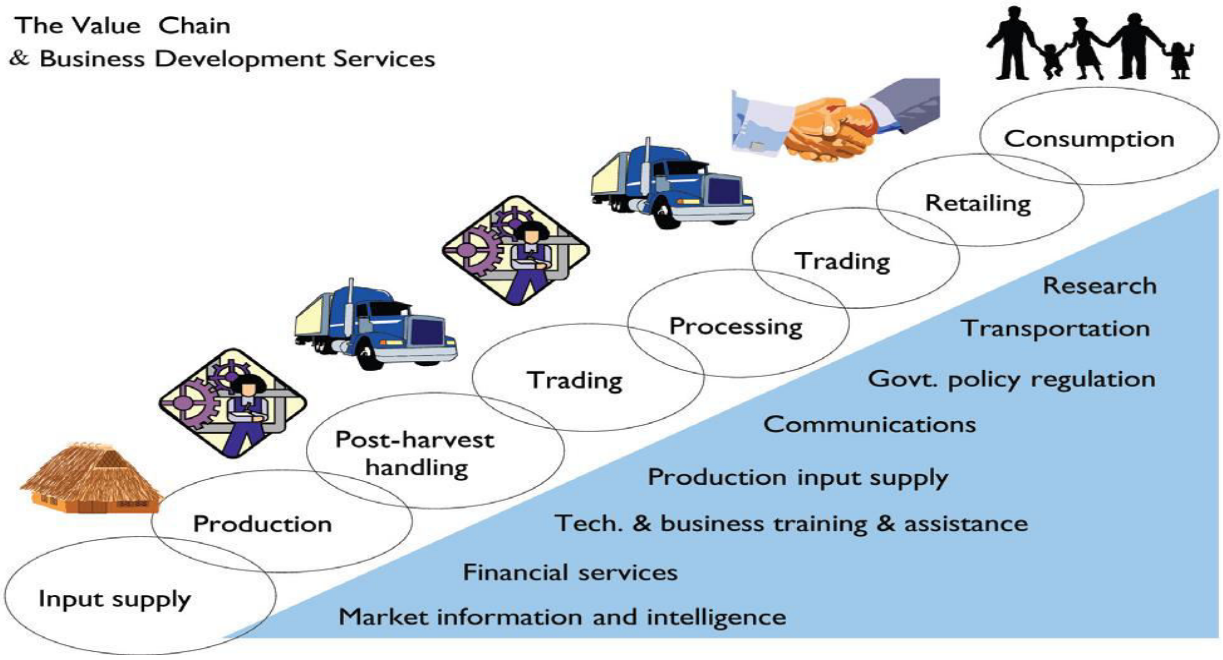


Figure 2. 1: Typical agricultural value chain associated business development services.
Source: Adapted from Ferris et al. (2006).

Porter (1998) indicates that: value can be created by differentiation along every step of the value chain, through activities resulting in products and services that lower buyers' costs or raise buyers' performance.

Value chain analysis is the process of breaking a chain into its constituent parts in order to better understand its structure and functioning. The analysis consists of identifying chain actors at each stage and discerning their functions and relationships; determining the chain governance, or leadership, to facilitate chain formation and strengthening; and identifying value adding activities in the chain and assigning costs and added value to each of those activities. The flows of goods, information and finance through the various stages of the chain are evaluated in order to detect problems or identify opportunities to improve the contribution of specific actors and the overall performance of the chain (UNIDO, 2009).

According to Mitchell et al., (2009), value chain performers can be classified in two basic classifications. Those are: primary and secondary performer. According to him, primary performers perform a selection of (primary) functions typically input supply, production, processing, storage, wholesale (including export), retail and consumption. They have further mentioned that actors who perform similar functions are regarded as occupying the same functional nodule, for example the input supply joint, production joint, retail joint and so on.
Based on their categorization the secondary actors perform (secondary) service roles that support primary functions, such as transportation, brokerage and service processing, etc. This shows that Value chain analysis is also valuable analytical tool that helps to firms to understand the policy environment.

2.1.3. Major concepts guiding agricultural value chain analysis

There are four major key concepts guiding agricultural value chain analysis Anandajayasekeram and Berhanu, (2009), Kaplinsky and Morris, (2000). These are effective demand, production, value chain governance, and upgrading.

2.1.3.1. Effective demand

Agricultural value chain analysis views effective demand as the force that pulls goods and services through the vertical system. Hence, value chain analysis need to understand the dynamics of how demand is changing at both domestic and international markets, and the implications for value chain organization and performance. Value chain analysis also needs to examine barriers to the transmission of information in the changing nature of demand and incentives back to producers at various levels of the value chain (MSPA, 2010).

2.1.3.2. Production

In agricultural value chain analysis, a stage of production can be referred to as any operating stage capable of producing a saleable product serving as an input to the next stage in the chain or for final consumption or use. Typical value chain linkages include input supply, production, assembly, transport, storage, processing, wholesaling, retailing, and utilization, with exportation included as a major stage for products destined for international markets. A stage of production in a value chain performs a function that makes significant contribution to the effective operation of the value chain and in the process adds value (Anandajayasekeram and Berhanu, 2009).

2.1.3.3. Value chain governance

Value chain governance is one of the main chain features that distinguish a value chain from other ordinary market place. According to his explanation value Governance refers to the inter-firm relationships and institutional mechanisms through which non-market co-ordination of activities in the chain is achieved (Humphrey and Schmitz, 2002).

2.1.3.4. Value chain upgrading

Upgrading refers to the acquisition of technological capabilities and market linkages that enable firms to improve their competitiveness and move into higher-value activities (Kaplinsky and Morris, 2000). Upgrading in firms can take place in the form of process upgrading, product upgrading, functional upgrading and chain upgrading. Upgrading entails not only improvements in products, but also investments in people, knowhow, processes, equipment and favorable work conditions.

2.2. Mapping the Value Chain

Mapping a value chain facilitates a clear understanding of the sequence of activities and the key actors and relationships involved in the value chain. This exercise is carried out in qualitative and quantitative terms through graphs presenting the various actors of the chain, their linkages and all operations of the chain from pre-production (supply of inputs) to industrial processing and marketing (UNIDO, 2009).

2.2.1. Value Chain Actors

According to GTZ, (2007), the term "value chain actors" summarizes all individuals, enterprises and public agencies related to a value chain, in particular the value chain operators, providers of operational services and the providers of support services. In a wider sense, certain government agencies at the macro level can also be seen as value chain actors if they perform crucial functions in the business environment of the value chain in question.

2.2.2. Value Addition

Value addition refers to adding value to a raw product, such as raw agricultural commodity by taking it to the next stage of production. Agricultural products offer considerable scope for value

addition. For example, scope exists to produce dairy products from fluid milk, flour from wheat or rice grain, or juices and jams from fruits. Value can also be added simply by cleaning and grading produce. Farmers can add value through membership in a cooperative that process farmers products, such as a cooperative coffee processing plant. Value-addition makes a greater proportion of revenue to be available to the producer. It also helps to expand the customer base for the product or commodity (Berhanu *et al*, 2012).

Value-addition can involve different activities: (1) change in the physical state or form of the product (such as milling wheat into flour or making strawberries into jam), (2) production of a product in a manner that enhances its value, as demonstrated through a business plan (such as organically produced products), (3) physical segregation of an agricultural commodity or product in a manner that results in the enhancement of the value of that commodity or product (such as an identity preserved marketing system which creates a special link/between the grower and consumer by meeting the specific requirements of food processors) (Berhanu *et al*, 2012).

2.3. Market and marketing

The concept of exchange and relationships lead to the concept of market. It is the set of the actual and potential buyers of a product (Kotler and Armstong, 2003). Conceptually, a market can be visualized as a process in which ownership of goods is transferred from sellers to buyers who may be final consumers or intermediaries.

2.3.1. Marketing channel

According to Kohls and Uhl, (1985) Marketing channels are the sequence of intermediaries through which goods pass from the producers to consumers. They are alternative routes of product flows from producers to consumers.

2.3.2. Evaluating Marketing System

A marketing system is a collection of channels, intermediaries, and business activities, which facilitate the physical distribution and economic exchange of goods (Kohls and Uhl, 1985). The development of reliable and stable market system has been an important element in commercialization and specialization in the agricultural sector. According to Meijer, (1994) In order to evaluate the functioning and performance of the market, Structure-Conduct-Performance

(SCP) was applied to assess the agricultural system and this framework was to evaluate the performance of industries in the USA.

2.3.3. Market Structure, conduct and performance (S-C-P) analysis

S-C-P approach focuses on the behavior of groups rather than individual firms, and looks into the influence of the horizontal relationships among these firms on market performance. Thus, it is suggested that the S-C-P model is preferable to that model which analyze the productive efficiency of individual marketing enterprises (Magrath, 1992).

2.3.3.1. Market structure

Market structure shows trends in the number and size of firms relative to each other and to the number of consumers and producers in particular time and place (Malhotra, 1996).

Considerable attention has been focused on market concentration as a measure of competition in marketing. Concentration refers to the proportion of industry sales made by its largest firms. In general, the more concentrated the industry sales, the more likelihood that the market will be imperfectly competitive (Khols and Uhl, 1985).

According to Kohls & Uhl, (1985) four traders with the largest volume of honey handled were used for the calculation of market concentration ratio (CR) of honey traders for judging the market structure. A concentration ratio of over 50% is generally considered a tight oligopoly; concentration ratio between 25% and 50% is generally considered as lose oligopoly and concentration ratio less than 25% is no oligopoly.

2.3.3.2. Market conduct

Marketing conduct refers to the patterns of behavior that enterprises follow in adopting or adjusting to the markets in which they sell or buy their product and service. This definition shows that there is a need for analyzing human behavioral patterns that are not enthusiastically identifiable, obtainable, or quantifiable (Malhotra, 1996). It shows the Presence or absence, the levels and nature of entry barriers distribution of market information and its capability in sharpness of prices and quantity compositions and individual risk as well (Kohls and Uhl, 1985).

2.3.3.3. Market performance

According to Cramers and Jensen (1982), Performance of the market is reflection of the impact of structure and conduct on product price, costs and the volume and quality of output. If the market structure in an industry resembles monopoly rather than pure competition, then one expect poor market performance.

Wolday (1994), market performance refers to the combination of results that firms in the market arrive by pursuing whatever line of conduct they promote up to end results in the dimensions of price, output, production and selling cost, product design.

2.3.3.3.1. Marketing margin

Marketing margin is the difference between the value of a product or a group of products at one stage in the marketing process and the value of an equivalent product or group of products at another stage. Measuring this margin indicates how much has been paid for the processing and marketing services applied to the product(s) at that particular stage in the marketing process (Smith, 1992).

The size of market margins is largely dependent upon a combination of the quality and quantity of marketing services provided the cost of providing such services, and the efficiency with which they are undertaken and priced. For instance, a big margin may result in little or no profit or even a loss for the seller involved depending upon the marketing costs as well as on the selling and buying prices (Mendoza, 1995).

Under competitive market conditions, the size of market margins would be the outcome of the supply and demand for marketing services, and they would be equal to the minimum costs of service provision plus "normal" profit. Therefore, analyzing market margins is an important means of assessing the efficiency of price formation in and transmission through the system. There are three methods generally used in estimating marketing margin: (1) detailed analyses of the accounts of trading firms at each stage of the marketing channel (time lag method); (2) computations of share of the consumer's price obtained by producers and traders at each stage of the marketing chain; and (3) concurrent method: comparison of prices at different levels of marketing over the same period of time (Mendoza, 1995).

2.4. Benefits of value chain analysis

Kaplinsky and Morris, (2001) outlined three main reasons why value chain analysis is important in this era of rapid globalization. The first is that with the growing division of labor and the global dispersion of the production of components, systemic competitiveness has become increasingly important. The second is that efficiency in production is only a necessary condition for a successful penetration of global markets. Thirdly, entry into global market and making the best use of globalization requires an understanding of dynamic factors that are inherent in the whole value chain.

It is an innovation that enhances or improves an existing product, or introduces new products or new product uses. This allows the farmer to create new markets, or differentiate a product from others and thus gain an advantage over competitors. In so doing, the farmer can ask a higher premium (price) or gain increased market share or access. Adding value does not necessarily involve altering a product; it can be the adoption of new production or handling methods that increase a farmer's capacity and reliability in meeting market demand. Value-added can be almost anything that enhances the dimensions of a business. The key is that the value-adding activity must increase or stabilize profit margins, and the output must appeal to the consumer (AAFC, 2004).

Value chain is useful as a poverty-reduction tool if it leads to increase on and off farm rural employment and income. Increased agricultural productivity alone is not a sufficient route out of poverty within a context of globalization and increasing natural resource degradation. A focus on post-harvest activities, differentiated value added products and increasing links with access to markets for goods produced by low-income producers would appear to be the strategy open to smallholders (Lundy *et al*., 2002).

Traditionally, little attention has been paid to the value chains by which agricultural products reach final consumers and to the intrinsic potential of such chains to generate value added and employment opportunities. While high-income countries add nearly US$185 of value by processing one tone 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. These indicate that

well developed agro-value chains can utilize the full potential of the agricultural sector (UNIDO, 2009).

2.5. Benefits of beekeeping in Ethiopia

In Ethiopia, it is estimated that more than one million farmer households participate in beekeeping. Honey is produced mainly as a cash crop, which is serving as a source of additional cash income for hundreds of thousands of households. In general, the potential area for honey and beeswax production in Ethiopia includes South-western, Western and North-western parts of the country (ARSD, 2002).

These are classified into high, medium and low potential areas. Many of the districts in Tigray, Wollo and Hararege and in some other parts of the country which are covered with marginal forests do have relatively low potential in honey production when compared with the other parties of the nation (Beyene and David, 2007).

As beekeeping has low start-up cost and requires little land or labor, it is accessible to many rural community and is promoted as a pro-poor income generation activity (MoARD, 2007).
Numerous droughts coupled with environmental degradation have threatened the livelihood of this rural community for several decades (MoARD, 2007). However, regardless of other agricultural activities, bees survive in drought-threatened areas and supplement the vulnerable communities with nutritious food, honey, and a source of income.

Mekonen, et al., (2011) found out that: beekeeping could be a great source of employment creation for the rural people to reduce poverty and beekeeping plays an important role in income generation for beekeepers of the district.

Women in Ethiopia play multiple and overlapping roles, which have increasingly put pressure on their health, food security, productivity and potential contribution to improved human welfare and economic development (Ametemariam, 2009).

According to Brad bear (2003), honey has value as a food, as a medicine, as a cash crop for both domestic and export markets and as an important part of some cultural traditions.

2.6. Constraints of beekeeping in Ethiopia

The major cause of the problem that affects apiculture in Ethiopia are lack of beekeeping knowledge, shortage of trained manpower, shortage of beekeeping equipment, pests and predators, fires, pesticide threat and inadequate research works to support development programs. The cultural beehives are not comfortable for sanitation and high level of production. Farmers are only using the sales of the honey and do not consider wax as means of income in their business. They do not use proper harvesting of honey and do not have honey and wax separator. The moisture content of the product is beyond the standard range and critical for the business. Farmers fail to supply honey with standard moisture content and needs improvement (Johannes, 2005).

2.7. Review of Empirical Studies

Mekonen, *et al*., (2011) found out that beekeeping could be a great source of employment creation for the rural people to reduce poverty and beekeeping plays an important role in income generation for beekeepers of the district.

In their study of Ensuring Small Scale Producers in Ethiopia to Achieve Sustainable and Fair Access to Honey Markets, Beyene and David, (2007), identified that: beekeepers (small scale farmers), local honey collectors, cooperatives, *tej* houses, wholesalers, honey processors, beeswax processors, retailers, input suppliers and exporters are the major actors in the apiculture sub-sector. The methodology used in their research was based on sub-sector and value chain analytical framework. The overall objective of their research was to significantly increase the understanding of the constraints and opportunities faced by the honey sub-sector in order to identify at what stages of the honey value chains and what kind of policy, technological, institutional, infrastructural, organizational and management interventions are needed in order to make the sector more competitive in the domestic and export markets, and thereby improve the livelihood of, particularly, the rural poor. And they concluded that development of marketing structure, expansion of knowledge based extension services for an improved supply to the domestic and export market and standardization of products are the major areas of intervention required to ensure the small scale farmer (beekeepers) to benefit from apiculture.

Jari and Fraser (2009) identified that, market information, expertise on grades and standards, contractual agreements, social capital, market infrastructure, group participation and tradition significantly influence household marketing behavior. The study uses multinomial regression model to investigate the factors that influence marketing choices among smallholder and emerging farmers.

Bongiwe and Makusha (2012), Used descriptive and multinomial logistic regression analyses to investigate factors affecting farmers' choice of marketing channels using survey data gathered during the 2011 production season.. The results indicated that age of the farmer, quantity of baby corn produced and level of education were significant predictors of the choice to sell vegetables to NAM Board market channel instead of selling to other-wholesale market channel. The age of the farmer, distance from production area to market, membership in farmer organization and marketing agreement were significant determinants of the choice to use non-wholesale market channel over other-wholesale market channel.

GTZ (2008); used value chain analysis to identify the constraints hindering the growth of the honey subsector and the opportunities in Nepal. The key issue during the analysis stage was to find the most pressing bottlenecks for sub sector growth first and address them in a systemic manner. Referring the key findings of the study, large number of people is already involved in beekeeping, honey collection, processing and marketing of honey and other bee products. However, honey entrepreneurs in Nepal cannot harness that niche market due to Nepal's inability to meet legal requirements for export. There is limited support for addressing market and quality related issues and value-adding activities. Assurance of quality is the first prerequisite for enhancing export opportunities and improving access to international markets.

Tessega, (2009) shows that: because of lack of technological changes, institutional supports and access to market and value chain development, the district in general and the rural beekeeping households in particular have not been sufficiently benefited from the sub sector. This was reflected by the various indigenous knowledge practices, production of quality honey, and diverse distribution of honeybee floras (in most part of the district), bee product processing and handling, and presence of different type of honeybees in the area. The major constraints to exploit the untapped potential of beekeeping activity in the district are lack of beekeeping equipment, agrochemical bee poisoning, shortage of bee forage, incidence of pest and diseases.

2.8. Conceptual frame work

In the traditional marketing system farmers produce commodities that are "pushed" into the marketplace and Farmers are generally isolated from a majority of end-consumer and have little control over input costs or process received for their goods so honey value chain analysis is unique research tool and results on improvement of honey quality, infrastructure, access with market information and creating competitive (fair) market access.

The identification of actors, profit distribution among actors, factors affecting market channel choice decision and constraints and opportunities related to honey production and marketing were subject to the application of this research framework. Honey value chain involves varies actors and covers the activities from the stage of honey inputs supply until it reaches the point of consumption. Based on theoretical concepts and empirical studies in honey value chain, a framework is presented in figure 1.1.

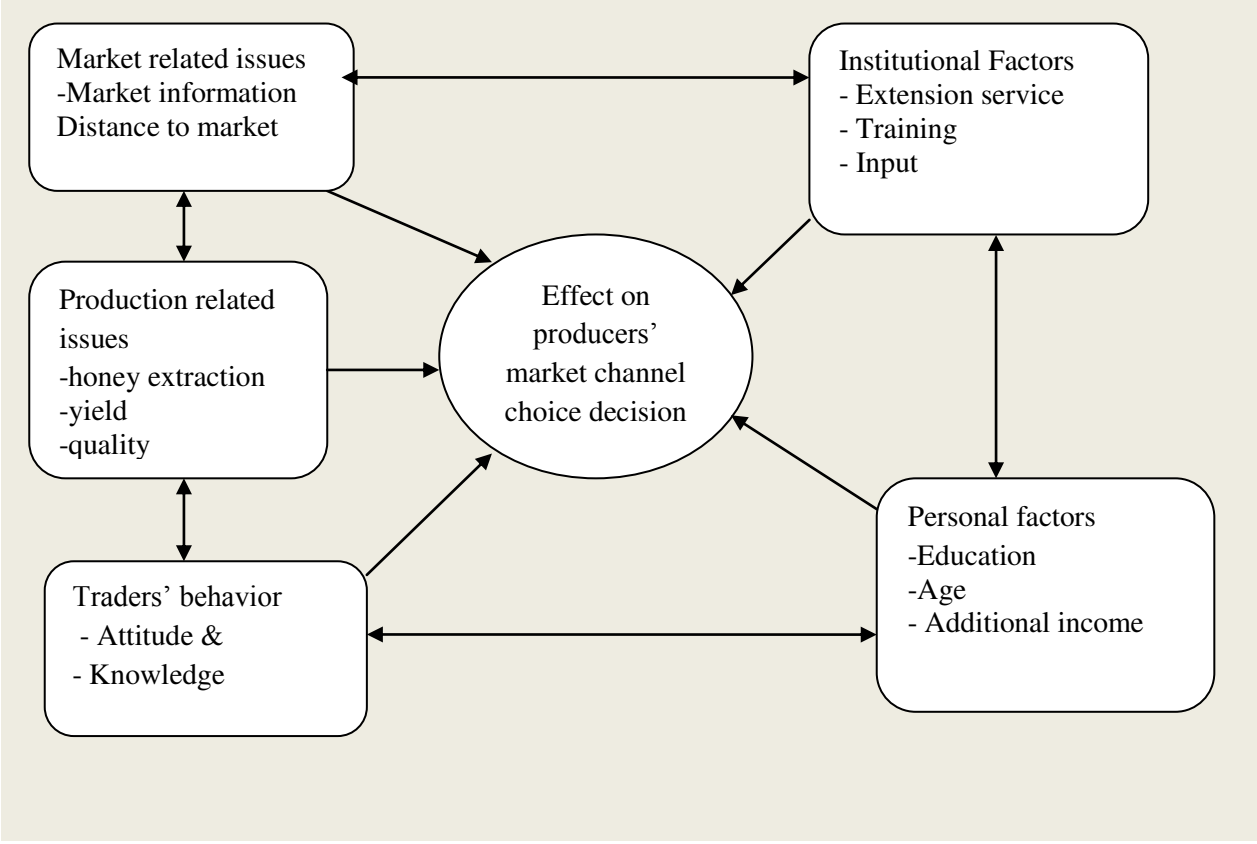


Figure 1. 1: Conceptual model for MFH honey

CHAPTER III- RESEARCH METHODOLOGY

3.1. Description of the Study Area

The study was conducted in Tigray region, central zone, in Ahferom Woreda located between 14° 06' 30"N-14°38' 30"latitude to 38° 50' 30"E to 39° 18' 00" E longitude in central zone of Tigray. The elevation of the Woreda is between 1550-2991 MASL, and the average annual rainfall is 540ml-650ml. Based on the elevation the agro ecology of this Woreda is classified in to 45.5% kola, 44.5% weinadega, 10% dega. Ahferom Woreda is mainly bordering to Ganta-Afeshum Woreda in the east, Adwa Woreda in the west, Eritrea in the north and Werie-Leke Woreda in the south (OoARD, 2014). Ahferom Woreda has a surface area of 133979ha of land of which 23434ha is cultivated land. The total population of the Woreda is 206993with 100088males and 106905females. The total number of households are 46395and 28649, 17746 male and female respectively. Geographically, Ahferom Woreda is found north east of Mekelle and the administrative office is at Enticho town (OoARD, 2014).

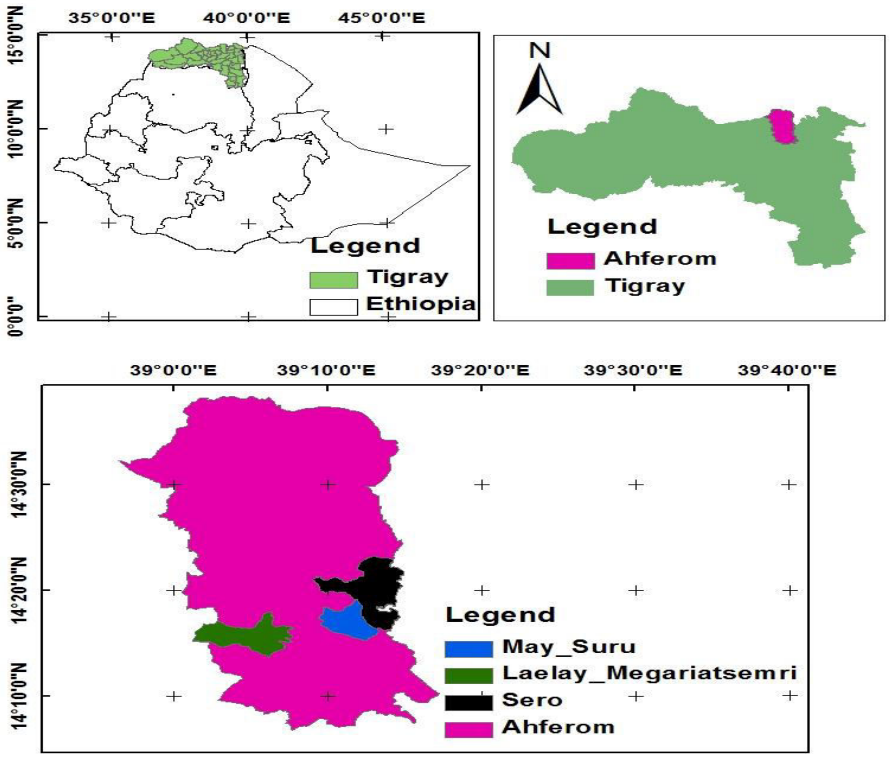


Figure 3. 1: Location Map of the Study Area

3.2. Research strategy and design

3.2.1. Research strategy

Value chain analysis requires access to qualitative and quantitative information on ample range of variables related to its organization and performance.

3.2.2. Research design

Since the core objective of the study was to analyze value chain of movable frame hive honey in Ahferom Woreda, the researcher employed descriptive type of research. Among the types of descriptive research design, this particular study employs cross-sectional survey design which entails the collection of data on more than one case at a single point in time.

3.3. Data type and Source

3.3.1. Data Type

Since the study required wide range of information with reference to beekeeping both qualitative and quantitative data were generated using conventional survey method.

3.3.2. Data Source

In order to get the overall picture of honey value chain in the study area, the study used both primary and secondary sources of data. Primary data were collected using semi structured questionnaire for sample respondents and participatory data collection tools like, individual discussions, observation and key informant interview was utilized.

Data collected from respondents focuses on demographic characteristics of the household, traders, beekeeping activities, service access, market related issues, and beekeeping constraints and opportunities.

The key informants' interview includes: OoARD, REST and Farm Africa beekeeping experts, LIVES and research center zonal coordinators and Dimma beekeeping development and Honey processing PLC.

Furthermore, traders questionnaire includes, type of business (wholesaler, retailer, processors), buying and selling strategies, source, marketing costs and problems faced with regard to their honey trade, and other related data.

Secondary data were obtained from published and unpublished sources, such as reports from Office of Agricultural and Rural Development (OoARD), Bureau of Agricultural and Rural Development (BoARD), Tigray Agricultural Marketing Promotion Agency (TAMPA), Central Zone LIVES office, central statistics agency (CSA) manuals, Journals and websites were reviewed to strengthen and secure the study.

3.4. Sampling Procedures and Techniques

For this study, in order to select a representative sample a multi-stage sampling technique was implemented to select potential *Tabias* for honey production and sample farm households. In the first stage, with the consultation of Woreda agricultural experts, development agents and central zone LIVES project coordinator, out of 27 *Kebeles* of Ahferom Woreda, LIVES project supported 5 *Kebeles* for beekeeping were selected based on the interest of LIVES project. In the second stage, from the identified or selected rural *kebeles*, 3 sample *Kebeles* namely *Laelay Megaria Tsemri, Sero* and *May Suru Kebeles* were selected purposively based on their beekeeping potential, research accessibility, agro-ecology and LIVES project interest. In the third stage, using the household list of the sampled *Kebeles* sample honey producers who produce honey using movable frame hive (MFH) were selected and beekeepers stratified based on the number of hives they owned followed by randomly sampling from each stratum so as to collect representative sample respondents.

The sample size was determined according to James, *et al,* (2001) sample size determination table at precession level of 5% and sample honey producing households were randomly selected from each of the selected rural *Kebeles* using probability proportional to size. Hence, the total number of beekeepers in the selected 3 *Kebeles* were1069 and 120 sample honey producers from modern hive were drawn.

Table 3.1: Proportion of households in each Tabia which produce honey using movable frame hive

No	Name of Selected Kebeles	Total Number of honey producers	Sample households (11.2% of each strata)
1.	Laelay Megaria Tsemri	308	35
2.	May suru	436	49
3.	Sero	325	36
	Total	1069	120

In addition to house hold survey, based on their availability and size data from traders and consumers were also collected. During the survey, it was difficult to get the list of honey traders in Enticho office of trade and industry, because there was no any licensed honey trader in the study area. Due to this reason the researcher followed snowball sampling techniques so as to address the honey traders. In case of consumers, the researcher selected employed respondents. As educated respondents have good understanding to questions and results collecting data at a minimum bias.

Table 3.2: Honey traders sample

No	Market areas	Traders			
		Local collectors	Retailers	Processors	Total
1.	Enticho	-	2	-	2
2.	Dibdibo	2	-	-	-
3.	Sero	2	-	-	-
	Total	4	2		6

3.5. Data Collection

The researcher used different data collection instruments like questionnaire, interview and personal observation and the procedure for data collection was first, questions were set for each respondent group which is then to be discussed by advisors. Next, the questionnaire was translated in to Tigrigna language in order to make the questionnaire easily understandable and avoid any ambiguity to the respondents and enumerates as well as avoids independent translation by enumerators. Pre-testing of the questionnaire and record sheets was made as a pilot survey and on the basis of information obtained during pre-testing; modifications were made on the questionnaire. Then, the primary data collection of information was made at household level

followed by secondary data. The researcher adequately administered and supervised the data collection process and checked the quality of the returns to avoid bias and errors on the spot through editing questionnaires.

3.6. Method of Data Analysis

This study employed different categories of data analyses; namely descriptive, value chain, econometric analyses and ranking analysis with the help of statistical software packages such as SPSS version 16 and STATA version, 10.

3.6.1. Descriptive data Analysis

These methods of data analysis refer to the use of percentages, means, and standard deviations. This was used in the process of examining and describing facilities, services, household characteristics, value chain performance and major constraints and opportunities of honey value chain. In addition $\chi 2$ –test was applied to complement the result obtained from the econometric model.

3.6.2. Value chain analysis

Moreover, individual enterprises may feed into numerous chains; hence, which chain (or chains) was/were targeted depends largely on the point of entry for the research inquiries (Kaplinsky and Morris, 2001). Value chain analysis was applied to this study for identifying actors, functions, activities and their governance in the value chain so as to define upgrading strategies within the chain.

3.6.3. Market Structure, conduct and performance (S-C-P) analysis

The model examines the fundamental relationships between market structure, conduct and performance, and is usually referred to as the Structure, Conduct, and Performance (S-C-P) model. Therefore, the study used S-C-P model to evaluate movable frame hive honey market.

3.6.3.1. Market structure

Market structure shows trends in the number and size of firms relative to each other and to the number of consumers and producers in a particular time and place (Malhotra, 1996).

The concentration ratio is a way of measuring the concentration of market share held by particular suppliers in a market. "It is the percentage of total market sales accounted for by a given number of leading firms". Thus a four-firm concentration ratio is the total market share of the four firms with the largest market shares. The greater degree of concentration is the greater the possibility of non-competitive behavior existing in the market (Ayelech, 2011).

$$MSi = \frac{\text{Vi}}{\sum \text{vi}} \quad (1)$$

Where MSi= market share of buyer i

Vi= amount of product handled by buyer i

∑vi= total amount of product

$$\text{C} = \sum_{i=1}^{r} \text{Si} \quad (2)$$

Where C = concentration ratio handle

Si = percentage share of i^{th} firm

r = number of large firm for which the ratio is going to be calculated

3.6.3.2. Market conduct

Marketing conduct refers to the patterns of behavior that enterprises follow in adopting or adjusting to the markets in which they sell or buy their product and service. This definition shows that there is a need for analyzing human behavioral patterns that are not enthusiastically identifiable, obtainable, or quantifiable (Malhotra, 1996). It shows the Presence or absence, the levels and nature of entry barriers distribution of market information and its capability in sharpness of prices and quantity compositions and individual risk as well (Kohls and Uhl, 1985). Knowing market conduct in the study helped us to identify price setting in honey market in the study area.

3.6.3.3. Market performance

According to Cramers and Jensen (1982), Performance of the market is reflection of the impact of structure and conduct on product price, costs and the volume and quality of output. If the

market structure in an industry resembles monopoly rather than pure competition, then one expect poor market performance.

Wolday (1994), market performance refers to the combination of results that firms in the market arrive by pursuing whatever line of conduct they promote up to end results in the dimensions of price, output, production and selling cost, product design.

3.6.3.3.1. Marketing margin

Once the basic structure of a marketing channel is established, it is relatively easy to collect information on the price at which the product is bought and sold at each stage in the production process (Smith, 1992). Knowing of marketing costs and margins in a chain enable us to identify how revenues and margins are distributed over the actors in the value chain in order to conclude whether they can increase margins in a value chain.

According to Mendoza (1995), total gross marketing margin (TGMM) is the final price of the produce paid by the end consumer minus farmers' price divided by consumers' price and expressed as a percentage

$$TGMM = \frac{Consumers'Price - Farmers'Price}{Price\ Paid\ by\ the\ Consumer} \times 100 \quad (3)$$

The Net Marketing Margin (NMM) is the percentage over the final price earned by the marketing middleman as his net income once his marketing and transaction costs are deducted. From this measure, it is possible to see the allocate efficiency of markets. Higher NMM or profit of the marketing intermediaries reflects reduced downward and unfair income distribution, which depresses market participation of the smallholder. An efficient marketing system is where the marketing costs are expected to be closer to transfer costs and the net margin is near to normal or reasonable profit.

$$NMM = \frac{TGMM - Marketing\ \ Cost}{Price\ paid\ by\ the\ Consumer} \times 100 \quad (4)$$

Where:

TGMM = Total Gross Marketing Margin

NMM = Net Marketing Margin

It is useful to introduce here the idea of "producer participation", "farmer's portion" or "producer's gross margin" (GMM) which is the portion of the price paid by the end consumer that belongs to the farmer as a producer. It should be emphasized that growers that as middlemen also receive an additional marketing margin. The producer's margin or share in the consumer price (GMMp) is calculated as:

$$GMMp = \frac{End\ Buyer\ Price - \ Marketing\ Gross\ Margin}{End\ Buyer\ Price} \times 100 \quad (5)$$

Where; GMMp is the producer's share price.

3.6.4. Econometric Analysis

To analyze market outlet decisions a multinomial legit (MNL) model was applied to explain inter household variation in the choice of a specific honey marketing channels because it is widely used in decision that have different choices and commercial off-take studies having more than two alternative choices (Getachew, 2009).

This study assumed that farmer's decision is generated based on its utility maximization. This implies that each alternative marketing channel choice entails different private costs and benefits, and hence different utility, to a household decision maker.

The analytical model is constructed as follows. Suppose that the utility to a household of alternative *j* is U, where j = 0, 1, 2…. From the decision maker's perspective, the best alternative is simply the one that maximizes net private benefit at the margin. In other words, household *i* will choose marketing outlet *j* if and only if Uij > Uik, ∀j≠k. It is important to note that household's utility cannot be observed in practice. What a researcher observe are the factors influencing the household's utility such as household and personal characteristics and attributes of the choice set experienced by the household (McFadden 1978).

Based on McFadden (1978), a household's utility function from using alternative j can then be expressed as follows:

$$U\ (\text{Choice o} \forall \text{f j for household i}) = U_{ij} = V_{ij} + \varepsilon_{ij} \quad (6)$$

Where,

U_{ij} is the overall utility,

V_{ij} is an indirect utility function and

ε_{ij} is a random error term.

Following equation (6) above, we can adapt the MNL model fitting to this study as follow:

$$P(CHICEij = j) = \frac{EXP(ßjXij)}{\sum_{j=1}^{J} EXP(ßjXij)} \quad (7)$$

Where,

i represents i^{th} farm household, and i=1,2,3,…,120.

j represents different marketing outlets, j=1 for sale to consumers', j=2 for sale to local collectors and j=3 for sale to retailers.

P represents the probability of honey marketing outlet j to be chosen by farm household i;

CHOICE $_{ij}$= j means that honey marketing outlet j is chosen by farm household i;

X_i is independent variables.

In the case of this study, farmers have three market channels to sell most of their honey produce, $J = 3$, and the alternatives $j = 1, 2, 3$, represent sale outlets to consumers, locale collectors and Enticho retailers respectively. The dependent variables (the marketing channel choice decision) in the analysis are measured by the probability of selling honey to either of these markets. According to the survey result, three main different marketing channels were identified. These include sales to consumers (1), local collectors (2), retailers (3).

The model predicts the relative probability that a producer would choose one of the three categories based on the nature of the explanatory variables. For this analysis, the market channel consumer was used as comparison base outcome because this market channel was chosen by the majority of honey selling farmers. Econometric analysis of the data was done using STATA 10 software.

3.6.4.1. Specification of errors

Before fitting important variables into the regression models for analysis, it was necessary to test multicollinearity problem among continuous variables and check associations among discrete

variables, which seriously affects the parameter estimates. According to Gujarati (2003), multicollinearity refers to a situation where it becomes difficult to identify the separate effect of independent variables on the dependent variable because of existing strong relationship among them. The two measures that are often suggested to test the existence of multicollinearity are Variance Inflation Factor (VIF) and Contingency Coefficients (CC). Thus, Variance Inflation Factor (VIF) is used to check multicollinearity among continuous variables. As a rule of thumb, if the VIF is greater than 10 (this will happen if R is greater than 0.90), and the value of CC is greater than 0.75, the variable is said to be highly collinear (Gujarati, 2003).

3.6.5. Ranking analysis

Constraints of modern beekeeping in the study area were ranked with the help of MS excel 2007 ranking index method. The following formula was used to compute index as employed by Musa et al (2006).

$$\textbf{Index} = \frac{\mathrm{Rn} * \mathrm{C1} + \mathrm{Rn} - 1 * \mathrm{C2} \ldots . + \mathrm{R1} * \mathrm{Cn}}{\sum \mathrm{Rn} * \mathrm{C1} + \mathrm{Rn} - 1 * \mathrm{C2} \ldots . + \mathrm{R1} * \mathrm{Cn}} \qquad (10)$$

Where,

Rn=Value given for the least ranked level example (if the least rank is 10^{th}, then Rn=10, Rn-1=9, $R_1 = 1$)

Cn = Counts of the least ranked level

3.7. Variable Selection and Definition

In the course of identifying factors influencing market channel choice decisions, the main task is to analyze which factor influences and how? Therefore, potential variables, which are supposed to influence honey market channel choice decisions, need to be explained. Accordingly, the major variables expected to have influence on market channel choice decisions are explained as follows:

3.7.1. Dependent variables

Market channel choice Decision (MCCD): In the analysis it is measured by the probability of selling honey to either of the market channels. The outlet choices might be along producers

decision involving in three alternative markets. It will be represented in the model as Y1 for household who choose to sell honey mainly to consumers, Y2 for producers that mainly sell their honey to local collectors and Y3 for producers who mainly sell honey for retailers.

3.7.2. Independent variables

Age of respondents (Age): Age is a continuous variable and measured in years. Age is a proxy measure of farming experience of household head. Bongiwe and Masuku (2012) found that: age of the farmers was significant determinant of the choice to use non-wholesale market channel over other-wholesale market channel. Therefore, age is hypothesized to have positive influence on producers' market channel choice decision

Education status of respondents (EDR): This is a continuous variable and measured in years of schooling. Education plays an important role in the adoption of innovations/new technologies. Formal education enhances the information acquisition and adjustment abilities of the farmer, thereby improving the quality of decision making (Fakoya *et al*., 2007). Furthermore the result of Abraham (2013) showed that, if the household head is educated the probability of choice of retail outlet decreased by 13.9% relative to wholesaler outlet. Therefor, it is hypnotized to have positive influence on producers' market channel choice decision.

Average monthly income of beekeepers (AMIOBk): it is a continuous variable measured in birr that individual beekeepers average monthly income out of beekeeping activities. As the beekeepers' average monthly income increases the probability of producers' on choosing the profitable channel will increase. Hence, this variable is expected to have positive influence on producers' market channel choice decision.

Beekeeping Experience (BKExp): It is a continuous variable; measured in the number of years that the household head spend in beekeeping business. Higher experience in beekeeping business may favor beekeeping activity and build producers good will so as to build their bargaining power and to choose the profitable market channel. Farmers with longer farming experience are expected to be more knowledgeable and skillful (Ayelech, 2011). Hence, this variable is expected to positively influence on producers' market channel choice decision.

Number of Beehives Owned (NBHO): It is continuous variable measured in number of movable frame beehives owned. The probability of owning large number of bee hives may lead producers to produce large volume of honey. The variable is expected to have positive influence on market channel choice decision.

Market price (MP): It is continuous variable and expressed in amount of money in birr per Kg of honey producers' sell their produce to their customers based on the profitability of price attractiveness. The variation in market price is expected to have positive influence on producers' market channel choice decision.

Total honey yield harvested from movable frame hive (THYHM): It is a continuous variable expressed in total kilograms of honey produced in a single household. Study conducted by Mamo and Degnet (2012) that: larger volume of livestock sales increased probability of channel traders to be chosen. Sikawa and Mugisha (2011) found that, the amount of milk produced by the farmer significantly influenced the choice of milk marketing channel. This implies that farmers who produce huge volumes of milk prefer selling their milk to the channel which is capable of absorbing all amounts. The amount of honey produced is expected to have positive influence on producers' market channel choice decision.

Honey extraction (HOEX): it is a dummy variable taking the value of if the beekeepers undertake honey extraction using extractor otherwise zero. It is expected that difference in product type brings change on consumers' preference. Due to this reason honey extraction is expected to have negative influence on producers' market channel choice decision.

Training Access (TraAcc): This variable is measured as a dummy variable taking a value of 1 if the beekeeper has access to modern beekeeping issues and zero otherwise. It is expected that training access widens the household's knowledge with regard to the use of improved honey production technologies and is expected to have positive impact on producers' market channel choice decision.

Distance to Nearest Market (DNM): It is a continuous variable measured as the distance of the honey producer households from the nearest market and it is measured in Kilometers**.** The closer the market, the lesser would be the transportation charges, reduced walking time, and reduced other marketing costs, better access to market information and facilities. A similar study was

conducted by Holloway *et al.,* (1999) on milk-market development in the Ethiopian highlands has negatively affected. This variable is expected to have negative influence on producers' market channel choice decision.

Previous agreement with the buyers (PAwB): it is a dummy variable taking a value 1 if producers have previous agreement with buyers and otherwise zero. This also develops confidence to producers' market issue and contributes on quality improvement and production maximization. As expected a positive and significant relationship was found between the availability of marketing agreement and market channel choice. Bongiwe and Masuku (2013) showed that, the probability of Onion producers selling to non-wholesale market channel would increase by 3916.6% with the presence of a marketing agreement. This variable is expected to have positive influence on producers' market channel choice decision.

Market Information (MI): It is a dummy variable. Assign one if a farmer got market information and zero otherwise. Farmers marketing decisions are based on current information available on the market. Hence, it allows producers to sell their product at a time of high demand with motivating price. Again, business decisions are based on dynamic information such as consumer needs and market trends (CIAT, 2004). This variable will have positive influence on producers channel choice decision.

Table 3.3: Description of dependent and independent variables to be used in the model

No	Variable	Description	Type	Value	
1	Dependent variable				
1.1	MCCD	Market channels choice decision	Continuous	Y1,Y2 and Y3 producers sells to Con, LC and R	
2	Independent variable	Description	Type	Value	Expected sign
2.1	Age	Age of respondent	Continuous	Years	+/–
2.2	EDR	Education status of the respondent	Continuous	Years	+
2.3	AMIOBk	Average monthly income of beekeepers	Continuous	Birr	+
2.4	BKExp	Beekeeping experience	Continuous	Years	+
2.5	NMBHO	Number of modern Beehives Owned	Continuous	N umber	+
2.6	MPM	Market price	Continuous	Birr	+
2.7	THYHM	Total honey yield harvested from	Continuous	Kilo grams	+
2.8	HOEX	Honey extraction	Dummy	0=No 1=Yes	–
2.9	TraAcc	Training Access	Dummy	0=No 1=Yes	+
2.10	DNM	Distance to Nearest Market	Continuous	Distance in Km	–
2.11	PAwB	Previous agreement with buyers	Dummy	0=No 1=Yes	+
2.12	MI	Market Information	Dummy	0=No 1=Yes	+

CHAPTER IV- RESULT AND DISCUSSION

This chapter deals with the presentation of results of the collected data and discussion in relation to the research questions and objectives. This chapter has five parts as follow.

The first part of descriptive analysis of this chapter has been done to describe the general socio-economic and demographic characteristics of beekeepers and beekeeping activities of the sample households in the study area.

The second part of the analysis mainly focuses on honey value chain analysis of the study area. It focuses mainly on mapping of the honey value chain actors, functions, chain governance, constraints and upgrading strategies that exist in study area.

The third part of the analysis involves, Structure-Conduct -Performance of honey market chain. In this part marketing channels, marketing costs and margins, and benefit shares of actors in the value chain was analyzed.

The fourth part of econometric model was also employed to identify the factors affecting farmers' market channel choice decision in the study area.

The final section deals with the constraints and opportunities of honey value chain in the study area.

4.1. Descriptive Analysis

4.1.1. Demographic and socio economic characteristics of sample households

This part presents demographic and Socio-economic characteristics of households that are found in the study area and currently who are involved in honey production using movable frame hive were presented in table 4.1 and 4.2.

The total sample size of beekeepers handled during the survey was 120. Of the total sample respondents, 90% were male-headed households and 10% were female-headed in Ahferom Woreda. The average household head's age was 44.99 with minimum and maximum of 22 and 67years old respectively. From this one can learn majority of beekeeping households are adult and this may result slow acceptance to new technologies.

Table 4.1: Demographic and socioeconomic characteristics of samples

Variable	Item	Consumer	Local collector	Retailer		
		N=80	N=13	N=27		
		N	N	N	χ^2-value	p-value
Sex	Male	69	12	27	4.327	0.115
	Female	11	1	0		

N: number of respondent
Note: *, **, *** denote variable Significant at 10%, 5%, and 1% probability level, respectively.

With respect to educational status of the respondents, mean educational level of households was found to be 4.52 years. This implies that majority of the beekeeping households are literate though they are with low educational status. From the above result the researcher concludes that, majority of the producers involved in beekeeping using movable frame hive in the study area were found at lower educational status and this constrains the acceleration on acceptance and effective utilization of new technologies. Furthermore educational status of respondents has a significant difference on producer's market channel choice decision. Since educated households have good capacity on achieving training, technical advice and fast understanding of their locality.

Table 4. 2: Demographic and socioeconomic characteristics of sample

Variable	N(120)	Minimum	Maximum	Mean	SD
Education	120	0	15	4.52	3.410
Age	120	22	67	44.99	8.775
Family size	120	2	10	6.33	1.839
AMIOBK	120	250	4678	1329.07	1039.521

SD: standard deviation

The finding of Gichora (2003) states that: for more advanced beekeeping, beekeepers should have a good educational background so as to easily grasp bee biology and behavior of bees and better colony seasonal management. Moreover, for illiterate people, intensive training and consistent extension service is needed before distributing movable frame hive.

The average family size of the t sample respondents was found to be 6.3 in the study area. This is beyond the national rural average (5.5).

With regard to income out of beekeeping activities all of the respondents were involved in other income generating activities in addition to beekeeping and the mean monthly income was found to be 1329 birr. Based on the above survey result beekeeping in Ahferom Woreda is practiced as a side line to other agricultural activities. This could be due to the nature of beekeeping that is performed seasonally. Income out of beekeeping will have significant difference on producer's market channel choice decision. As household monthly income increases producers could have probability of choosing the profitable market channel.

4.1.2. Honey production in Ahferom Woreda

In this section major beekeeping related issues like beekeeping experience, beehive possession, type of honey harvested, season and frequency of honey harvest, cooperatives membership, old wax replacement, supplementary feeding, colony inspection and absconding, honey extraction and chemical application are analyzed and discussed as follows:

Table 4. 3: Honey type, Honey harvesting season and frequency

Variable	Item	N (120)	%
Honey type	Crud honey	24	20.0
	Pure honey and crude wax	86	71.7
	Pure honey, crude wax and queen rearing	10	8.3
Harvesting season	June - September	2	1.7
	October - December	78	65.0
	October - December and April – June	40	33.3
Harvesting frequency	Ones	80	66.7
	Twice	40	33.3

With regard to respondents honey type, they are expected to produce pure honey, crude wax and queen rearing using movable frame hive. Majority of respondents, (71.7%) produce only pure honey and crude wax but 20% of them are still producing crude honey implying that they did not use honey extractor to filter honey from its wax but still practicing the traditional way of honey harvesting techniques which diminishes all the structures of foundation sheets. OoARD beekeeping expert responds that, this is due to lack of awareness and improper distribution of the equipment (honey extractor) during honey harvesting time. Furthermore, 8.3% of the

respondents were able to utilize the benefit of movable frame hive properly and produce pure honey, crude wax and colony.

Table 4.3 shows the respondents harvesting season in the production year 2014/2015, 1.7% responded that their harvesting season was from June to September where as 65% of the respondent's harvesting season was from October - December and 33.3% of the beekeepers harvest in two seasons- October-December and April – June. So the peak honey harvesting season in the study area was from October-December.

With respect to honey harvesting frequency, 66.7% of the respondents harvest once in a year and only 33.3% of the respondent's harvest twice a year. Honey harvesting frequency may vary due to the availability of honey bee forages and seasonal suitability. From the above result we can infer that in the study area common honey harvesting frequency is once a year.

The above result is different from the finding of Mesfin (2012) honey value chain in Kilite Awulaelo Eastern Tigray. In his study 77.3%, of the respondents harvested twice a year, whereas 17.3 % of the sample farmers harvested once in a year and 5.3 % of the sample farmers respond that they harvested trice a year, which indicates the presence of high potentiality honey in the study area.

Table 4. 4: Membership to Cooperatives and Honey extraction

Variable	Item	N (120)	%
cooperative membership	No	99	82.5
	Yes	21	17.5
honey extraction	No	29	24.2
	Yes	91	75.8

The survey result in table 4.4 shows that, only 17.5% of the beekeepers are membership of saving and credit cooperatives which are established in their local *kebeles*. Benefits of being member were credit inputs for beekeeping and other agricultural production.

It is known that the establishment of cooperatives is to create market linkage for products produced in the study area. But this is not functional and producers are not selling their products to those institutions (cooperatives). The above result indicates that if majority of the beekeepers

in the study area are not selling their product to those institutions. This may expose to marketing problems and reduces their market bargaining power.

With respect to honey extraction even though majority of the producers (75.8%) of the respondents extract honey using honey extractor, 24.2% of the respondents are still not using extractor (harvesting through distracting the honey comb and foundation sheet). Their reasons for not using extractor were lack of honey extractor, lack of awareness on how to extract honey using the extractor and due to poor market demand for extracted honey. Extracted honey is wax free honey and this is also suitable for adulteration and it is difficult to identify the adulterated from the pure one. Due to this reason producers have been forced to harvest honey with its comb to overcome the occurrence of the problem.

Table 4. 5: Beekeeping experience, Number of MFH hive, Amount harvested and market price

Variable	N(120)	Minimum	Maximum	Mean	SD
BKExp	120	2	25	7.82	5.608
NBHO	120	1	30	2.72	2.805
THYHM	120	7.00	660.00	64.52	71.458
Market price	120	90	200	137.46	12.686

In case of respondents' beekeeping experience, 28.3% have been in beekeeping more than 10 years, 29.2% have 5-10 years and the majority of respondents (42.5%) have less than 5years of beekeeping experience. The average mean difference of beekeeping experience is also 7.82 years. Based on the above result, the majority of beekeepers engaged in honey production using MFH were less experienced. This may result less inefficiency in utilization of new inputs.

With regard to the respondents number of hive possession, the average holding for 2.72 with minimum of 1 and maximum of 30. This is because the majority of beekeepers own from 2 to 3 hives per household. The above result indicates that honey production using MFH was not well adopted and expanded.

The survey result in table 4.5 indicates that honey yield per hive in the past 2014/15 production year was between 5kgs and 61Kgs minimum and maximum respectively. With respect to the total honey production per household, it ranges between 7kgs and 660Kgs minimum and maximum respectively. The above result indicates that there is high production gap in honey

yield per hive among household. Furthermore the average honey yield was 23.55Kgs per hive. The average honey yield obtained in the study area is almost similar with the research finding conducted by Mesfin (2012) in Kilite Awulaelo Woreda which is 23.63Kg per hive.

The survey result in table 4.5 indicates that, the selling price of honey from movable frame hive in 2014/15 production period was between Birr 90 and Birr 200 per Kg. Based on the researcher "Enticho" market day observation, price of honey ranges from 90 to 140 birr per kg. The price difference is based the color of the honey; highest price was given for the white honey and the lowest for the amber one.

Table 4. 6: Beekeeping activities, Chemical application and Colony absconding

Variable	Item	N (120)	%
Old wax replacement	No	3	2.5
	Yes	117	97.5
Supplementary feeding	No	57	47.5
	Yes	63	52.5
Frequency of colony internal inspection	Monthly	66	55.0
	Three times per year	54	45.0
Chemical application	pest control	63	52.5
	weed control	3	2.5
	Pest and weed control	45	37.5
	Pest control and anti malaria	9	7.5
Colony absconding	No	45	37.5
	Yes	75	62.5

With regard to old wax replacement, the survey result indicates that 97.5% of the respondents change the old wax at the interval of one up to three years. But 2.5% of the respondents did not change old wax due to lack of awareness and time of colony introduction.

The respondent's response in table 4.6 indicated that, 52.5% of beekeepers practice supplementary feeding like sugar, honey and cereal and beans flour for their colony during drought, queen rearing and when the colony becomes weak so as to strengthen their colonies. But 47.5% of beekeepers are still not providing supplementary feed to their colony. This may accelerate the tendency of colony absconding.

With respect to colony external and internal inspection, all of the respondents practice daily external observation but in case of internal inspection 55% of the respondents inspect their colony monthly, and 45% of the respondents inspect their colony only three times per year and respondents of the study area believe that frequent colony internal inspection disturbs the colony. The result of these traditional perceptions may also lead beekeepers to lose their colonies and lower productivity in general.

The survey result in table 4.6 with regard to chemical application in relation to agricultural activities, all of beekeepers replied that there is chemical application like pest control, weed control and anti malaria. The common type of chemical applied in almost all Tabias of the Woreda was pest control. Beekeepers take some measures to prevent their bees from chemical hazards through undertaking communication with chemical appliers through forcing bees to stay within their hive. Furthermore legislations have been developed at Woreda level so as to protect/prevent use of weed control around homestead areas. From the above result, the researcher concludes that bees are the best pollinators that maximize yield and product quality but uncontrolled applications of chemicals results diverse effect on overall hive productivity.

With regard to colony absconding, 62.5% of respondents replied that they are suffering with colony absconding. All the activities listed in table 9 have direct relationship with colony absconding. From the above result, the researcher can conclude that timely performing of beekeeping activities will minimize colony absconding and maximize hive productivity.

4.1.3. Service related issues

In this section credit access, credit provider, training access, training provider and frequency of technical advice were discussed.

With respect to credit access for beekeeping activities for the year 2013/14, only 22.5% of the respondents had access to credit. The share of credit providers in the study area was dominated by Dedebit micro finance (77.8%), followed by REST (18.5%) and credit and saving Cooperatives (3.7%). Furthermore, 99.2% of the respondents replied that there was no credit problem for facilitating beekeeping activities.

Table 4. 7: Access to different services

Variable	Item	Consumer	Local collector	Retailer	χ^2-value	p-value
		N=81	N=14	N=25		
		N	N	N		
CA	No	58	14	21	6.285	0.043**
	Yes	23	0	4		
TraAcc	No	6	2	3	0.983	0.612
	Yes	75	12	22		
FTA	Regularly	18	1	8	6.080	0.193
	Sometimes	45	8	15		
	Rarely	18	5	2		

Note: *, **, *** denote variable Significant at 10%, 5%, and 1% probability level, respectively

The result of table 4.7 with regard to training access indicates that majority of the respondents (90.8%) had access trainings related to modern beekeeping; whereas the rest (9.2%) did not. The trainings were provided by Government and NGOs. Here the major training providers were OoARD followed by Farm Africa, Zonal LIVES, REST and zonal TARI.

With regard to the frequency of technical advice, 22.5%, 56.7% and 20.8% were advised regularly, sometimes and rarely respectively. The researcher conclude that, majority of the beekeepers in Ahferom Woreda were not getting regular technical advice. This also lesser the efficiency of utilization on modern inputs and affects the overall hive productivity.

4.1.4. Market related issues

In this section producers honey market participation, market place, market information, previous agreement and collaboration with buyers, , market channels, honey storage, honey market problem, honey quality measures, relationships, value adding activities and distance to nearest market are discussed.

With respect to respondents' market participation, all respondents in the study area sold their product at their home or through taking it in to the nearest local market (Enticho).

With respect to access to market information, table 4.8 indicates that, 70.8% had access to market information, whereas 29.2% of them did not have access to current market information. Access to current market price has significant difference on beekeepers market channel choice

decision. From the above result the researcher concludes that producers who have lack of information on current market price were not able to know profitable market channel and to predict the exact time of sale.

Table 4. 8: Market information, previous agreement and collaboration and Post harvest value addition

Variable	Item	Consumer	Local collector	Retailer		
		N=81	N=14	N=25	χ^2-value	p-value
		N	N	N		
MI	No	23	10	2	17.548	0.000***
	Yes	58	4	23		
PAwB	No	73	9	21	6.641	0.036**
	Yes	8	5	4		
PCwB	No	79	14	25	0.979	0.613
	Yes	2	0	0		
PHVA	No	0	0	1	3.832	0.147
	Yes	81	14	24		

Note: *, **, *** denote variable Significant at 10%, 5%, and 1% probability level, respectively

According to table 4.8, 14.2% of the respondents of the study area have previous agreement with buyers to sale their products of movable frame hive, whereas 85.8% of the respondents did not have any agreement with buyers. The type of agreement in this area was not written, it was oral/promise made by the transacting parties. Previous agreement with buyers has significant difference with producers' market channel choice decision.

With regard to previous collaboration with buyers, only 1.7% of the respondents had previous collaboration with buyers' and 98.3% of the respondents didn't have any collaboration with buyers. The benefit of collaboration in the study area was material support for beekeeping.

With respect to value addition, 99.8% of the respondents perform post harvest value adding activities and the rest 0.2% of respondent did not. The post harvest value adding activities in the study area were like sorting, purification and buying plastic container. Of which buying plastic container is the most common value adding activity in the study area.

Table 4. 9: Distance to nearest market

Variable	N(120)	Minimum	Maximum	Mean	SD
DNM	120	0.0	20	7.5	5.93

With respect to respondents distance to nearest market the minimum is simply producers sell their product at their homes and the maximum distance was 20 Km which is to Enticho. Furthermore, the mean market distance was 7.5Km and most of the producers sell their product in Enticho. As distance to market increases transaction cost increase. Hence, distance to nearest market will have significant difference on producers' market channel choice decision.

4.1.5. Demographic characteristics of traders

4.1.5.1. Local honey collectors

Local honey collectors in the study areas were located in *Dibdibo* and *Sero* Tabias and engaged in performing activities like buying of honey from beekeepers that come from different localities and then sell it to retailers and consumers. Those actors perform honey collecting activity not as main income source but in addition to their business (goods shop). All of the actors do not have license for honey collection and retailing activities. In case of trading experience they have two to sixteen year's minimum and maximum working experience.

4.1.5.2. Retailers

These actors are found in *Enticho* and sell honey directly to consumers. Honey retailers in the study area are engaged in activities like purchasing honey from local collectors and directly from producers and then retail it to consumers. Furthermore they perform value adding activities like sorting, purifying and packaging in a transparent container with a size of one up to two kilograms in attractive way. With regard to their retailing experience they have five to thirteen years of minimum and maximum experience in the honey business. They do not have honey retailing license and perform it as side activity with their Boutique/cultural dress or commodities shops.

4.1. Value Chain Analysis

Value chain analysis is the process of breaking a chain into its constituent parts in order to better understand its structure and functioning. The analysis consists of identifying chain actors at each stage and discerning their functions and relationships; determining the chain governance, or

leadership, to facilitate chain formation and strengthening; and identifying value adding activities in the chain and assigning costs and added value to each of those activities. The flows of goods, information and finance through the various stages of the chain are evaluated in order to detect problems or identify opportunities to improve the contribution of specific actors and the overall performance of the chain (UNIDO, 2009).

This part discusses the full range of activities for the honey produced using movable frame hive. The main objective of this part is to identify value chain actors, service providers, their role and function; to map the flow of product, value addition, flow of information and knowledge, relationships and constraints and opportunities within the chain in the study area.

4.1.1. Mapping Core Processes

Mapping core processes in any value chain analysis need to be identified first so as to better understand the main stages in the value chain. Hence the core processes in the study area were input supply, production, collection, retailing and consumption.

4.1.2. Mapping Main Value Chain Actors and Activities

According to GTZ (2007), the term “value chain actors” summarizes all individuals, enterprises and public agencies related to a value chain, in particular the value chain operators, providers of operational services and the providers of support services. In a wider sense, certain government agencies at the macro level can also be seen as value chain actors if they perform crucial functions in the business environment of the value chain in question.

In the study area, there are different public and non public actors involved along the honey value chain, upstream from input supply to downstream consumers, playing different role. The major actors participating in honey value chain and their role is discussed below.

4.1.2.1. Input suppliers

Input suppliers are the first actors in honey value chain. In the study area there are governmental (OoARD and Zonal Research) and nongovernmental (Farm Africa, REST and LIVES) organizations with common objective of honey product maximization and quality improvement through providing of modern beekeeping inputs to the beekeepers. OoARD is the main actor on providing inputs like movable frame hive and equipments by long term payable loan but honey extractor and casting mold by donation. Furthermore, this organization provides trainings and free extension service with the help of expert's and developmental agents. In case of the nongovernmental organizations, contributions have been dominated by the organization called Farm Africa by providing modern beekeeping tools, equipments and training service for free for those households who have low income. In case of LIVES project, its contribution is through provision of short term and long term capacity building for producers and Woreda experts. REST also has nice contribution on cooperating honey producers and providing necessary inputs of modern beekeeping for better exploitation of the available resource and job creation in the study area.

4.1.2.2. Beekeepers

Beekeepers are the second actors in honey value chain. In the study area, small scale honey producers and cooperatives are producing honey using movable frame hive. These actors perform activities like making foundation sheet, colony transfer, supplementary feeding, and internal and external hive inspection, honey harvesting, storing honey in plastic container and transporting it in to market place. They sell their produce to local collectors, retailers and directly to consumers.

4.1.2.3. Local honey collectors

Local honey collectors are the third link in the honey value chain in the study area and they are engaged in performing activities like buying of honey from beekeepers that come from different localities and then sell it to retailers and consumers. These actors perform honey collecting activity not as main income source but in addition to their business (commodities shop). They are also found in *Dibdibo* and *Sero* Tabias.

4.1.2.4. Retailers

Honey retailers in the study area are engaged in activities like purchasing honey from local collectors and directly from producers. Furthermore they perform value adding activities like sorting and packaging. These actors are also found in *Enticho* and sell honey directly to consumers.

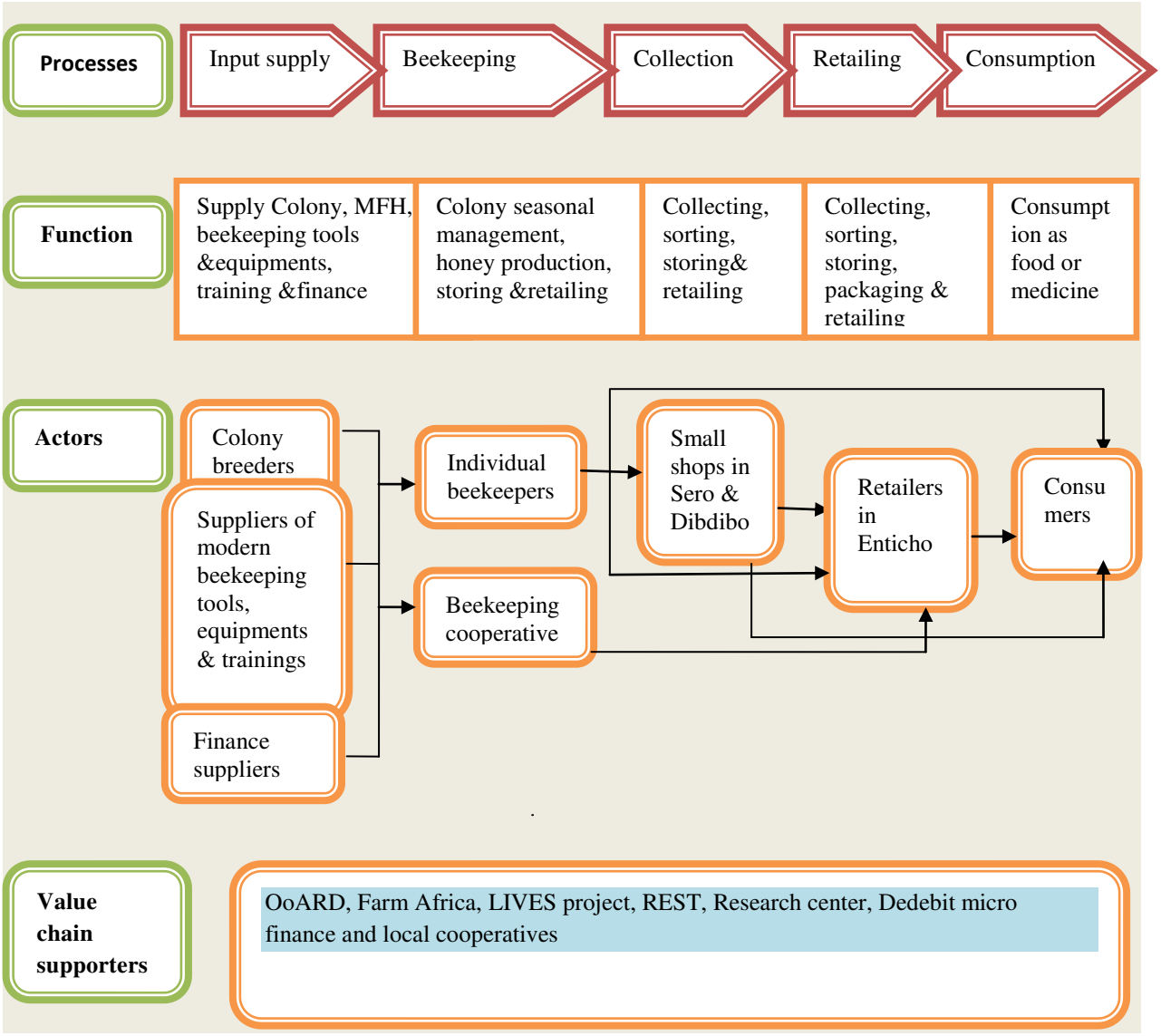


Figure 4.1: Mapping of honey value chain from movable frame hive in Ahferom Woreda

4.1.3. Mapping Volume of Honey Flow

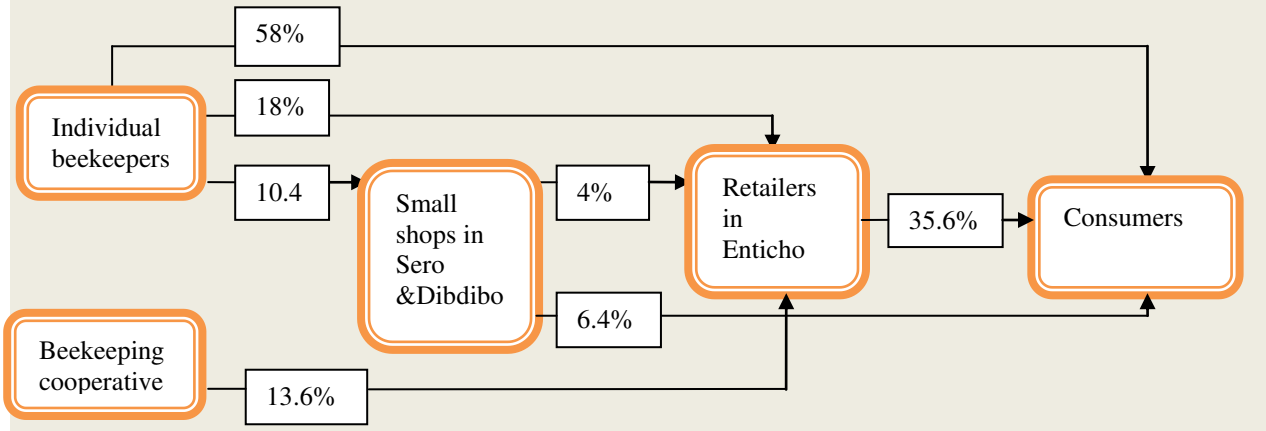


Figure 4. 2: Mapping volume of honey flow

4.1.4. Mapping Honey Value Distribution

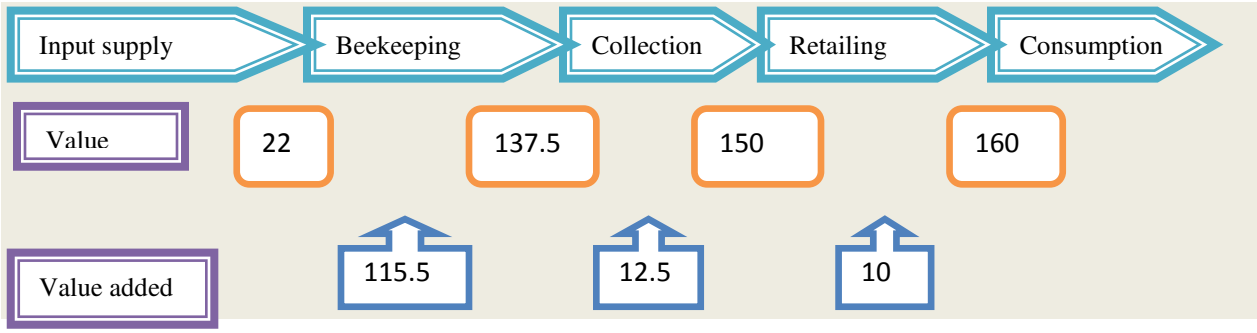


Figure 4. 3: Mapping honey value addition

4.1.5. Mapping relationship and linkage

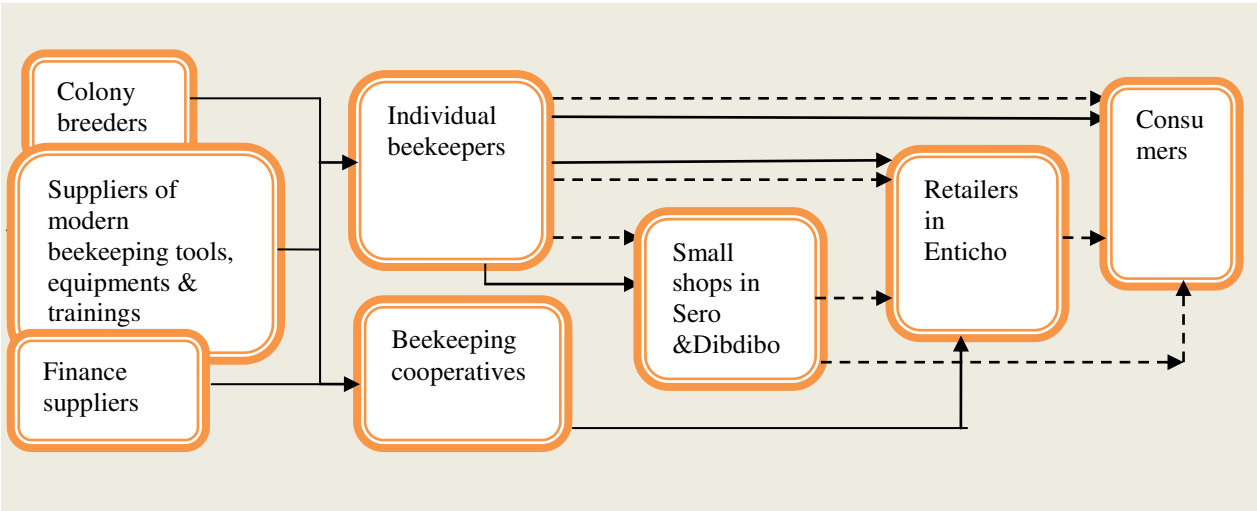


Figure 4. 4*: Mapping relationship and linkage*
Source: Constructed based on own survey result 2014/15

4.2.6. Mapping Constraints and Feasible Solutions

Table 4.10: Mapping honey value chain constraints and feasible solutions

	Input supply	Beekeeping	Processing	Marketing	Consuming
Activities	Supply of Colony, MFH, beekeeping tools and equipments, training and finance	Colony seasonal management, honey production, storing and selling.	Collection, quality test, processing, package and labeling and distribution.	Collecting, sorting, storing, packaging and retailing	Purchasing and consuming
Actors	-Colony breeders -OoARD -Trainings providers -Finance suppliers	Individual beekeepers and Beekeeping cooperatives.	Dimma beekeeping development and honey processing PLC.	Retailing shops In Enticho	Consumers
Constrains	-Shortage of supply of beekeeping tools and equipments. -Poor integration of pest management system. -Lack of consistency in training and technical advice on modern inputs.	Chemical application Lack of adequate knowledge and skill on performing activities using movable frame hive. Lack of beekeeping tools and equipments. Prevalence of disease, pest and predators. Colony absconding.	Poor linkage with raw honey suppliers Processing under capacity. Un fair price seating.	lack of specialization lack of collecting centers Lack of organized market channel Adulteration Illegal honey trading	Lack of knowledge on how to separate pure honey from the adulterated one. High product price.
Feasible Solutions	Proper supply of beekeeping tools and equipments. Providing training on integrated pest management system and effect of bee pollination. Preparing trainings on proper management of modern inputs and series follow up on frequency of technical advice.	Awareness creation on the importance of bee pollination and practicing integrated pest management system. Proper and consistent training on how to manage movable frame hive. Adequate supply of beekeeping tools and equipments. Consistent training and regular technical advice on how to prevent and control from disease, pests and predators.	Establishing strong and multi directional linkages with raw honey suppliers. Seasonal revising on purchasing price of raw honey.	Establishing honey collection centers. Introducing quality control mechanism with applicable regulation. Establishing organized market channels by seating fair profit distribution. Awareness creation and motivating illegal traders to have legal trading license.	Controlling the fake honey makers. Awareness creation on honey quality. Controlling the illegal honey traders.

4.2.7. Value Chain upgrading and interventions

Value chain upgrading is vital mechanism on improving the performance of chain actors and/or chain actors. Hence the possible upgrading in process, function and product are diagrammatically illustrated below as follows.

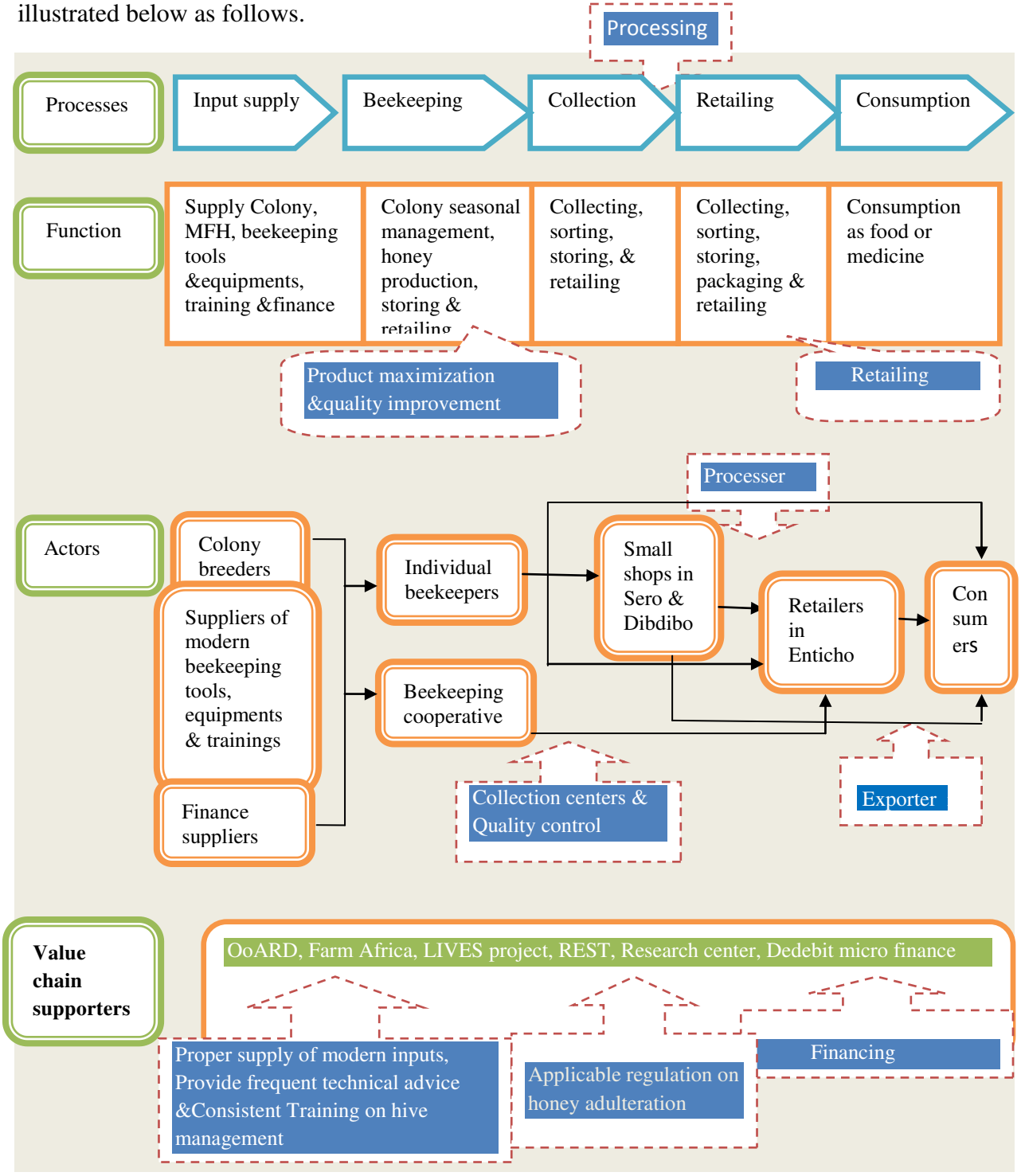


Figure 4. 5: value chain upgrading and interventions

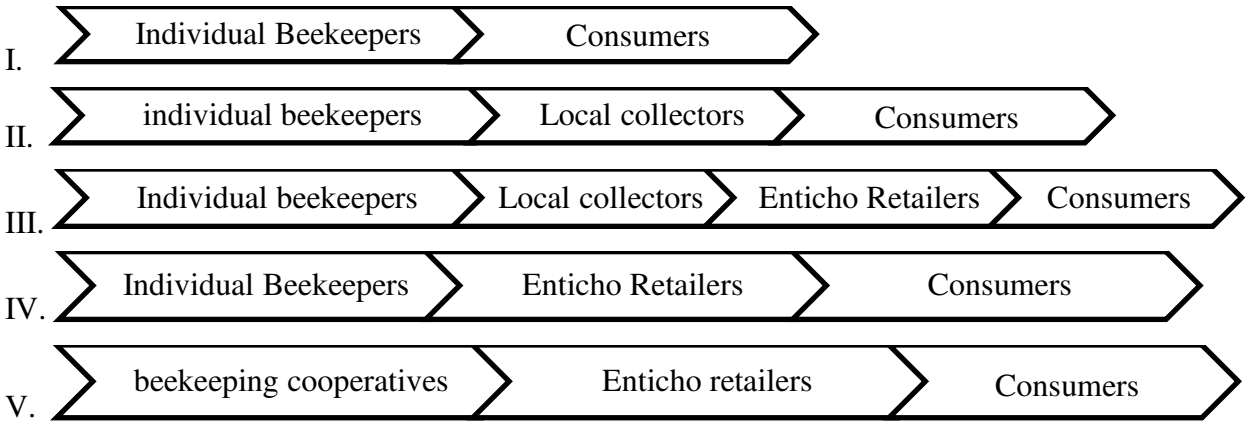
4.3. Market Structure, Conduct and performance analysis

Market structure describes the honey market actors', market concentration ratio; market conduct and performance of honey market are also presented in order.

4.3.1. Market channel

A marketing channel is a business structure of interdependent organizations that reach from the point of product origin to the consumer with the purpose of moving products to their final consumption destination (Kotler and Armstrong, 2003). The analysis of marketing channels was intended to provide a systematic knowledge of the flow of the honey from honey producers to the final consumers.

In Ahferom Woreda five alternative markets channels were identified. From the total produced honey using movable frame hive in 2014/15, 77.4 Qts of honey were supplied by sample respondents in Dibdibo, Sero and Enticho honey markets. From the total quantity marketed. The main marketing channels identified from the point of production until the product reaches the final consumer through different intermediaries were depicted in Figure 4.6.



From figure 4.6, one can understand that individual beekeepers are selling the large quantity directly to consumers market channel and the role of intermediaries is not that much significant.

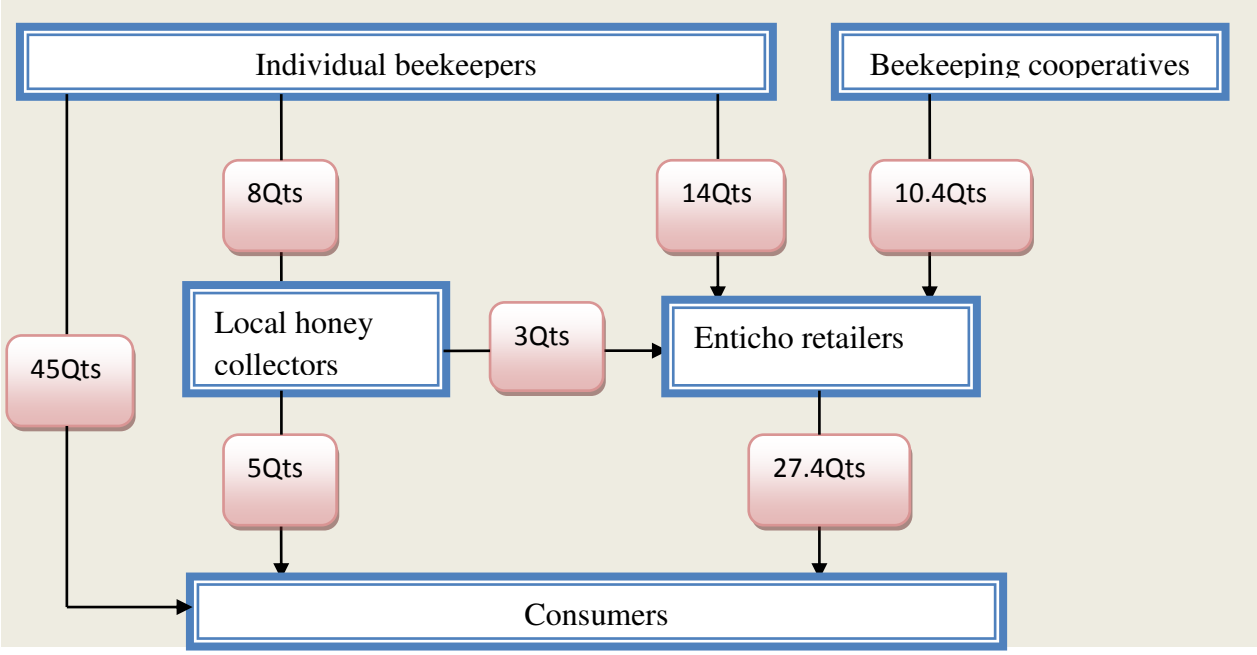


Figure 4. 6: Honey market channel in Ahferom Woreda

4.3.2. Market concentration ratio

According to Kohls & Uhl, (1985) four traders with the largest volume of honey handled were used for the calculation of market concentration ratio (CR) of honey traders for judging the market structure. A concentration ratio of over 50% is generally considered a tight oligopoly; concentration ratio between 25% and 50% is generally considered as lose oligopoly and concentration ratio less than 25% is no oligopoly.

Table 4. 11: Honey traders' concentration ratio

Number of traders (I)	Cumulative frequency of traders (II)	Percent (%) of traders (III)	Cumulative of traders (IV)	Quantity purchased in kg (V)	Total Quantity purchased in kg (VI)=V*I	Percent (%) share of purchase (VII)	Percent (%) cumulative purchase (VIII)
1	1	16.7	16.7	300	300	24.79	24.79
1	2	16.7	33.4	250	250	20.66	45.45
1	3	16.7	50.1	200	200	16.53	61.98
1	4	16.7	66.8	180	180	14.88	76.86
1	5	16.7	83.5	150	150	12.40	89.26
1	6	16.7	100	130	130	10.74	100
					1210	100	

As indicated in Table 4.11, as the number of number of traders increase, the percentage shares of the traders' decrease and vice versa. The result of sample market honey traders' concentration ratio was found to be 76.86 percent. The result shows that, the honey market concentration ratio in the study area indicates the presence of strong oligopoly market structure. This implies that the market is controlled by few traders. This is due to poor market organization and lack of any responsible honey collecting agent at reasonable price. Hence, producers have poor bargaining power to sell their produce.

4.3.3. Market conduct

It shows the Presence or absence, the levels and nature of entry barriers distribution of market information and its capability in sharpness of prices and quantity compositions and individual risk as well (Kohls and Uhl, 1985). In this study conduct of the honey market is analyzed in terms of the traders' price setting, purchasing and selling strategies.

4.3.3.1. Producers market conduct

In the study area, beekeeping is the most income generating activity through honey production and colony supply to neighboring Woredas (OoARD, 2015). According to the survey result, only 17.5% of producers are membership of cooperatives. But they are not benefiting from membership through creating market linkage. Furthermore, 14.2% of beekeepers also have non-formal type previous agreement with buyers means trust based agreement. According to the researcher observation, majority of honey producers have spot market relationship with their customers. Generally, all of households reported that, demand of honey showed an increasing trend.

4.3.3.2. Traders market conduct

No one of honey traders in the study have honey trading license. Their relationship with buyers was medium and there is no specialized honey retailing shop. Hence honey trading has been performed as side activity with their other commodities. The survey result indicated that, in the study area honey marketing transactions takes place with direct contact between sellers and buyers. There were no observed operational brokers in the honey marketing channel during the survey period. The honey retailers were found to purchase honey either directly from beekeepers or from local honey collectors. The method of price setting is crucial importance in honey

trading activity. About 50% of honey traders reported that purchase price was set by their own, 33.3% of traders set purchase price by market and 16.7% of them respond that selling price was set by suppliers.

4.3.3.3. Market performance

According to Wolday (1994), market performance refers to the combination of results that firms in the market arrive by pursuing whatever line of conduct they promote up to end results in the dimensions of price, output, production and selling cost, product design.

Profitability analysis for producers who produce honey using MFH was carried out from the survey of household, traders, consumers, researcher observation and input suppliers' interviews. In this analysis production cost of inputs in year (2014) and marketing cost were considered as listed in Appendix table 1. This indicates that, the highest honey production cost was incurred to labor cost followed by colony cost and cost of MFH with percent of 31.5, 25.6 and11.5 of the total production cost. Labor cost was calculated on average of minutes, working hours and days that one keeper spends on beekeeping activities per day and considering the average daily lobar cost that one daily laborer can earn per day in the study area. The color type of honey extracted from each hive largely depends on the season and availability of bee forage that the worker honey bees collect. For the sake of comparison, white honey selling price was considered in all market channels. Furthermore producers who were involved in honey production using movable frame hive (MFH) were earning net income of 2,465Birr per a single production year per hive.

In case of cost and profitability analysis of local honey collectors' average costs and selling prices of honey collectors and average buying price of consumers were considered in the analyzing profit for MFH honey as described in Appendix table 2. Local honey collectors in the study area were found in Dibdibo and Sero and all have goods retailing shops. In addition to goods retailing activity they perform honey collecting without any license. Based on the result in Appendix table 2, the highest cost in case of honey collectors was cost of packaging material (container).

Cost and profitability analysis of honey retailers' that were found in Enticho was summarized in Appendix table 3. In this analysis, the average expenses, selling prices of traders and consumers' average buying price were considered. The researcher also observes that those actors mainly

focus on sorting and packaging of honey in a transparent and attractive container at a size of one up to two kilograms.

Table 4. 12: honey marketing cost and benefit share of actors

Item (birr/Kg)	beekeeper	Local collector	Retailer	Sum
Purchasing price	-	129.4	133.4	262.8
Production cost	22	-	-	22
Marketing cost	11	4.9	6.9	30.9
Total cost	33	134.3	136.4	305.6
Sale for consumers	137.5	150	160	447.5
Market margin	115.5	20.6	26.6	162.7
Share margin (%)	71	12.7	16.3	100
Profit margin	104.5	15.7	23.6	143.8
Profit (%)	72.7	10.9	16.4	100

Table 4.12 indicates that, each of the honey value chain actors adds value to the product as the product passes from one actor to another by sorting, packaging and extraction. Beekeepers have highest profit share followed by retailers and local collectors which is 72.7, 16.4 and 10.9 respectively in the chain at a single exchange.

4.3.3.3.1. Honey marketing margin at different channels

Marketing margin is the difference between the value of a product or a group of products at one stage in the marketing process and the value of an equivalent product or group of products at another stage. Measuring this margin indicates how much has been paid for the processing and marketing services applied to the product(s) at that particular stage in the marketing process (Smith, 1992).

In the following section sales prices of different channel participants (honey producers, local collectors and retailers), and their marketing costs were summarized to calculate market margin.

Table 4. 13: honey market margin of actors at different channel

Actors	Marketing measures per Kg	Marketing channels				
		I	II	III	IV	V
Beekeepers	Production cost	22	22	22	22	22
	Marketing cost	11	4.9	6.9	6.9	6.9
	Selling price	137.5	129.4	129.4	130.8	140
	Market Margin	115.5	109.3	107.4	108.8	118
	GMM (%)	100	86.3	67.1	81.8	87.5
	NMM (%)	76	68.3	62.8	63.7	69
	TGMM (%)	0	13.7	19.1	18.3	0
Local collectors	Selling price	-	150	150	-	-
	Marketing cost	-	4.9	4.9	-	-
	Market Margin	-	20.6	20.6	-	-
	GMM (%)	-	13.7	13.7	-	-
	NMM (%)	-	10.5	10.5	-	-
Retailers	Selling price	-	-	160	160	160
	Marketing cost	-	-	6.9	6.9	6.9
	Market Margin	-	-	30.6	29.2	20
	GMM (%)	-	-	19.2	18.2	12.5
	NMM (%)	-	-	14.8	13.9	8.2

Where: GMM= Gross Marketing Margin, NMM= Net Marketing Margin and TGMMp=Total Gross Marketing Margin

The Gross margin can indicate where in the marketing chain value is added. Table 4.13 indicates that, honey producing cooperatives in channel V of the study area added value of birr 118 per kilogram of MFH honey. This is because of their goodwill and good potential of bargaining power. The highest and lowest producers' Total Gross Marketing Margin (TGMM) was found to be 19.1% and 0% in channel III and I & V respectively. Without considering channel I (producers sell directly to consumers) producers share was highest in channel V and lowest in channel III at the percent of 87.5 and 67.1, respectively. This is due to the involvement of middlemen's in the channel. The maximum Net Market margin for honey producers in the study area was found in channel I followed by V, II, IV and III at the percent of 76, 69, 68.3, 63.7 and 62.8, respectively.

4.4. Econometric Analysis

4.4.1. Factors affecting producers' market channel choice decision

To analyze market outlet decisions, a multinomial logit (MNL) model was applied to explain inter household variation in the choice of a specific marketing outlet. This study assumed that farmer's decision is generated based on their utility maximization. This implies that each alternative marketing outlet choice entails different private costs and benefits, and hence different utility, to a household decision maker (Greene, 2000).

In this section multinomial logit model was used to estimate the influence of explanatory variables on producers' market outlet choice decision with the help of STATA 10.

Before running the regression, the study used Variance inflation factor (VIF) to investigate the degree of multi-co linearity among continuous explanatory variables and contingency coefficient (CC) among dummy variables. A statistical package known as STATA 10 was employed to compute the VIF and CC values. The results for all VIF values were ranging between 1.11 and 7.49. Likewise, the values of CC were less than 0.75 (Appendix Table 4 & 5). Hence, multicollinearity was not a serious problem both among the continuous and discrete variables.

Several variables which had shown significant difference and relationship with the dependent variable were tried to be included in the model. Finally, twelve explanatory variables were considered and included for the econometric model, out of which seven variables were found to be statistically significant Table (4.14). Out of twelve explanatory variables four were continuous and two were dummy explanatory variables. But one variable (market information) was significant in both market channels.

The Model result in Table 4.14 explained that, there is 47.64 percent of the variation in market choice among honey producers in the study area. The channel "consumer" was used as a base category (reference channel) so that coefficient estimates are the logarithm of the odds of selling to local collectors or retailers over this base category. The result indicates that average monthly income of beekeepers, previous agreement with buyers and market information influences the selection of local collector as market options while the variables age, beekeeping experience, distance to nearest market and market information affected the choice of retailer channel compared to the base outcome (consumers).

Table 4. 14: Result of Multinomial Logit Model (MNL) and Marginal Effect

Independent Variables	Market channel					
	Local collectors			Enticho retailers		
	Coef.	Std. Err.	dy/dx	Coef.	Std. Err.	dy/dx
Age	.04	.06	.00	.22	.06***	.02
EDR	.01	.14	-.00	.15	.12	.01
AMIOBk	-.00	.00**	-.00	-.00	.00	-.00
BKExp	.06	.08	.00	.17	.07**	.01
NMBHO	.79	.56	.03	.44	.47	.03
MPM	.00	.03	.00	-.04	.03	-.02
THYHM	-.02	.02	-.00	-.00	.01	-.00
HOEX	1.20	1.14	.03	.92	1.00	.05
TraAcc	-.43	1.25	-.02	-.70	1.48	-.06
DNM	-.14	.09	-.01	.17	.06***	.01
PAwB	2.10	1.17*	.15	1.50	1.12	.13
MI	-3.34	.98***	-.31	2.33	1.10**	.13
_cons	-2.80	5.42		-12.63	5.10	

Consumers outlet is the base outcome, N=120, LR chi2 (26) = 96.80, Prob > chi2= 0.00, Pseudo R2= 0.4764, Log likelihood = -49.96 and dy/dx is marginal effect

Note: *, **, *** denote variable Significant at 10%, 5%, and 1% probability level, respectively.

The results of the estimated marginal effects were discussed above in terms of the significance and signs on the parameters. The positive estimated coefficients of a variable indicates that the probability of the producers' being in either choosing local collectors or retailers relative to base outcome increases as these explanatory variables increase. The negative and significant parameter indicates the probability of choosing to consumer is higher than the probability of being in the other two alternatives.

From the multinomial estimation for market channel choice in table 4.14, it was found that the probability of choosing local collectors is affected positively and significantly by previous agreement with buyers' and negatively by average monthly income of beekeepers and market information. Similar to this, the probability of choosing retailers' is affected positively and significantly by age of household, beekeeping experience, distance to nearest market and market information.

Age of respondents (Age): This variable was expected to have positive or negative influence on producers' market channel choice decision. The variable was positively and significantly related to the use of retailers' market channel at 1% significant level. As age of beekeepers increase, the probability of buyers trust regarding honey quality would increase. This also attracts buyers specially retailers and become interested to purchase product of aged producers at fair price so as to retail it later at high price. In addition to this these beekeepers will develop long term relationship with the retailers (goodwill). The output shows that, as the age of beekeepers increases, their preference to retailers' market channel would increase by 2% relatively to consumers' market channel.

Average monthly income of beekeepers (AMIOBk): This variable was expected to have positive influence on producers channel choice decision. The variable was negatively and significantly related with the use of collectors channel at 5% significant level. Beekeepers that have good economical status have probability of selling their product at fair price or storing it until the market price of the product rise up. Hence, as the income of beekeepers increases the probability of choosing collector market channel would decrease relatively to consumers' channel. Hence, those beekeepers could not be enforced by someone to sale their produce at lower price so as to pay their loan.

Beekeeping experience (BKExp): This variable was expected to have positive influence on producers channel choice decision. As expected, the variable was positively and significantly related to the use of retailers channel at 5% significant level. Beekeeping experience improves efficiency in honey production and product handling. If retailers have no doubt on the honey quality, they are ready to buy even large volume at a time so as to sell it later with high profit or to mix it with other honey product type. The result indicates that, as the producers' beekeeping experience increases the probability of choosing retailers market channel slightly increased by 1% relatively to consumers' market channel.

Distance to nearest market (DNM): Distance to nearest market was expected to have negative influence on producers' market channel choice decision. But the variable was positively and significantly related to the channel choice of retailers' market channel at 1% significant level. Beekeepers' that came from distant areas of the Woredas to the market are not well known by customers and this leads them fail to be trusted by consumers regarding the quality of their

product. The result indicates that, as distance from the nearest market center increases, probability of choosing the retailers' market channel would increase by 1% relative to consumers' market channel.

Previous agreement with buyers (PAwB): this variable was expected to have positive influence on producers' market channel choice decision. As expected this was positively and significantly associated with the local collectors' market channel at 10% significant level. Previous agreement with buyers creates market security and confidence for producers and this type of agreement is trust based. Generally beekeepers prefer to sell their product to the customer that had agreed with them before. The result showed that, as producers' have previous agreement with buyers, their preference to local collectors' market channel would increase by 15% compared to consumers market channel.

Market Information (MI): Market Information was expected to have positive influence on producers market out let choice decision. But the variable was negatively and positively significantly associated with the choice of collector and retailer market channel at 1% and 5% significant level respectively. Access to current market information improves producers selling price. Because market information helps producers to analyzing the price difference in their locality and the nearby main market and this declines beekeepers preference to local collectors', rather they transport it to the nearest market. The result shows that producers' having current market information decreases the probability of choosing local collector market channel by 32% and increases the probability of choosing retailers market channel by 13% compared to consumers' market channel.

4.5. Constraints and opportunities in the honey value chain

4.5.1. Constraints of honey production

The major causes of the problem that affect apiculture in Ethiopia are lack of beekeeping knowledge, shortage of trained manpower, shortage of beekeeping equipment, pests and predators, fires, pesticide threat and inadequate research works to support development programs (Johannes, 2005).

In this section prevalence of bees' disease, severity of pests and predators and overall constraints identified by sample respondents which hinders production and productivity of honey using movable frame hive were discussed and raked using ranking index.

The result in table 4.15 indicates that, out of the listed pests and predators respondents of the study area raked Ants, Birds and Wax mouse as 1st, 2ndand 3rd respectively. From the above finding the researcher can infer that beekeepers in the study area are still suffering due to the consequences of pests and predators. Furthermore producers are not getting adequate and consistent training on how to protect their hives from honey bee pests and predators.

Table 4. 15: Pests and Predators

No	Pest/predator	Rank Count of Respondents						Ranking index result	Rank
		1st	2nd	3rd	4th	5th	6th		
1	Ants	30	49	38	3			0.28	1st
2	Wax mouse	34	18	22	21	8	1	0.20	3rd
3	Spider	1	1	1	16	17	17	0.09	6th
4	Honey badger	5	8	20	28	19	6	0.15	4th
5	Bird	49	34	14	11	12		0.25	2nd
6	Lizard	2	11	20	28	17	15	0.14	5th

The above result agrees with the findings of Mesfin (2012), similar field of study conducted in Kilite Awulaelo Woreda, Tigray and ranked Ants and Wax mouse at 1st and 2nd sequentially.

Table 4. 16: Ranking of Beekeeping Constraints

No	Pest/predator	Rank Count of Respondents								Ranking index result	Rank
		1st	2nd	3rd	4th	5th	6th	7th	8th		
1	Movable frame hive	3	6	7	10	2	0	0	0	0.19	4th
2	beekeeping equipments	29	18	12	17	3	6	0	0	0.21	3rd
3	bees forage	3	3	7	5	3	16	1	1	0.124	7th
4	Colony Disease	2	3	9	18	8	2	0	0	0.15	6th
5	Pests and predators	66	10	22	7	6	0	0	0	0.27	1st
6	Colony supply	0	0	1	2	2	1	0	0	0.119	8th
7	Chemical application	16	49	32	13	1	2	0	0	0.22	2nd
8	Death of colony	0	0	4	9	8	9	2	0	0.11	9th
9	Absconding	6	19	30	9	2	3	2	0	0.18	5th

In case of beekeeping constraints, most constraints hindering beekeepers' hive productivity were pests and predators (1st), followed by chemical application (2nd) and beekeeping tools equipments (3rd). From the above finding, the researcher infer that, the ranked constraints were results on lack of consistent training and frequent technical advice on colony seasonal management, integrated agricultural pest and weed control system and poor supply of beekeeping tools and equipments.

4.5.2. Constraints of honey market

In the study area, the specified market related problems by the traders were honey adulteration, lack of supply and poor post harvest handling with 50, 33.3 and 16.7 present, respectively. Honey in the study area was adulterated with sugar, banana and wheat powder. The most sensitive honey color is the white one harvested from MFH using honey extractor and this influences the extracted honey type came from MFH. Due to these reasons beekeepers in the study area starts to harvest honey from MFH by scraping the honey comb using knife or spoon rather than extracting it. This also hinders the honey yield maximization by saving time of bees to reconstruct honey comb.

In case of honey consumers, in the study area 53.3% of the consumers were unable to identify the adulterated honey from the pure one. In addition to that the preferable type of honey by consumers was honey harvested from traditional, modern and from both hives with percent of 28.9, 37.8 and 33.3, respectively. The reason of consumers' preference of honey harvested from traditional hive was because of its taste and these also believed that, honey from traditional hive is not suitable for adulterating truly with foreign materials like sugar and banana. 73.3% of honey consumers' preferable color type was the white one.

4.5.3. Opportunities of honey production

Despite the challenges in the study area, beekeeping is a sustainable form of agricultural activity which is beneficial to both environment and provides economic reasons for the conservation of native habitats to perpetuate their life cycle and potentially increased yield and quality of vegetables, fruits and forage crops through pollination.

The opportunities of honey production using movable frame hive in the area include availability of area closures, easy access to modern beekeeping materials, availabilities of bee's forages, motivating government policy and demand for quality and quantity of honey.

Availability of area closures in the study area improves the likelihood of bees' forage development and creating opportunities of newly established beekeeping sites. This also creates job opportunity for the land less youth in the area.

Access of modern beekeeping materials (movable frame hive) for honey producers in the study area has been introduced by different actors through aid with the help of NGO and by governmental suppliers' in the form of long term payable loan based on the economical status of producers.

The study area is endowed with natural resource and suitable for beekeeping activities; this is because of its diverse and suitable agro ecology and climatic condition. This allows the availabilities of honey bees' forages and improves the production and productivity of MFH and reduces colony absconding.

In Ethiopia the national and regional government as well believes that, honey production is one of the activities of income generating which can be performed with small initial capital investment as part time activity with high return on investment. Hence government policy motivates producers who participate in this activity so as to reduce poverty.

These days, the local and international markets are demanding for organic products. Therefore, as our beekeepers produce organic honey they can take advantage of this opportunity both as the local and international market.

CHAPTER V- SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Summary and Conclusion

This study was done with the aim of analyzing the value chain of movable frame hive (MFH) honey, in Ahferom Woreda of Tigray region. The specific objectives of the study included identifying the honey value chain actors, functions, activities, and degree of coordination, assessing the profit distribution of actors, identifying factors affecting channel choice decision and identifying constraints and opportunities of the honey value chain in the study area and proposing mechanisms on how to upgrade the value chain.

The data were collected from both primary and secondary sources. The primary data were collected from individual interview using pre-tested semi-structured questionnaire and checklist. The primary data for this study were collected from 120 randomly selected honey producers using MFH from three *kebeles* of the Woreda, 6 traders from the sampled *kebeles* and Enticho and 45 local consumers' from Enticho interview using semi structured questionnaire and checklist. The sampling technique employed was stratified random sampling.

The analysis was made using descriptive statistics, value chain analysis, structure conduct and performance, ranking index and econometric model using SPSS and STATA software's. Factors affecting Market channel choice decision honey producers were found to be important elements in the study of honey value chain. Therefore, to analyze factors affecting producers' market channel decision for selling of honey multinomial logit model (MNL) was applied. Furthermore ranking index was applied to rank constraints of honey value chain in the study area. The findings of this study are summarized as follows:

Value chain analysis approach was applied to describe actors and their respective functions in the chain. In the study area there are five main actors namely input suppliers, honey producers, local collectors, retailers and consumers. Honey producers, REST, Zonal LIVES, Zonal TARI, Farm Africa, cooperatives and OoARD are the main actors' involved in input supply and honey production activities in the study area. Local collectors in the study area purchase honey from the producers and sell it to retailers and directly to consumers. Enticho retailers also purchase honey from local collectors and producers and sell it to consumers. The main supporters of honey value

chain in the study area were OoARD, Farm Africa, Dedebit micro finance, Zonal LIVES, REST cooperatives and Zonal TARI. The researcher conclude that, all traders in the study area have no any collecting and retailing licence, value chain actors are not linked with processing plants and no trader is supplying input, credit and technology to honey producers implying that their interaction with producers is only on honey supply.

Beekeepers who produce honey using MFH in the study area supply their produce to three market channels according to their market choice decision; due to this reason volume of produce was supplied to consumers, local collectors and retailers. Major share of honey marketing goes from producers to consumers' channel (58%). This is due to the preference of honey producers to sell their product directly to consumers so as to get better price for their product. There is strong oligopoly market structure and this implies that the market is controlled by few traders. This is due to poor market organization and lack of any responsible honey collecting agent at reasonable price. Hence, producers have poor bargaining power to sell their produce. Regarding to Net Market Margin (NMM) of honey producers, the maximum for honey producers in the study area was found in producer to consumer (76%) and minimum beekeeper to local collector to retailer to consumer (62.8%). The highest NMM is due to minimum intervention of middlemen's.

The multinomial logit model results indicated that the probability to choose the collector outlet was significantly affected by average monthly income, previous agreement with buyers and market information. Similarly variables such as Age, Beekeeping experience, Market information and Distance to nearest market affected the choice of retailers channel compared to the consumers' channel. Therefore, these variables require special attention if effectiveness of honey value chain and producers margin from honey production is needed to be improved.

The major constraints that hinder the effectiveness of honey value chain in the study area to exploit the beekeeping potential were prevalence of pests and predators, agro chemical application and shortage of beekeeping tools and equipments. This is due to lack of consistent training and frequent technical advice on colony seasonal management, poor integration on agricultural pest and weed control system and poor supply of beekeeping tools and equipments.

In case of marketing, poor functionality of farmers' cooperatives, lack of honey quality assurance mechanisms, honey adulteration, lack of practicable legislation on adulteration, lack of honey collection center and poor market linkage are the major problems. This results a market which is poorly organized and dominated by few traders.

5.2. Recommendations

Possible recommendations could be given on the basis of the study so that one can consider in future intervention strategies at different levels which are aimed at improving performance of overall honey value chain. Accordingly the following recommendations are forwarded by the researcher:

Strengthening the linkage among value chain actors is vital for honey value chain development. There is a need to change the mindset of actors regarding benefit share through developing a wide set of attitudes and trainings. In particular, positive attitudes toward partnership, interaction, networking and learning need to be nurtured among the value chain actors. Therefore, linking traders, cooperatives and potential beekeepers with honey processors (Dimma beekeeping development and honey processing PLC), licensing honey traders are critical interventions that improve the value chain performance.

The existing strong oligopoly market structure could be changed in to competitive market structure through developing strong market organization. This includes establishing responsible honey collecting agent or establishing honey collection centers with a reasonable price nearby of honey producers. This also minimizes producers transaction cost and maximizes their profits.

Local collectors channel choice is affected negatively and significantly by market information relatively to consumers' market channel. Therefore, beekeepers should be updated with current market information in order to make them choose the best market channel to improve their livelihoods. This can be done by using rural development offices, farmer training center and schools as hubs for information exchange.

Retailers channel choice is affected positively and significantly by distance to nearest market relatively to consumers' market channel. Therefore, functionalizing the established cooperatives

or establishing new active cooperatives nearby beekeepers will reduce transportation and marketing cost and sells at motivating price.

The major constraints that hinder the effectiveness of honey value chain in the study area to exploit the beekeeping potential were prevalence of pests and predators, agro-chemical applications and shortage of beekeeping tools and equipments. Therefore, providing consistent trainings, integrating any activity operation in the farmers' area, capacitating developmental agents that can create active interaction with farmers and adequate supply of beekeeping tools and equipments improves the overall performance of honey value chain.

In case of marketing, poor functionality of farmers' cooperatives, lack of honey quality assurance mechanisms, honey adulteration, lack of practicable legislation on adulteration, lack of honey collection center and poor market linkage are the major problems. Therefore establishing honey collection centers in potential production areas and equipping them with the necessary facilities including quality control mechanism will encourage honey producers and enable them to sell their product at better price and reduces the level of honey adulteration. Furthermore, these collection centers will have a potential to build the vertical linkage of honey value chain actors.

REFERENCES

AAFC (Agriculture and Agri-Food Canada), (2004). *Value-added agriculture in Canada*. Report of the standing senate committee on agriculture and forestry, Agriculture and Agri Food, Canada.

Abraham, T. (2013). *Value Chain Analysis of Vegetables: the case of Habro and kombolcha woredas in oromia region*, M.S.c. Thesis, Haramaya University, Ethiopia.82p.

Ametemariam, G. (2009). *Role of Women in Value-Chain Systems of Vegetables and Spices*, *in Atsbi Wemberta Woreda, Eastern Zone of Tigray*. M.Sc. Thesis, Mekelle University.

Anandajayasekeram, P. and Berhanu, G. (2009). *Integrating innovation systems perspective and value chain analysis in agricultural research for development*: implications and challenges. Improving Productivity and Market Success (IPMS) of Ethiopian farmers project working paper 16. ILRI (International Livestock Research Institute), Nairobi, Kenya.

ARSD (*Apiculture Research Strategy Document)*, (2002). Addis Ababa, Ethiopia.

Ayalew, K. (2008). *Establishment of Apicultural Data base in Ethiopia.* Netherlands Development Organization. Addis Ababa. Unpublished report.

Ayelech, T. (2011). *Market chain analysis of fruits for Gomma woreda*, Jimma zone, Oromia National Regional State. M.Sc thesis presented to School of Graduate Studies, Haramaya University.p110.

Berhanu, G., Jemaneh, S., Hoekstra, D. and Anandajayasekeram, P. (2012). *A guide to market-oriented extension services with special reference to Ethiopia*. IPMS (Improving Productivity and Market Success) of Ethiopian Farmers Project. Nairobi: ILRI.

Beyene, T. and David, P. (2007). *Ensuring small scale producers in Ethiopia to achieve sustainable and fair access to honey markets*. Paper prepared for International Development Enterprises (IDE) and Ethiopian Society for Appropriate Technology (ESAT). Addis Ababa, Ethiopia, 1-64p.

BoARD (Bureau of Agriculture and rural development), (2001). *Tigray National Regional State (TNRS) Bureau of Agriculture*. Mekelle, Ethiopia..75-77p.

Bongiwe G. and B. Masuku, 2012. *Factors affecting the choice of marketing channel by vegetable farmers in Swaziland*. Canadian Center of Science and Education. Sustainable Agriculture Research; 2, (1);123.

Bradbear, N. (2003). *Beekeeping and sustainable livelihoods*. FAO. Rome.

Cramer, G.L. and Jensen, W. (1982). *Agricultural Economics and Agribusiness, 2Nd Edition*. McGraw Hill Book Company, USA. 222p.

CIAT (Centro International de Agricultureal Tropical), (2004). *Increasing the competitiveness of market chains of smallholder's producers.* Manual, 3: Territorial Approach to Rural Agro Enterprise Development Project.

CSA (central statistics agency). *(2012)*. *Agricultural sample survey*, *Report on live stock and live stock characteristics*.

Fakoya, O, Agbonlahor. and A. Dipeolu, (2007). *Attitude of women farmers towards sustainable land management practices in South-Western Nigeria*. World Journal of Agricultural Sciences, 3(4): 536-542p.

Gemechis, L.(2015). *Honey Production and Marketing in Ethiopian*. American Journal of Life Sciences. Vol. 3, No. 1, pp. 42-46. doi: 10.11648/j.ajls.20150301.18

Getachew N, (2009). *Honey market chain analysis*: The case of Burie Woreda, West Gojjam Zone, Amhara National Regional State. M.Sc thesis presented to the School of Graduate Studies, Haramaya University. 30p.

Gidey, Y. and Mekonen, T. (2010). *Participatory Technology and Constraints Assessment to Improve the Livelihood of Beekeepers* in Tigray Region, northern Ethiopia, Mekelle University, Ethiopia.

Gichora, M. (2003). *Towards Realization of Kenya's Full Beekeeping Potential*: A Case Study of Baringo District. Ecology and Development Series No. 6, 2003. Cuvillier Verlag Gottingen, Germany. 157p.

Greene, W. (2000). *Econometric Analysis. 4th edn*. NJ: Prentice Hall, Englewwod Cliffs.

GTZ (German Technical Cooperation). (2008). *Honey in Nepal*: Approach, Strategy and Intervention for Subsector Promotion. German Technical Cooperation/Private Sector Promotion-Rural Finance, Nepal.

GTZ (German Technical Cooperation). (2007). *Value Links Manual:* The Methodology of Value Chain Promotion. First Edition. Eschborn. 45p.

Gujarati, D. (2003). *Basic Econometrics. 4th edition*. Tata McGraw-Hill Publishing Company Limited, New Delhi, India. 614p.

Hartmann, I. (2004). *The Management of Resources and Marginalization in Beekeeping Societies of South West Ethiopia*. Paper Submitted to the Conference: Bridge

Holloway, G., Charles Nicholso, C., and Delgado, C. (1999). *Agro-industrialization through Institutional Innovation: Transactions Costs, Cooperatives and Milk- Market Development in Ethiopian Highlands.* Discussion paper No.35.

Humphrey, J., and Schmitz, H. (2002). *Chain governance and upgrading: taking stock*. In H. Schmitz Local Enterprises in the Global Economy: Issues of Governance and Upgrading. Cheltenham: Elgar, 349-381p.

James E. B, Joe W.K and Chadwick C. H, (2001). *Determining appropriate sample size in survey research.* Information technology, learning and performance journal, vol.19, No.1.

Jari, B. and G. Fraser, (2009). *An analysis of institutional and technical factors influencing agricultural marketing amongst smallholder farmers in the Kat River Valley, Eastern Cape Province, South Africa.* African Journal of Agricultural Research, 4 (11): 1129-1137.

Johannes, A. (2005). *Strategic intervention plan on honey and beeswax value chains*. Ethiopia, Addis Ababa.

Kaplinsky, R. and M. Morris. (2000). *A handbook for value chain research*, IDRC. Ottawa, Canada.

Kaplinsky, R. and M. Morris. (2001). *A handbook of value chain analysis*. Working paper prepared for the IDRC, Institute for Development Studies, Brighton, UK.

Kohls, R., and N. Uhl. (1985). *Marketing of agricultural products*. 5th Edition. McMillian Publishing Company, NewYork, USA.

Kotler, P. and G. Armstrong. (2003). *Principle of marketing*, 10th Edition. Hall of India Pvt. Ltd. New Delhi. 5-12p.

LIVES (Livestock and Irrigation Value chain for Ethiopian Stallholder farmers). (2013). *Processes, descriptions and potential commodity interventions in central zone of Tigray.* Compiled by Gebremedhin Woldewahid and Dawit Weldemariam. March 2013, Mekelle.

Lundy, M., C. Felipe and R. Best. (2002). *Value adding, agro enterprise and poverty reduction*: a territorial approach for rural business development and rural agro enterprise development project, Colombia.

Magrath, P. (1992). *Methodologies for studying Agricultural marketing in developing countries*. Marketing series 2, Chatham, UK, Natural Resource Institute. 34p

Malhotra N. (1996). *The use of structure conduct and performance of the market to measure the marketing efficiency* (A theoretical frame work) MEB (i); 53-59p.

Mamo, G. and Degnet A. (2012). *Patterns and Determinants of Livestock Farmers' Choice of Marketing Channels*: Micro-level Evidence. EEA/EEPRI working paper, Addis Ababa.

McFadden, D. (1978). *Annals of Economic and Social Measurement*, Quantal choice analysis: a survey 5(1976):363-390p.

Meijer, P. (1994). *The Function of Maize Market in Benin*, Bert Broundjin,. 11-32p.

Mekonen. T., Gidey. Y., Tewelde. H. and Solomon. A. (2011), *Prospects of beekeeping in the Northern Ethiopian highlands.*

Mendoza, G. (1995). *A premier on marketing channel and margins*. Lyme Rimer Publishers Inc., USA.

Mengistu, A. (2010), *Improving market access and income of small-scale beekeepers through Value Chain Analysis*: A Case Study from Gera District in South West of Ethiopia M.s.c Thesis.

Mesfin, Y. (2012). *Value Chain Analysis of Honey Production*: the Case of Klite Awlaelo wereda, Eastern Zone of Tigray. A Thesis Submitted in Partial Fulfillment of the Requirements for the Award of Master's Degree in Business Administration (MBA). Mekelle University, Ethiopia.

Mitchell J, Jodie K, Christopher C. (2009), *Trading Up: How a Value Chain Approach Can Benefit the Rural Poor*. COPLA Global: Overseas Development Institute IDS.

MoARD *(*Ministry of Agriculture and Rural Development*)*. (2007). *Livestock Development Master Plan Study. Phase I Report - Data Collection and Analysis, Volume N - Apiculture*. Addis Ababa, Ethiopia:

MSPA (Mauritius Sugar Producers' Association). (2010)**.** *Value-added products of sugarcane*. http://www.mspa.mu/index.php?rubrique=15. Date accessed: December 10, 2014.

Musa, L., Peters, K. and Ahmed, A. (2006). *On farm characterization of Butana and Kenana cattle breed production systems in Sudan.* Livestock Research for Rural Development. Vol. 18, 56-61p.

Nuru, A. (2002). *Geographical races of the Honeybees* (*Apis mellifera* L.) *of the Northern Regions of Ethiopia*. PhD dissertation. Rhodes University, South Africa.56p.

OoARD (Office of Agriculture and Rural Development). (2014). *Third Quarter report*. Ahferom Woreda.

OoARD (Office of Agriculture and Rural Development). (2015). *Second Quarter report. Ahferom Woreda.*

Porter, M. (1998). *Competitive advantage*: creating and sustaining superior performance. With new introduction. The Free Press, New York.

Reardon, T. and Berdegué, J. A. 2005. *The Rapid Rise of Supermarkets in Latin America*. Challenges and Opportunities for Development', *Development Policy Review* 20 (4): 317-34p.

Sikawa, y. and Mugisha, J. (2011). *Factors influencing south-western uganda dairy farmers' choice of the milk marketing channel*: a case study of kirihura district-south western uganda. Vol.I. Issue No. ISSN 0856-9681

Smith, D. (1992). Costs and Returns in Agricultural Marketing. *Marketing and Agribusiness Development Paper*. Department of Political Economy, University of Glasgow. Glasgow, Scotland. 67p.

Tessega, B. (2009), *Honeybee Production and Marketing Systems, Constraints and Opportunities* in Burie District of Amhara Region, Ethiopia M.S.C. Thesis Submitted to Bahir Dar University, Ethiopia.

UNCTAD (United Nations Conference on Trade and Development). (2006). *The African Honey Trade*: Unlocking the Potential, Enabling small commodity producers in developing countries to reach global markets. *Journal of Bees for Development, UK*, 12(3):56-60p.

UNIDO (United Nations Industrial Development Organization). (2009). *Agro-value chain analysis and development*: a staff working paper, Vienna.

Wolday, A. (1994). *Food grain marketing development in Ethiopia after reform 1990*. A case study of Alaba Siraro. PhD Dissertation Presented to Verlag Koster University, Berlin 293p.

Appendix

Appendix 1: analysis tables

Appendix table 1: producers honey production cost

No	Honey Production cost (A)	Price	service year	Cost/year	Percentage
1	Movable frame hive (MFH)	987.42	11	89.7	11.5
2	Colony	1000	5	200	25.6
3	Wax (2kg)	374.84	2	125	16

4	Bee veil	20	3	6.7	0.86
5	Glove	60	3	20	2.6
6	Bee Smoker	48	5	9.6	1.2
7	Honey container (10kg)	36	3	12	1.5
8	Supplementary feed			51	6.5
Total production cost		2338.84		514	
	Marketing cost (B)	Content		Cost/hive	
1	Labor cost	Inspection, Extraction, Per diem		246	31.5
2	Transportation cost	Double tripe		20	2.6
Total marketing cost				266	
Total production cost (C)= A+B =780					
	Sale	Yield(Kg)	price/Kg	Revenue (R)	
1	Average yield /hive	23.6	137.5	3245	
Net Income (NI) =R-C =2465Birr/hive					

Source: survey result and own computation, 2014/15

Appendix table 2: cost and profitability analysis of local honey collectors

No	Item	Cost per kilogram	Percent of total expense
1	Purchasing price (A)	129.4	
2	Labor cost	0.4	0.28
3	Rent expense	0.9	6.3
4	Packaging cost	3.6	93.42
Total operation cost (B)=4.9			
Total cost (C)=A+B=134.3			
Gross sale/kg (S)=150			
Profit /lose =S-C=15.7birr/kg			

Source: survey result and own computation, 2014/15

Appendix table 3: cost and profitability analysis of Enticho retailers

No	Item	Cost per kilogram	Percent of total expense
1	Purchasing price (A)	133.4	
2	Labor cost	0.5	
3	Rent expense	1.3	
4	Packaging cost	4	
5	Tax	1.1	
Total operation cost (B)=6.9			

Total cost (C)=A+B=133.4+6.9
Gross sale/kg (S)=160
Profit /lose =S-C=19.7birr/kg

Source: survey result and own computation, 2014/15

Appendix table 4: VIF result

Variable	VIF	1/VIF
THYHM	7.49	0.133566
NMBHO	7.39	0.135247
BKExp	1.43	0.698757
Age	1.39	0.719061
AMIOBk	1.32	0.758272
EDR	1.25	0.801416
DNM	1.11	0.898266
MPM	1.11	0.902286
Mean VIF	2.81	

Appendix table 5: Result of contingency coefficient

	TWDYSM	HOEX	TraAcc	PAwB	MI
TWDYSM	1.0000				
HOEX	0.1444	1.0000			
TraAcc	-0.0643	0.0905	1.0000		
PAwB	0.1864	-0.1056	0.0462	1.0000	
MI	0.1217	0.1945	0.1138	0.1030	1.0000

Appendix 2: questionnaires

Aksum University

College of agriculture

Department Of Agribusiness and value chain management

Postgraduate Program

Questionnaire: To be filed by **beekeepers**

Dear respondents,

This questionnaire is designed by Master's student of Aksum University, Shire campus. The objective of this questionnaire is to collect data on **value chain analysis of MFH honey:** the case of Ahferom Woreda. The data that will be collected from you (and from all other respondents) will be confidential and only be used for academic purposes i.e. as inputs to write a thesis for masters degree in Aksum University and by no means it will be transferred to a third party. To this end, your kind cooperation in furnishing correct and reliable information is highly appreciated. The researcher would like to take this opportunity to thank you in advance for your kind cooperation in responding the questions.

Thank you!!!

Atsbaha Mehari

General instructions for enumerator

- ✓ Make brief introduction before starting any question, introduce yourself to the farmers, greet them in local ways and make clear the objective of the study.
- ✓ Please fill the interview schedule according to the farmers reply (do not put your own feeling).
- ✓ Please ask each question clearly and patiently until the farmer gets your points.
- ✓ Please do not use technical terms and do not forget local units.
- ✓ Put your answers for the question provided in choice form by putting a [✓] mark on your choice.
- ✓ Prove that all the questions are asked and the interview schedule format is properly completed.

Respondent code: _____

Zone: _____Woreda: _____ Kebele: _____

Name of enumerator: _____Date: _____/_____/_____

Supervisor Name: _____

Date _____Duration: Starting time _____ ending time _____

Part I. Personal information

1. Name of household _____
2. Sex: 1. Male [ ] 0. Female [ ]
3. Age of household _____
4. Your Educational Background

1. Cannot read and write [ ] 2. Can read and write with no formal education [ ]
3. Primary school completes [ ] 4. High school completes [ ] 5. Diploma and above [ ]

5. Marital status of households. 1. Married [ ] 0. Single [ ]
6. Family size_____

Part II. Wealth and income other than beekeeping

1. Did you perform any other income generating activities other than beekeeping activities?
   1. Yes [ ] 0. No [ ]
2. If your response for **Q. 1** is yes, where do you get the income?
   1. Salary [ ] 2. Cereal production [ ] 3. vegetable production [ ]
   4. sheep & goat [ ] 5. poultry production [ ] 6. dairy production [ ]
   7. Others(specify)_____
3. If your response for **Q. 1** is yes, how much do you get on average per month?_____Birr.

Part III. Honey production related issues

1. When did you start beekeeping?
   1. >10 years [ ] 2. 5-10 years [ ] 3. Less than 5 years [ ]
2. How do you start beekeeping?

No	Source	Quantity	Traditional	Modern	Price per colony
1	Buying				
2	Donation				
3	Catching swarm				
4	Other				

3. Where do you keep your honey bees?
   1. Backyard [ ] 2. In area closure [ ] 3. Inside the house [ ] 4. Any other (specify) ------
4. On average, for how long can one hive serve?
   1. Traditional _____ (Years) 2. Modern_____ (Years)
5. Could you please mention the type of Bee- hives that you have currently in number?
   1. Traditional [ ] 2. Modern [ ] 3. Both type [ ]

6. What kind of beekeeping products did you produce using modern hives? (Giving multiple answers is possible)

   1. Pure Honey [ ] 2. Crud Beeswax [ ] 3. Queen rearing [ ] 4. Any other (specify) ------

7. What kind of beekeeping products did you produce using traditional hives? (Giving multiple answers is possible)

   1. Crude Honey [ ] 2. Crude Beeswax [ ] 3. Queen rearing [ ] 4. Any other (specify) -----

8. Could you mention honey harvest seasons in your woreda? (Giving multiple answers is possible)

   1. July – September [ ] 2. October– December [ ]

   3. January – March [ ] 4. April – June [ ]

9. How many times and how much honey do you harvest from a single hive in 2006/2007 harvest time?

No	**Types of hive**	**Frequency**			**Amount harvested per hive(Kg)**			**Total amount harvested(Kg)**	**Price per Kg**	**Total income (birr)**
		1	**2**	**3**	**1**	**2**	**3**			
1	Modern									
2	Traditional									

10. For what purpose did you produce honey? (Giving multiple answers is possible)

    1. For sale [ ] 2. Gift for relatives' [ ]

    3. For consumption [ ] 4. Traditional medicine [ ]

11. Are you a member of any cooperative engaged in any business? 1. Yes [ ] 0. No [ ]

12. If your answer for **Q.11** is yes please describe the type of cooperative._____

13. If your answer for **Q.11** is yes what kind of service do you get?

    1. Inputs for beekeeping [ ] 2. input for crop and vegetable production [ ]

    3. Input for livestock production [ ] 4. Credit [ ] 5. Others _____

14. Currently do you rear queen? 1. Yes [ ] 0. No [ ]

15. If the answer for **Q. 14** is yes, for what purpose do you rear queen? (giving multiple answer is possible)

1. To replace old queen [ ] 2. For sale [ ]

3. To increase number of colony [ ] 4. Others _____

16. Do you replace old, black combs in your hive? 1. Yes [ ] 0. No [ ]

17. If your answer to **Q. 16** is yes, from where did you get wax?

1. from purchasing [ ] 2. From own extracting crud bees wax [ ] 3. Others (specify)___

18. If your answer to **Q. 16** is yes, at what time interval did you replace?

1. Every 1 year [ ] 2. Every 2 years [ ] 3. Every 3 years [ ] 5. Above 4 years [ ]

19. If your answer to **Q. 16** is no, what is the reason?

1. Lack of awareness [ ] 2. High Cost of wax to buy [ ]

3. Lack of access to wax to buy [ ] 4.Others(specify)_____

20. Do you provide supplementary food to your bee colonies? 1.Yes [ ] 0.No [ ]

21. If your answer to **Q .20** is yes, when do you feed bees? Multiple answers is possible

1. during the dry season [ ] 2. When the bees are weak [ ] 3. During queens rearing [ ]

4. During colony transport [ ] 5. Others(specify)_____

22. If your answer to **Q .20** is yes, what are supplementary food types given to bee?

No	Supplementary food type	Quantity (kg)	Amount given per hive	Cost of feed per Kg	Source
1	Sugar				
2	Honey				
3	Cereal + beans flour				
5	Other _____				

23. Do you inspect your colony? 1. Yes [ ] 0. No [ ]

24. If your answer for **Q. 23** is yes indicate your frequency of inspection?

1. Daily [ ] 2. Once a week [ ] 3. Once a month [ ]

4. three times per year [ ] 5. others _____

25. Did your colonies abscond? 1. Yes [ ] 0. No [ ]

26. If your answer to **Q. 25** is **Yes**, what do you think is the reason? (Giving multiple answers is possible)

1. Shortage of food and water [ ] 2. Due to Pests and predators [ ]

3. Poor bee management [ ] 4. Others, (specify)……

27. Do you process your honey? 1. Yes [ ] 2. No [ ]

28. If your answer to **Q.27** is yes, what materials do you use for processing?

1. Honey extractor [ ] 2. Sieve [ ] 3. Honey presser [ ] 4. Cloth [ ] 5. other (specify)____

29. Where the processing materials do you get them? (Giving multiple answers is possible)

1. Office of agriculture & rural development [ ] 2. NGO's [ ]

3. Buying [ ] 4. other _____

30. If your answer for **Q.27** is yes, why you decide to process?

1. No market for honey with the comb [ ] 2. Processing earns more market price [ ]

3. To reuse the honey comb [ ] 4. Others (specify) _____

31. If the answer for **Q.27** is No, why?

1. No access to honey processing materials [ ]

2. Consumers prefer honey with the comb [ ]

3. Don't have knowledge of how to process it [ ]

4. Others (specify)_____

32. What was your labor cost for honey production in 2014/15 season?

A	B	C	D	E	F	G	H	I=G+H
Activity	**No. Of family Members worked on the honey farm**	**Days spent**	**Average hours Worked each day**	**Total hours worked**	**Rate per Labour hour (Birr)**	**Total family Labour value (Birr)**	**Payment for hired labour (Birr)**	**Total labour Cost (Birr)**
Colony inspection								
Wax printing								
Harvesting								
Processing								
Packing								
honey transportation to selling point								
Other labour costs								
Total labour cost								

33. What was your equipments and materials cost for honey production in 2014/15

A	B	C	D	E	F	G	H	I	J=F+I	K
Type of beehive/ material/ equipment	**Life span of the item**	**Items (number)**	**Items purchased unit costs (Birr)**	**CXD**	**E/B=cost for The past year**	**Rented items (number)**	**Items rental unit fees paid (Birr)**	**FXG**		**Use Freely from BOA in their FTC**
Modern hive										
Bee colony										
Veil										
Gloves										
Bee wax										
Bee smoker										
Uncapping fork										
Honey container										
Other costs (specify)										
Total purchase and rental cost										

34. Other than labor and material costs, Please mention the costs of the following?

    1. Transportation cost?_____Birr 2. Marketing cost?___Birr 3. Miscellaneous cost?____Birr

35. Is there agrochemicals/chemicals application in your locality? 1. Yes [ ] 0. No [ ]

36. If your answer to **Q. 35** is yes, why do you apply agrochemicals/chemicals?

    1. Crop pests control [ ] 2. Weeds control [ ]

    3. Malaria control [ ] 4. Others (specify): _____

37. What measures do you take to protect your bees from chemicals toxicity effect on bees?

    1. Bees management at beekeeper level [ ]

    2. Legislative measure at administration level [ ]

    3. Communicating with farmers using chemicals [ ]

    Other (specify)_____

Part IV. Access to credit service

1. Did you borrow money for beekeeping? 1. Yes [ ] 0. No [ ]
2. If your answer for **Q.1** is yes, how much did you borrow last year (2013/14)?_____
3. If your answer to **Q. 1** is yes, who is the service provider?

    1. Cooperatives [ ] 2.microfinsnce [ ] 3. Friends [ ]

    4. Relatives [ ] 5. Banks [ ] 6. Others (specify)_____

4. Did you face any problem in accessing credit? 1. Yes [ ] 0. No [ ]
5. If your answer for **Q.4** is Yes, what was the problem? (Multiple responses is possible)

    1. Limited supply of credit [ ] 2. Limited access to transport [ ]

    3. Huge bureaucracy [ ] 4. Others (specify) _____

6. How did you solve these problems? _____

Part V. Access to training & extension service

1. Have you ever participated in beekeeping training in previous years?

    1. Yes [ ] 2. No [ ]

2. If your answer for **Q.1** is yes who is the provider of the training?

    1. Office of agriculture & rural development [ ] 2. Zonal LIVES project [ ]

    3. Zonal Research centers [ ] 4. Others _____

3. If your answer for **Q.1** is Yes, on which aspects do you get the training? giving multiple answer is possible).

   1. Queen rearing [ ] 2. Honey Processing, handling & storage [ ] 3. Input utilization [ ]

   4. Market information and linkage [ ] 5. Honey bee colony management [ ]

4. Specify your skill gape need additional training in beekeeping_____

5. How often do extension service providers meet you?

   1. Regularly [ ] 2. Sometimes [ ] 3. Rarely [ ]

6. How often did you have technical advice on honey production and/or marketing by the extension service providers?

   1. Regularly [ ] 2. Sometimes [ ] 3. Rarely [ ] 4. Not at all/never [ ]

Part VI. Market related issues

1. Did you sell honey that you produced? 1. Yes [ ] 0. No [ ]
2. If your answer for **Q. 1** is yes, could you tell us the market place that you sell your product?(Giving multiple answers is possible).

   1. At my home [ ] 2. Nearby market place [ ] 3. Market place (Enticho) [ ]

   4. Market place out of Enticho [ ] 5. Others if any (specify----------

3. Means of transportation used; (multiple response is possible)

   1. Vehicles [ ] 2. Manpower [ ] 3. Back of animals [ ] 4. Others (specify) _____

4. If you used vehicles, was it easily accessible? 1. Yes [ ] 2. No [ ]
5. If transport, how far is the main market place from your residential area?

   _____kms.

6. Did you have previous agreement with buyers to sale your product? 1. Yes [ ] 2. No [ ]
7. Do you have any previous collaboration with buyers? 1. Yes [ ] 2. No [ ]
8. If your response to **Q. 7** is Yes, what type service did you get from them?

   1. Training [ ] 2. Credit [ ] 3. Material supply [ ] 4. Other _____

9. Could you tell us on how you set price of your Honey with buyers?

   1. Market based pricing [ ] 2. Product based pricing [ ]

   3. On contract base [ ] 4. Other (specify)_____

10. Did you have an access to updated market information on honey? 1. Yes [ ] 0. No [ ]

11. If your response for **Q. 10** is yes, what is your major source of market information?

1. Personal observation [ ] 2. Other honey traders [ ] 3. Telephone [ ] 4. Radio [ ]

5. Office of agriculture and rural development [ ] 5. Others_____

12. Did you know the market prices before you sold your honey? 1. Yes [ ] 0. No [ ]

13. To whom did you sell your honey product? (multiple answer is possible)

1. Consumer [ ] 2. Tej-house [ ] 3. Local collectors [ ] 4. Rural collectors [ ]

5. Retailers [ ] 6. Wholesalers [ ] 7.Dima honey processing[ ] 8. Other (specify)_____

14. To whom do you sell most of your honey?_____

15. Why have you preferred the mentioned buyers/markets to sale your product?

1. Motivating price [ ] 2. Previous agreement [ ]

3. Technical support [ ] 4. Other (specify)_____

16. How long did you keep/ store the honey?

1. I don't store, I will sale / it will be consumed during harvesting [ ]

2. One to six months [ ] 3. Seven to twelve months [ ]

4. One year to two years [ ] 5. More than two years [ ]

17. For what reason do you store honey? _____

18. What equipment do you use for honey container?

1. Plastic bags [ ] 2. Skin and hide [ ] 3. Ground Pots [ ]

4. Fertilizer bags [ ] 5.Others (specify)_____

19. What is the demand of honey in the market?

1. Low [ ] 2. Medium [ ] 3. High [ ]

20. Was there any problem you faced in honey marketing? 1. Yes [ ] 0. No [ ]

21. If your response to **Q. 20** is Yes, could you mention some of the problems that you face? (Giving multiple answers is possible)

1. Lack of market information [ ] 2. Low consumer demand [ ]

3 .Poor linkage with other value chain actors (retailers, traders, consumers, etc.) [ ]

4. Limited access to market [ ] 5. Low quality product (adulterations) [ ]

22. What should be done to solve these problems?_____

23. Are your customers concerned about the quality of honey you sold? 1. Yes [ ] 0. No [ ]
24. If your response for **Q.23** is yes, what are the quality measures?
    1. By color [ ] 2. By its taste [ ] 3. Goodwill [ ] 4.other _____
25. Are your customers willing to pay more for better quality of honey? 1. Yes [ ] 0. No [ ]
26. How do you see your relationship with honey traders?
    1. Strong [ ] 2. Medium [ ] 3. Weak [ ]
27. If your response to **Q. 26** is weak what should be done to strengthened your relation?_____
28. Do you have any value addition on your honey products? 1. Yes [ ] 2. No [ ]
29. If your answer for **Q.26** is yes, what are those values added activities and how much it cost? (Multiple response is possible)

Product type	**Value added activities**	**Value added activities done (✓)**	**How much it costs?**
Honey	Sorting		
	Purification		
	Buying plastic jars		
	Other (specify		

Part VII. Beekeeping constraints and opportunities

1. Are there any bees' diseases in your area? 1. Yes [ ] 0. No [ ]
2. If your answer for **Q. 1** is Yes what are they?_____
3. Which type of hive is more likely affected by the disease?
    1. Traditional [ ] 2. Modern [ ] 3. Both [ ]

4. What are the major pests & predators found in the area that threat your colonies? (Please rank according to their severity (from most to least severe)

No	Pest /predator	1=Yes; 0=No	Rank	What measures will be taken?
1	Ant			
2	Wax mouse			
3	Spider			
4	Honey badger			
5	Birds			
6	Lizards			
7	Specify any other _____			

5. What are the main constraints that you face in your beekeeping activities in the area? (Please rank according to their severity (from most to least severity).

No	Beekeeping constraints	1=Yes; 0=No	Rank	What measures will be taken?
1	Modern hive			
2	beekeeping tools &equipments			
3	bees forage			
4	Colony Disease			
5	Pests and predators			
6	Honey bee colony			
7	Pesticides and herbicides application			
8	Death of colony			
9	Absconding			
10	Others(specify)_____			

6. What are the opportunities for honey production in your locality? (giving multiple choice is possible).

   1. Availability area closures [ ] 2. Easy access to modern beekeeping materials [ ]

   3. Availabilities of bee's forages [ ] 4. Motivating government policy [ ]

   5. Demand for quality and quantity of honey [ ] 6. Others _____

Thank you for your time!!!

Aksum University
College of agriculture
Department Of Agribusiness and value chain management
Postgraduate Program

Questionnaire: To be filed by **Honey Traders**

Dear respondents,

This questionnaire is designed by Master's student of Aksum University Shire campus. The objective of this questionnaire is to collect data on **value chain analysis of MFH honey:** the case of Ahferom Woreda. The data that will be collected from you (and from all other respondents) will be confidential and only be used for academic purposes i.e. as inputs to write a thesis for masters degree in Aksum University and by no means it will be transferred to a third party. To this end, your kind cooperation in furnishing correct and reliable information is highly appreciated. The researcher would like to take this opportunity to thank you in advance for your kind cooperation in responding the questions.

Thank you!!!
Atsbaha Mehari

General instructions for enumerator

- ✓ Make brief introduction before starting any question, introduce yourself to the farmers, greet them in local ways and make clear the objective of the study.
- ✓ Please fill the interview schedule according to the farmers reply (do not put your own feeling).
- ✓ Please ask each question clearly and patiently until the farmer gets your points.
- ✓ Please do not use technical terms and do not forget local units.
- ✓ Put your answers for the question provided in choice form by putting a [✓] mark on your choice.
- ✓ Prove that all the questions are asked and the interview schedule format is properly completed.

Respondent code: _____
Zone: _____Woreda: _____ Kebele: _____ Village: _____
Name of enumerator: _____Date: _____/_____/_____
Supervisor Name: _____
Date _____Duration: Starting time _____ ending time _____

Part I: Personal Information

1. Sex: 1. Male [ ] 2. Female [ ]
2. Your Age:

   1. < 25 [ ] 2. 26 – 33 [ ] 3. 34 – 41 [ ] D. 42 – 49 [ ] E.>50 [ ]
3. Your Educational Background.

   1. Cannot read and write [ ] 2. Can read and write [ ] 3. Grades 8 complete[ ]

   4. High school completes [ ] 5. Diploma and degree [ ]

Part II: Honey Selling Characteristics

1. What is your function in the chain

   1. collector [ ] 2. retailers [ ] 3. Collector & retailer 5. wholesaler [ ]
1. Could you tell us for how long have you been honey trading? _____ Years
2. From whom do you buy honey? Giving multiple answers is possible

   1. Farmers [ ] 2. Wholesalers [ ] 3. Cooperatives [ ]

   4. Retailers [ ] 5. Others specify_____
3. How do you buy honey?

   1. Agreement [ ] 2. Market based [ ] 3. Product based [ ] 5. Other _____
4. To whom do you sell the honey? Giving multiple answers is possible

   1. Retailers [ ] 2. Consumers [ ] 3. Processers [ ]

   4. Exporters [ ] 5. Others if any_____
5. Is there any fluctuation of volume of honey supplied to the market?

   1. Yes [ ] 0. No [ ]
6. If your answer for **Q.5** is yes, what are the possible reasons? Giving multiple answers is possible

   1. Drought [ ] 2. Due to the variation that exist in the demand of honey [ ]

   3. Because of price fluctuation [ ] 4. Others, (specify) ----------
7. How do you rate the quality of honey that is found in this particular market? Giving multiple answers is possible.

   1. By color [ ] 2. By its test [ ] 3. Good will [ ] 4.other _____

8. Which honey color is more preferable by consumers on the market? Giving multiple answers is possible

   1. White [ ] 2. Amber [ ] 3. Yellow [ ] 4. Mixed [ ]

9. How do you evaluate the current market price of honey when you compare it with another time price? 1. High [ ] 2. Medium [ ] 3. Low [ ]

10. How do you see your relationship with honey producers?

    1. Strong [ ] 2. Medium [ ] 3. Weak [ ]

11. If your response to **Q. 10** is weak what should be done to strengthened your relation?_____

12. How do you see your relationship with honey consumers?

    1. Strong [ ] 2. Medium [ ] 3. Weak [ ]

13. If your response to **Q. 12** is weak what should be done to strengthened your relation?_____

14. How do you see your relationship with honey processors?

    1. Strong [ ] 2. Medium [ ] 3. Weak [ ]

15. If your response to **Q. 12** is weak what should be done to strengthened your relation?_____

16. Do you have any values added activities on the honey you sale? 1. Yes [ ] 2. No [ ]

17. If your answer for **Q.14** is yes, what are those values added activities and how much it cost? (Multiple responses is possible)

Product type	**Value added activities**	1. Sorting 2. Purification 3. Buying plastic jars 4. Packaging 5. Other _____	**How much it costs?**
Honey			

18. Do you have any previous collaboration with producers? 1. Yes [ ] 2. No [ ]

19. If your response to **Q. 18** is Yes, what type service did you provide for them?

    1. Training [ ] 2. Credit [ ] 3. Material supply [ ] 4. Other _____

20. How did you fix the price of honey?

    1. Considering labor and other cost incurred [ ] 2. Color of honey [ ]

    3. Market force (supply and demand) [ ] 4. Quality of honey [ ]

    5. Origin of honey [ ] 6. Others (specify_____

21. How much do you sale 1 Kg of honey?

No	**Honey type**	**Average Price of honey/Kg (2014)**		
		Hive type	**Purchasing price**	**Selling price**
1	White	Traditional		
		Modern		
2	Yellow	Traditional		
		Modern		
3	Mixed	Traditional		
		Modern		
4	Amber	Traditional		
		Modern		

22. How do you express the degree of computations that exists between honey traders in your market?

    1. very low [ ] 2. Low [ ] 3. Medium [ ] 4. High [ ] 5. Very high [ ]

23. If your response for question number 13 is high and very high, what do you think are the reasons? (Giving multiple answers is possible).

    1. Easy entry of traders to the market [ ]

    2. Existence of unlicensed honey traders in the market [ ]

    3. Because of large consumption of honey in the market [ ]

    4. Others if any ……..

24. Do you store honey in your shop? 1. Yes [ ] 0. No [ ]

25. If your response for the **Q. 16** is yes, for how long do you store honey in your shop?

    1. For weeks [ ] 2. For one month [ ] 3. For more than one month [ ]

26. If your response for the **Q. 16** is yes, for what purpose do you store it?_____

27. Could you tell us the average expense that you spent in Honey trading 2014?

No	**Expense type**	**Average cost (birr) /Kg**
1	Average processing cost/Kg	
2	Cost of packaging material	
3	Transportation cost/kg	
4	Marketing cost/kg	
5	Shop rent	
6	tax	
7	Miscellaneous cost	
8	Total honey bought for sale in one year	
9	Other cost _____	

28. What are the major problems in honey marketing and other related in your market area?

I) Market related problems

1. _____
2. _____

II) Transport related problems

1. _____
2. _____

III. Other problems_____

29. If you have over all recommendation /comment with regard to the honey and honey related issues that should be addressed so as to extract all the benefits of beekeeping at all level?_____

Thank you for your cooperation!!!!

Dimma honey processing factory in Adigrat

1. Which of the following describes your position in the value chain

   1. Producers [ ] 2. Agricultural input suppliers [ ] 3. Collector [ ]

   4. Retailer [ ] 5. Processor [ ] 6. Others(Specify)_____

2. What are the functions of your factory?
3. Frome which zones of Tigray do you buy honey?_____
4. Frome whom do you buy honey?

   1.producers [ ] 2. Collectors [ ] 3.retailers [ ]

   4.wholesalers [ ] 5. Cooperatives [ ] 5. Others(specify)_____

5. How do you see your relationship with raw honey suppliers?

   1. Strong [ ] 2. Medium [ ] 3. Weak [ ]

6. If your response to **Q. 5** is weak what should be done to strengthened your relation?_____
7. Do you have any previous collaboration with raw honey suppliers?

   1. Yes [ ] 2. No [ ]

8. If your response to **Q. 7** is Yes, what type service did you provide for them?

   1. Training [ ] 2. Credit [ ] 3. Material supply [ ] 4. Other _____

9. What types of processed honey did you prepare for sale?

   1. liquid [ ] 2. creamed [ ] 3. Others(specify)_____

10. Estimated cost for honey market.

No	**Different costs**	**Cost birr/kg**				
		Creamed	**Extra white**	**White**	**Yellow**	**Amber**
1	Purchasing price of honey from Traditional beehive					
2	Purchasing price of honey from Modern beehive					
3	Value addition +Marketing cost					
4	Total honey bought for sale in one year					

11. Where do you sale your products?

    1. In domestic market [ ] 2.in foreign market [ ] 3. In both markets [ ]

12. If you sell in both domestic and foreign market, please tell me the price per kg of liquid honey

No	Honey product	Product type	Selling price /Kg	
			Domestic market	Export
1	Liquid	Extra white		
		White		
		Yellow		
		Mixed		
		Amber		
2	Creamed	Cream honey		

13. Generally, in domestic market to whom do you sell your honey?

    1. To consumer [ ] 2. To honey collector [ ] 3. Retailer [ ] 4. Other(specify)_____

14. Generally in foreign market to whom do you sell your honey?

    1. To consumer [ ] 2. To honey collector [ ] 3. Retailer [ ] 4. Other(specify)_____

15. How do you see your relationship with your honey consumers?

    1. Strong [ ] 2. Medium [ ] 3. Weak [ ]

16. If your response to **Q. 15** is weak what should be done to strengthened your relation?_____

17. Do you collect and give information from your sellers and buyers on the amount and quality of honey required?

    1. Always [ ] 2. Sometimes [ ] 3. Not at all [ ]

18. What factors constrain the linkages between actors?

    1. Policy [ ] 2. Organizational [ ] 3. Infrastructure [ ]

    4. KSA(knowledge, skill, attitude and motivation [ ] 4. Others (specify)_____

19. What should be done to solve factors constrain the linkages between actors?_____

Thank you for your time!!!

By Atsbaha M

Questioner to be filled by Consumers

1. Name of Respondent: _____
2. Zone: _____Woreda:_____ Kebele: _____
3. Sex of the respondent (v): 1. Male [ ] 2. Female [ ]
4. Education level of the respondent (v):

   1. Illiterate [ ] 2. Can read and write 4. 4-8 complete [ ]

   5. 9-12 complete [ ] 6. Diploma &above [ ]
5. Marital status (v): 1. Married [ ] single 2. [ ]
6. What is your major means of income generation?

   1. Farming [ ] 2. Trade [ ] 3. Employment [ ] 4. Others _____
7. Is honey consumed in your family? 1. Yes [ ] 0. No [ ]
8. From whom do you purchase?

   1. Producers [ ] 2. Local collectors [ ] 3. Retailers [ ]

   4. Cooperatives [ ] 5. Others_____
9. What is the purchasing price of honey?

No	Hive type	Purchasing price per Kg for different honey types				
		Extra white	White	Mixed	Yellow	Amber
1	Modern					
2	Traditional					

10. Form which type of hive produced honey do you prefer to buy?

    1. Traditional only [ ] 2. Modern only [ ] 3. From Both [ ]
11. If your answer for Q.9 is traditional why? _____
12. If your answer for Q.9 is modern why? _____
13. What type of honey products do you purchased for consumption? (Multiple response is possible)

    1.white [ ] 2. Yellow [ ] 3. Mixed [ ] 4. Amber [ ]
14. Do you consider any quality requirements to purchase honey? 1. Yes [ ] 0. No [ ]
15. If your answer for **Q.12** is yes, what quality requirement do you consider? (Multiple response is possible)

    1. Test [ ] 2. Color [ ] 3. Viscosity [ ] 4. Good will 5. others_____
16. What are the constraints hindering consumption of honey? (Multiple response is possible)

    1. Shortage of supply [ ] 2. Poor post harvesting techniques [ ]

    3. Adulterations [ ] 4.high price of product [ ] 5. Others _____
17. What should be done to solve the happening problem? _____
18. Are you confidentially able to identify adulteration free honey? 1. Yes [ ] 0. No [ ]
19. If your answer for Q. 18 is no, what measure do you take to buy quality honey?_____

Thank you for your time!!!

Semi structured Interview: with Agricultural Officials & LIVES project of Ahferom Woreda

1. How much is the average productivity of each type of hives that are found in your woreda per year in 2003/2004 production year?
   A. Modern hive_____(kg) B. Traditional hive _____(kg)
2. What is the main source of income for the people who are leaving in the rural area of your woreda?_____
3. How do you express the contribution of beekeeping as a source of income for the people who leave in your woreda as compared to other sources of income?

   _____
4. How do you see the potential of your woreda in the case of honey production (beekeeping) when you compare it with other woreda production potential and convenience? _____

   _____
5. How do you evaluate the trend in the number of honey bee colonies in your woreda (increasing, decreasing or no change)? Could you explain the reason for such trends?

   _____
6. Is there out grower scheme and honey collection center in your woreda?

   _____
7. What do think are the main challenges, problems that are affecting honey production and marketing in your woreda (market price, traditional production system, quality of honey, inaccessibility of the area due to poor road infrastructure, etc)?

   _____

   _____
8. What do you think is the measure that should be taken to overcome the challenges and problems that affect honey production and marketing in your woreda?

   _____

   _____

9. What are the opportunities that exist in your woreda which can be exploited in improving beekeeping activities?_____

   _____

10. Could you mention the major problems in honey production, post harvest, marketing and transportation in your woreda?

    I. Production related problems of honey_____

    II. Post harvest related problems of honey _____

    III. Market related problems honey _____

    IV. Transport related problems of honey_____

11. Do the following chain actors exist in your woreda?

    A. Input suppliers 1. Yes [ ] 0. No [ ]

    B. Honey collectors and traders 1. Yes [ ] 0. No [ ]

    C. Processers and exporters 1. Yes [ ] 0. No [ ]

12. How do you evaluate the beekeeping activity of your woreda in terms of?

    1. Technology it uses_____

    2. Processing and distribution mechanism it adopt_____

    3. Coordination that exist in the chain_____

    4. Availability and cost of inputs required_____

    5. Market structure _____

    6. Enabling environment_____

    7. Others if any_____

13. Overall recommendation /comment with regard to the honey and honey related issues that should be addressed so as to extract all the benefits of beekeeping at woreda level?_____

    _____

Thank you for your time!!!

Name of interviewer----------Date of interview: ----------Signature ----------

ኣብ ኣክሱም ዩንቨርስቲ
ቢዝነስ ሕርሻን እሴት ሰንሰለትን ስራሕ ኣመራርሓ ትምህርቲ ክፍሊ
ናይ 2ይ ዲግሪ ፕሮግራም

መሕትት፡ **ብሓረስቶት ዝምላእ**

ዝከበርኩምን ዝከበርክንን;

እዚ መሕትት እዚ ብናይ ኣክሱም ዩንቨርስቲ ናይ 2ይ ዲግሪ (ማስተርስ) ተምሃራይ ዝተዳለዉ እዩ፡፡ ናይቲ መሕተት ዋና ዓላማ ድማ ሓበሬታ ንምእካብ ኮይኑ ናይቲ ፅንዓት ርእሲ ድማ ናይ **ትንትና እሴት ሰንሰለት ምህርቲ መዓር ኣብ ወረዳ ኣሕፈሮም** ይምልከት፡፡ ካባኩምን ካበ ካልኦትን ዝእከቡ ሓበሬታት ሚስጥሮም ዝተሓለዉን ንዚ መፅናዕቲ ጥራሕ ዝዉዕል ምካኑን ከረጋግፅሎም ይፎቱ፡፡ ትክክልን እሙኑን ሓበሬታኩም ብምሃብ ንእትገብሩሉይ ምትሕብባር ናይቲ ፅንዓት በዓል ዋና ምስጋናይ ክገልፀልኩም ይፈቱ፡፡

<u>ሓፈሻዊ ሓበሬታት</u>

1. በይዞኣም/ኣን መልሲ ቅድሚ ምሃቦም እቲ መምርሒ የንብቡ/ባ ብምቅፃል ንጥያቄኡ ብምንባብ ትክክለኛ መልስም ይሃቡ/ባ
3. ሕቶ እንተሃልዩዎም ንቲ ሓበሬታዝእከብ ወይ ንተቆፃፃሪ ይጠይቁ/ቃ
4. ኣብ ዘድሊ ቦታ ክልተን ካብኡ ንላዕሊ መማረፂ ምሃብ ይከኣል እዩ
5. ብመማረፂ ንዝቀረቡ ሕቶታት መልሶም ብምክባብ እንትገልፁ ብሰንጠረዠ ንዝቀረቡ ድማ ዝስዕብ [✓] ምልክት ብምጥቃም መማረፂኦም/ኣን የርእዩ/ያ

ናይ መላእቲ መሕትት ኮድ _____

ሽም ናይ ሓበሬታ ኣካቢ _____ ዕለት _____

ተቆፃፃሪ ሽም _____ዕለት_____

ዝተጀመረሉ ግዜ_____ ዝተወድኡሉ ግዜ_____

ክፍሊ ፩ ፡ ናይ ዉልቀ መረዳእታ

7. ሽም መራሒ ስድራ _____
8. ዖታ: ፩ .ተባዕታይ [ ] 0. አንስታይ [ ]
9. ዕድመ: _____
10. ናይ ት/ቲ ደረጃ:
    ፩. ምንባብን ምፅሓፍ ዘይክእል [ ] 2. ምንባብን ምፅሓፍን ዝክእል [ ] 3. 8ይ ክፍሊ ዝወድአ [ ]
    4. 2ይ ብርኪ ዝወድአ [ ] 5. ዲፕሎማን ካብኡ ንላዕልን [ ]
11. ኩነታት መርዓ: ፩. ዝተመርዓወ [ ] 0. ዘይተመርዓወ [ ]
12. በዝሒ ስድራ:_____

ክፍሊ ፪ ፡ ኩኔታት እቶት ካብ ምርባሕ ንህቢ ወፃኢ

4. ካብ ምርባሕ ንህቢ ወፃኢ ተወሳኪ እቶት ዘርክቡ ስራሕቲ ትሰርሑ ዶ? ፩.እወ [ ] 0. አይፋል[ ]
5. ንሕቶ **ቁ.፬** መልሶም እወ እንተኮይኑ ብከመይ ይረክቡ?
   ፩. ብደመወዝ [ ] 2. ካብ ፍርያት ጥረምረ [ ] 3. ካብ መስኖን [ ] 4.ካብ ምርባሕ ጠ/በጊዕ [ ]
   5. ካብ ምርባሕ ደርሆን [ ] 6. ካብ ፀባ ከፍትን [ ] 7 . ካሊእ እንተሃሊዩ ይግለፁ_____
6. ንሕቶ **ቁ.፬** መልሶም እወ እንተኮይኑ ብወርሒ ብማእኸላይ ክንደይ ይረክቡ?_____ብር

ክፍሊ ፫፫፡ ናይ ንህብ ምርባሕ ስራሕቲ ዝምልከቱ

38. ንህቢ ምርባሕ መዓዝ ጀሚሮም/ረን?
    ፩. ልዕሊ 10 ዓመት [ ] 2. 5-10 ዓመት [ ] 3. ትሕቲ 5 ዓመት [ ]
39. ንህቢ ምርባሕ ብከመይ ጀሚሮም/ረን?

ሪጋ	ፍልፍል	በዝሒ	ባህላዊ	ዘመናዊ	ናይ ሓደ ዕስለ ዋጋ
፩	ብ ምግዛእ				
2	ብ ዉህቡቶ				
4	ብምዕሳል				
5	ካሊእ				

40. ዕስለ ንህብክን/ኩም ኣበይ ተቀምጥዎም?
    ፩.ኣብ ድሕሪ ገዛ [ ] 2. ኣብ ሕዛእቲ [ ] 3. ኣብ ዉሽጢ ገዛ [ ] ካሊእ እንተሃሊዩ ይግለፁ_____
41. ሓደ ቆፎ ንክንደይ ዓመት የገልግል? ፩. ባህላዊ ቆፎ _____ዓመት 2. ዘመናዊ ቆፎ_____ዓመት
42. በይዘኦም/ኣን ሕዚ ዘለዉዎም/ዉን ናይ ዕስለ ንህቢ ዓይነት ይግለፁለይ/ላይ?
    ፩ .ባህሊዊ [ ] 2.ዘመናዊ [ ] 3.ክልቲኡ ዓይነት [ ]
43. ባህላዊ ቆፎ ብምጥቃም እንታይ ዓይነት ምህርቲ ተምርታ/ቱ?
    ፩. ዘይተፃረየ መዓር [ ] 2. ዘይተፃረየሸምዒ [ ] 3. ምዉላድ [ ] 4. ካሊእ እንተሃሊዩ ይግለፁ_____
44. ዘ/ቆፎ ብምጥቃም እንታይ ዓይነት ምህርቲ ተምርታ/ቱ?
    ፩. ዝተፃረየ መዓር [ ] 2. ዘይተፃረየሸምዒ [ ] 3. ምዉላድ [ ] 4. ካሊእ እንተሃሊዩ ይግለፁ_____

45. በይዞኣም/አን ናይ መዓር ናይ ምህርቲ ወቅቲ ኣብ ወረዳኩም ይግለፁለይ/ፃለይ? (ብቕዮም ስዓብ ብዙሕ መልሲ ምምራፅ ይከኣልዩ)

1. ካብ ሓምለ ክሳብ መስከረም [ ] 2. ካብ ጥቅምቲ ክሳብ ታሕሳስ [ ]

3. ካብ ጥሪ ክሳብ መጋቢት [ ] 4. ካብ ሚያዝያ ክሳብ ሰነ [ ]

46. ኣብ ዓመት2006/2007 ዓ/ም ክንደይ ግዜን መጠን ናይ ምሕርቲ መዓር ካበ ሓደ ቆፎ ይሓፍሱ/ሳ?

ሪጋ	ዓይነት ቆፎ	በዝሒ ብርበራ			መጠን መዓር ካብ ሓደ ቆፎ			ጠቅላላ ዝተረኽበ ምህርቲ	ዋጋ ሓደ ኪሎ	ጠቅላላ እቶት ብር
		1	2	3	1	2	3			
1	ዘመናዊ									
2	ባህላዊ									

47. ንምንታይ ዕላማ መዓር የምርቱ/ታ?

1. ንመሸጣ [ ] 2. ንዉህቡቶ [ ] 3. ንባዕለይ ንምጥቃም [ ] 4. ንባህላዊ መድሓኒት [ ]

48. ኣብ ንግዲ ዝተዋፈራ ማሕበራት ኣባልነት ኣለኩም/ክን ዶ? 1. እወ [ ] 0. ኣይፋል [ ]

49. ንሕቶ **ቁ.11** መልሶም/ሰን እወ እንተኾይኑ ዓይነት ማሕበር ይግለፁ_____

50. ንሕቶ **ቁ.11** መልሶም/ሰን እወ እንተኾይኑ ካብታ ማሕበር እንታይ ዓይነት ጥቅሚ ትረኽቡ?

1. ቀረብ እታዎታት ንህቢ ምርባሕ [ ] 2. ቀረብ እታዎታት ጥረምረን ኣሕምልትን [ ]

3. ቀረብ እታዎታት ምርባሕ እንስሳ [ ] 5. ቀረብ ልቃሕ [ ] 6. ካሊእ እንተሃሊዩ ይግለፁ_____

51. ዕስለ ንህቢ ተዋልዳ/ዱ ዶ? 1. እወ [ ] 0. ኣይፋል [ ]

52. ንሕቶ **ቁ.14** መልሶም/ሰን እወ እንተኾይኑ ንምንታይ ረብሓ ይዉዕል?

1. ዝኣረገት ንግስቲ ንምትካእ [ ] 2. ንመሸጣ [ ]

3. ቁፅሪ ዕስለ ንህቢ ንምዉሳኽ [ ] 4. ካሊእ እንተሃሊዩ ይግለፁ_____

53. ኣብ ዘ/ቆፎ ዝኣረገን ዝፀለመን ቅጫ (ስምዒ)ትቅይሩ ዶ? 1. እወ [ ] 0. ኣይፋል [ ]

54. ንሕቶ **ቁ.16** መልሶም/ሰን እወ እንተኾይኑ ቅጫ (ስምዒ)ካበይ ትረኽቡ?

1. ብምግዛእ [ ] 2. ናይ ባዕልና ብምፅራይ [ ] 3. ካሊእ እንተሃሊዩ ይግለፁ_____

55. ንሕቶ **ቁ.16** መልሶም/ሰን እወ እንተኾይኑ ኣብ ክንደይ ግዜ ይቅየር?

1. በቢ ዓመቱ [ ] 2. በቢ ክልተ ዓመቱ [ ] 3. በቢ ሰለስተ ዓመቱ [ ] 4. ኣርባዕተ ዓመትን ልዕሊኡን [ ]

56. ንሕቶ **ቁ.16** መልሶም/ሰን ኣይፋል እንተኾይኑ ንምንታይ?

1. ኣፍልጦ ዘይምህላው [ ] 2. ሽምዒ ንምግዛእ ዋግኡ ክባር ስለዝኾነ [ ]

3. ሕፅረት ኣቕርቦት ሽምዒ [ ] 4. ካሊእ እንተሃሊዩ ይግለፁ_____

57. ንዕስለ ንህቦም ተወሳኺ ምግቢ ይህቡ/ባ ዶ? 1. እወ [ ] 0. ኣይፋል [ ]

58. ንሕቶ **ቁ.20** መልሶም/ሰን እወ እንተኾይኑ መዓዝ?

1. ኣብ ደርቂ እዋን [ ] 2. ዕስለ ንህቢ ቁፅሩ እንትደክም [ ] 3. ኣብ እዋን ምዉላድ [ ]

4. ኣብ እዋን ዕስለ ንህቢ ምጉዕዓዝ [ ] 5. ካሊእ እንተሃሊዩ ይግለፁ_____

59. ንሕቶ **ቁ.20** መልሶም/ሰን እወ እንተኾይኑ እንታይ ዓይነት ተወሳኺ ምግቢ ይህቡ/ባ?

ተቁ	ዓይነት ተወሳኺ መግቢ	መጠን (ኪግ)	ዝተዉሃበ መጠን /ዕስለ	መግዛኢ ዋጋ/ኪግ	ዘቅርብ ኣካል
ነ	ሽኮር				
3	መዓር				
4	ሕሩጭ ጥረምረን ዓተርን				
5	ካሊእ እንተሃሊዩ				

60. ፈተሻን ክትትልን ዕስለ ንህቢ ተካይዱ ዶ? ነ. እወ [ ] 0. ኣይፋልን [ ]

61. ንተራ ቁፅሪ. **23** መልሶም እወ እንተኾኑ በብክንደይ ግዚኡ ይፍትሹ?

ነ. በቢ መዓልቲ [ ] 2. በቢ ሰሙኑ [ ] 3. በቢ ወርሑ [ ]

4. ኣብ ዓመት ሰለስተ ግዜ [ ] 5. ካሊእ እንተሃሊዩ ይግለፁ_____

62. ዕስለ ንህቢ ጠፊኡምኹም ዶ ይፈልጡ? ነ. እወ [ ] 0. ኣይፋልን [ ]

63. ንተራ ቁፅሪ **25** መልሶም እወ እንተኾኑ ምኽንያቱ እንታይ እዩ ትብሉ? (ብዙሕ መልሲ ምምራፅ ይከኣልዩ)

ነ. ሕፅረት ማይን መግብን [ ] 2. ናይ ንህቢ ተፃባእቲ [ ]

3. ዋሕዲ ክንክን ክትትልን [ ] 4. ካሊእ እንተሃሊዩ ይግለፁ_____

64. ምህርቲ መዓርኩም ተፃርዩ ዶ? ነ. እወ [ ] 0. ኣይፋልን [ ]

65. ንተራ ቁፅሪ.**27** መልሶም እወ እንተኾኑ ንምፅራይ ትጥቀምሉ መሳርሒ እንታይ እዩ?

ነ. መፃረዪ መዓር [ ] 2. መንፊት [ ] 3. ብመፅቀጢ [ ]

4. ብኽዳን (ሻሽ) [ ] 5. ካሊእ እንተሃሊዩ ይግለፁ_____

66. መሳርሕታት መፃረዩ መዓር ካበይ ትረኽብዎም?

ነ. ካብ ሕርሻን ገጠር ልምዓትን [ ] 2. ካብ ዘይመንግስታዊ ትካላት [ ]

3. ብምግዛእ [ ] 4. ካሊእ እንተሃሊዩ ይግለፁ_____

67. ንተራ ቁፅሪ**27** መልሶም እወ እንተኾኑ ንምንታይ ኽተፃርዩ ወሲንኩም/ክን?

ነ. ዘይተፃረየ መዓር ዕዳጋ ስለዘይብሉ [ ] 2. ዝተፃረየ መዓር ዝሓሸ ዕዳጋ ስለዘለዎ [ ]

3. ቅጫ ፍሬም ደጊምካ ንምጥቃም [ ] 4. ካሊእ እንተሃሊዩ ይግለፁ_____

68. ንተራ ቁፅሪ**27** መልሶም ኣይፋልን እንተኾኑ ንምንታይ?

ነ. ምስኣን መፃረዩ ናዉቲ [ ] 2. ዘይተፃረየ መዓር ዝሓሸ ዕዳጋ ስለዘለዎ [ ]

3. ዝተፃረየ መዓር ዕዳጋ ስለዘይብሉ [ ] 4. ካሊእ እንተሃሊዩ ይግለፁ_____

69. ኣብ ዘመነ 2006/07 መዓር ንምምራት ዝወፀ ናይ ጉልበት ወፃኢታት?

A	B	C	D	E	F	G	H	I=G+H
ዝርዝር ስራሕቲ	**ቁፅሪ ኣብ ምርባሕ ንህቢ ዝሳተፉ ኣባላት ስድራ**	**በዝሒ ዝሰርሕዎ መዓልቲ**	**ብማእሽላይ ኣብ መዓልቲ ዝሰርሕዎ ሰዓት**	**ጠቕላላ ዝሰርሕዎ ሰዓት**	**ዋጋ ሓደ መዓልታዊ ሰራሕተኛ**	**ጠቕላላ ዋጋ መዓልታዊ ሰራሕተኛ**	**ክፍሊት ሓደ ሽቃላይ**	**ጠቕላላ ናይ ሽቃላይ ዋጋ**
ፈተሽ ዕስለ								
ቅጫ ምስንካት								
ምብርባር								
ምፅራይ መዓር								
ምዕሻግ								
መዓር ናብ ዕዳጋ ምጉዕዓዝ								
ካልኦት ናይ ጉልበት ስራሕቲ								
						ጠቕላላ ናይ ጉልበት ዋጋ		

70. ኣብ ዘመነ 2006/07 መዓር ንምምራት ንመግዝኢ ናዉቲ ዝወፀ ወፃኢታት

A	B	C	D	E	F	G	H	I	J=F+I	K
ዓይነታት ቆፎን መሳርሕታት ናዉቲን	**ዘገልግልሉ ዕድመ**	**በዝሒ**	**ናይ ሓደ መግዝኢ ዋጋ**	**CXD**	**E/B=cost for The past year**	**ቁፅሪ ዝተኻረናዮ ንብረትዝተ**	**ንኽራየ ዝተኸፈለ**	**FXG**		**ብነፃ ካብ ሕ/ገ/ል FTC**
ዘ/ ቆፎ										
ዕስለ ንህቢ										
ናይ ገፅ መከላኸሊ										
ጉዋንቲ										
ሸምዒ										
መትከኺ										
መኽፈቲ ዓይነ በን										
መትሓዚ መዓር										
ካሊእ እንተሃሊዩ ይግለፁ_____										
							ጠቕላላ ንኽራይን መግዝእን ናዉቲ ዝወፀ ወፃኢ			

71. በይዘኦም/አን ካብ ናይ ጉልበትን ናዉቲ መግዝኢ ብተወሳኺ ዝወፀ ወፃኢ እንተሃሊዩ ይጥቀሱ/ሳ.
    1. ናይ መጉዓዚያ ወፃኢ _____ብር
    2. ናይ መሻየጢ ወፃኢ _____ብር
    3. ናይ ስልኪ ማይ ኤሌክትሪክ ክራይ ግብሪ ወፃኢ_____ብር
72. ኣብ ከባቢኹም ንስራሕቲ ሕርሻ ኬሚካል ኣብ ጥቅሚ ይዉዕል ዶ? 1. እወ [ ] 0. ኣይፋልን [ ]
73. ንተራ ቁፅሪ.35 መልሶም እወ እንተኾኑ ንምንታይ ጥቅሚ ይዉዕል? (ብዙሕ መልሲ ምምራፅ ይከኣልዩ)
    1. ፀረ ባልዕ [ ] 2. ፀረ ፃህያይ [ ] 3. ፀረ ጣንጡ [ ] 4. ካሊእ _____
74. ዕስለ ንህቢ ካብ ጉድኣት ኬሚካል ንምክልኻል ዝዉሰዱ ስጉምቲታት እንታይ እዮም? (ብዙሕ መልሲ ምምራፅ ይከኣልዩ)
    1. ዕስለ ከይዋፈሩ ምእጋድን ምምጋብን [ ] 2. ኬሚካል ንኽይንፀግ ዝእግድ ሕጊ ምትግባር [ ]
    3. ምስ ኬሚካል ዝጥቀሙ ገባራት ምርድዳእ ምፍጣር [ ] 4. ካሊእ _____

<u>ክፍሊ IV፡ ኩነታት ኣቅርቦት ልቃሕ</u>

1. ንምርባሕ ንህቢ ዝዉዕል ልቃሕ ዶ ረኺብኩም ትፈልጡ? 1. እወ [ ] 0. ኣይፋልን [ ]
2. ንተራ ቁፅሪ.1 መልሶም እወ እንተኾኑ ኣብ 2005/06 ዓ/ም ክንደይ ተለቂሖም?_____
3. ንተራ ቁፅሪ.1 መልሶም እወ እንተኾኑ ካበይ ይረኽቡ? (ብዙሕ መልሲ ምምራፅ ይከኣልዩ)
    1. ካብ ሕብረት ስራሕ ማሕበራት [ ] 2. ማይክሮ ፋይናንስ [ ] 3. ካብ ኣዕርኽቲ [ ]
    4. ካብ ቤተሰብ [ ] 5. ካብ ባንኪ [ ] 6. ካሊእ _____
4. ንምርባሕ ንህቢ ዝዉዕል ልቃሕ ኣብ ምርካብ ፀገም የጋጥመኩም ዶ? 1. እወ [ ] 0. ኣይፋልን [ ]
5. ንተራ ቁፅሪ.4 መልሶም እወ እንተኾኑ እቲ ፀገም እንታይ እዩ? (ብዙሕ መልሲ ምምራፅ ይከኣልዩ)
    1. ዋሕዲ ቀረብ ልቃሕ [ ] 2. ናይ መጉዓዚያ ፀገም [ ]
    3. ስራሕ ሰለጤን ዘይምህላው [ ] 4. ካሊእ _____
6. እቲ ፀገም ብኽመይ ፈቲሕኹምዎ_____

<u>ክፍሊ V፡ ኩነታት ኣቅርቦት ስልጠናን ደገፍ ክትትልን</u>

1. ኣብ ዝሓለፈ እዋነት ብዛዕባ ናይ ንህቢ ኣተሓሕዛ ዝምልከት ስልጠና ረኺብኩም ትፈልጡ/ጣ ዶ?
    1. እወ [ ] 0. ኣይፋል [ ]
2. ንተራ ቁፅሪ.1 መልሶም እወ እንተኾኑ እቲ ስልጠና ብመን ዝተዳለወ ነይሩ?
    1. ቤት ፅሕፈት ሕርሻን ገፀር ልምዓትን [ ] 2. ዞባ LIVES ፕሮጀክት [ ]
    3. ዞባ ሕርሻ ምርምር [ ] 4. ካሊእ _____
3. እቲ ዝርከበዎ ስለጠና ኣብ እንታይ ዛዕባ ነይሩ?
    1. ኣብ ንህቢ ምዉላድ [ ] 2. ኣብ መዓር ምፅራይን ፅሬት ኣተሓሕዛን ኣቀማምጣን [ ]
    3. ኣብ እታወታት ኣጠቃቕማ [ ] 4. ኣብ ዕዳጋ ሓበሬታን ርክብን 5. ኣብ ንህቢ ዕስለ ኣተሓሕዛ/ኣመራርሓ/ [ ]
4. ተወሳኪ ስልጠና ዘድልዮ ክፍተት ክእለቶም ይግለፁ_____
5. በቢ ክንደይ ጊዜ ናይ ንህቢ ሰብ ሞያ ክትትል ደገፍ ይገብርልኩም?
    1. ኩሉ ጊዜ [ ] 2. ሓደሓደ ጊዜ [ ] 3. ነይሮም ነይሮም [ ] 4. ኣይንድገፍን [ ]

ክፍሊ VI፡ ኩነታት ዕዳጋ

1. ዘምርትዎ መዓር ይሸጥዎ ድዮም? 1. እወ [ ] 0. ኣይፋል [ ]
2. ንተራ ቁፅሪ.1 መልሶም እወ እንተኾኑ ኣበይ ይሸጥዎ? (ብዙሕ መልሲ ምምራፅ ይከኣልዩ)
   1. ኣብ መንበሪ ገዛ [ ] 2. ኣብ ጥቃ መንበሪ ዝርከብ ዕዳጋ [ ] 3. ኣብ እንትፍ [ ]
   4. ካብ ወረዳና ወፃኢ [ ] 5. ካሊእ _____
3. እንታይ ዓይነት መጉዓዝያ ትጥቀሙ?
   1. ተሽከርካሪ [ ] 2. ሓይሊ ሰብ [ ] 3. መፅዓኛ [ ] 4. ካሊእ _____
4. ንመጉዓዝያ ተሽከርካሪ ትጥቀሙ እንተኾይንኩም ብቀሊሉ ዶ ትረኽብዎ? 1. እወ [ ] 0. ኣይፋል [ ]
5. ዕዳጋ ካብ መንበሪ ገዛኹም ክንደይ ይርሕቅ?_____Km.
6. ምህርቲ መዓርኩም ንምሻጥ ኣቀዲምኩም ምስ ዓደግትኹም ዉዕል ትኣስሩ ዶ? 1. እወ [ ] 0. ኣይፋል [ ]
7. ተጠቀመቲ መዓርኩም ወይ ዓማዊልኩም ንዓኹም ዝሕግዝኹም ሓገዝ ኣሎ ዶ? 1. እወ [ ] 0. ኣይፋል [ ]
8. ንተራ ቁፅሪ.7 መልሶም እወ እንተኾኑ ዓይነት ሓገዝ እንታይ እዩ?
   1. ሰልጠና [ ] 2. ልቃሕ [ ] 3. ሓገዝ ናዉቲ [ ] 4. ካሊእ _____
9. መሸጢ ዋጋ ምህርቲ መዓርኩም ብኽመይ ትዉስኑ?
   1. ዕዳጋ መሰረት ብምግባር [ ] 2. ፅሬት መዓር መሰረት ብምገባር [ ] 3. ኮንትራት ብምእሳር [ ] 4. ካሊእ _____
10. ወቅታዊ መረዳእታ ዋጋ ምህርቲ መዓር ትረኽቡ ዶ? 1. እወ [ ] 0. ኣይፋል [ ]
11. ንተራ ቁፅሪ.10 መልሶም እወ እንተኾኑ ሓበሬታ ካበይ ትረኽቡ?
   1. ዉልቀ ትዕዝብቲ [ ] 2. ካብ መዓር ነጋዶ [ ] 3. ብስልኪ [ ]
   4. ብሬድዮ [ ] 5. ካብ ሕ/ግ/ል [ ] 6. ካሊእ _____
12. ምህርቲ መዓርኩም ቅድሚ ምሻጥኩም ዋግኡ ኣቀዲምኩም ትፈልጥዎ ዶ? 1. እወ [ ] 0. ኣይፋል [ ]
13. ምህርቲ መዓርኩም ንመን ትሸጡ?
   1. ንተጠቀምቲ [ ] 2. ን ሰራሕቲ ሜስ [ ] 3. ንናይ ከባቢ ሰብሰብቲ መዓር [ ] 4. ንናይ ከተማ ሰብሰብቲ መዓር [ ]
   5. ን ሸርሸርቲ [ ] 6. ን ጅምላ መከፋፈልቲ [ ] 7. ን ዲማ መፃረዪ መዓር [ ] 8. ካሊእ _____
14. ምህርቲ መዓርኩም ብዋናነት ንመን ትሸጡ?_____
15. ምህርቲ መዓርኩም ብዋናነት ንምንታይ ነቶም ኣብ ላዕሊ ዝተጠቀሱ ክትሸጡ መሪፅኩም?
   1. ብ ፅቡቅ ዋጋ ስለዝገዝኡ [ ] 2. ኣቀዲምና ስለዝተስማዕማዕና [ ]
   3. ናይ ቴክኒክ ሓገዝ [ ] 4. ካሊእ _____
16. ን ክንደይ መዓልቲ ምህርቲ መዓርኩም ትኽዝኑዎ?
   1. ኣይኽዝንን [ ] 2. ካብ 1- 6 ወረሒ [ ] 3. ካብ 6-12 ወርሒ [ ]
   4. 1- 2 ዓመት [ ] 5. ልዕሊ 2ተ ዓመት [ ]
17. ንምንታይ ምኽንያት ምህርቲ መዓርኩም ትኽዝኑዎ?_____
18. ምህርቲ መዓርኩም ኣብ ከመይ ዝበለ መትሐዚ ተቀምጡ?
   1. ናይ ጎማ መትሐዚ [ ] 2. ናይ ቆርበትን ኣንጋረን [ ] 3. ናይ ሓመድ ዉፅኢት [ ]
   4. ናይ መዳበርያ ተረንሽዋ [ ] 5. ካሊእ _____
19. ጠለብ ምህርቲ መዓር ኣብ ዕዳጋ እንታይ ይመስል? 1. ትሑት [ ] 2. ማእኸላይ [ ] 3. ልዑል [ ]
20. ኣብ ናይ መዓር መሸጦኦም ፀገም ዶ ኣጋጢሚዎ/ን ይፈልጥ? 1. እወ [ ] 0. ኣይፋል [ ]

21. ንተራ ቁፅሪ.**20** መልሶም እወ እንተኾይኑ ዘጋጠሞም ፀገማተ እንተዝገፁለይ/ላይ (ብዙሕ መልሲ ምምራፅ ይከኣል ዩ)

    1. ናይ ዕዳጋ ሓበሬታ ዘይምርካብ [ ] 2. ትሑት ናይ ተጠቃሚ ጠለብ [ ]

    3. ትሑት ምትእስሳር ምስ ነጋዶን ተጠቀመትን [ ] 4. ዉሱን ናይ ዕዳጋ ቀረበ ምህላዉ [ ]

    5. ትሑት ፀሬት መህርቲ ኣብ ዕዳጋ ምህላዉ (መዓር ምስ ካሊእ ንጥረ ነገር ብምሕዋስ ምሻጥ) [ ]

22. ነቲ ፀገም ንምፍታሕ እንታይ ክስራሕ እለዎ ትብሉ?_____

23. ናይ መዓር ዓማዊልኩም ኣብ ናይ መዓር ዓይነት ወይ ፅሬት ይግደሱ ዶ? 1. እወ [ ] 0. ኣይፋል [ ]

24. ንተራ ቁፅሪ.**23** መልሶም እወ እንተኾይኑ ዝጥቀሙሉ ረቁሓ መፍለዩ ፅሬት መዓር እንታይ እዩ?

    1. ብ ሕብሪ [ ] 2. ብ ጣዕሚ [ ] 3. ካብ ተፈላጢ ሰብ ምግዛእ [ ] 4. ካሊእ _____

25. ናይ መዓር ዓማዊልኩም ንፅቡቅ ፅሬት ዘለዎ ምህርትኹም ብፅቡቅ ዋጋ ንምግዛእ ቅሩባት ድዮም?

    1. እወ [ ] 0. ኣይፋል [ ]

26. ምስ ናይ መዓር ነጋዶ ዘለኩም ርክብ እንታይ ይመስል?

    1. ዝጠንከረ [ ] 2. ማእኸላይ [ ] 3. ዝላሕለሐ [ ]

27. ንተራ ቁፅሪ.**26** መልሶም ዝላሕለሐ እንተኾይኑ ዘለኩም ርክብ ንምጥንካር እንታይ ክስራሕ ኣለዎ ትብሉ?

    _____

28. ምህርቲ መዓርኩም ብዝሓሸ ዋጋ ንክሸየጥ ትሰርሕዎም ተወሰኽቲ ስራሕቲ ኣለዉ ዶ? 1. እወ [ ] 0. ኣይፋል [ ]

29. ንተራ ቁፅሪ.**28** መልሶም እወ እንተኾይኑ ዝስርሑ ስራሕቲ ምስ ዘድልዮም ወፃኢ ይግለፁ

ዓይነት ምህርቲ	**ዋጋ ምህርቲ ዝዉሰኹ ስራሕቲ**	**ዋጋ ምህርቲ ዝዉሰኹ ዝተሰርሑ ስራሕቲ (✓)**	**ንምስራሕ ዘድሊ ወፃኢ**
መዓር	*መዓር በቢ ዓይነቱ ምቅማጥ*		
	መዓር ምፅራይ		
	መትሓዚ ጎማ ምግዛእ		
	ካሊእ		

<u>ክፍሊ VII፡ ማሕንፀታትን ዕድላትን ልምዓት ንህቢ</u>

1. ኣብ ከባቢኹም ናይ ንህቢ ሕማማት ኣለዉ ዶ? 1. እወ [ ] 0. ኣይፋል [ ]
2. ንተራ ቁፅሪ.**1** መልሶም እወ እንተኾይኑ ይግለፁ_____
3. ኣየናይ ዓይነት ቆፎ ኣዩ በቲ ዝተገለፀ ብዝበለፀ ሕማም ዝጥቃዕ?

    1. ዘመናዊ [ ] 2. ባህላዊ [ ] 3. ክልቲኦም [ ]

4. ኣብ ከባቢኹም ዝርከቡ ዋናዋና ናይ ንህቢ ባልዓትን ሃደንትን ብደረጃ ዘብፅሕዎ ጉድኣት የቀምጡ

ሪጋ	**ባልዓትን ሃደንትን**	**1=እወ 0=ኣይፋል**	**ደረጃ**	**ዝዉሴድ ዓይነት ስጉምቲ**
1	ፃፀ			
2	ሽምዒ ፅምብላሊዕ			
3	ሳሬት			
4	ትትኒ			
5	ዐፍ			
6	ጠበቅ			
7	ካሊእ _____			

5. ኣብ እዋን ንህቢ ምርባሕ እንትይ ዓይነት ፀገማትን ማሕልኻታት የጋጥምም/መን? ባይኣም ናይቶም ማሕልከታተ ደረጃ ይግለፁለይ;

ሪጋ	ማሕልኽታት	1=እወ 0=ኣይፋል	ደረጃ	ዝዉሴድ ዓይነት ስጉምቲ
1	ዘመናዊ ቆፎ			
2	መሳርሕታት ዘመናዊ ቆፎ			
3	ቀለብ ንህቢ			
4	ሕማም ንህቢ			
5	ባልዓትን ሃደንትን			
6	ቀረብ ዕስለ			
7	ምጥቃም ኬሚካላት			
8	ሞት ዕስለ ንህቢ			
9	ምጥፋእ ዕስለ ንህቢ			
10	ካሊእ_____			

6. ኣብ ከባቢኩም ንስራሕቲ ምርባሕ ንህቢ ዘለዉ ጥጡሕ ባይታታት ይግለፁ (ብዙሕ መልሲ ምምራፅ ይከኣል ዩ)

   1. ምህላዉ ዝተኸለሉ ደኒታት [ ] 2. ፅቡቅ ኣቅርቦት መሳርሕታት ዘመናዊ ቆፎ [ ]

   3. ምህላዉ ቀለብ ንህቢ [ ] 4. ዘተባብዕ ናይ መንግስቲ መምርሒ [ ]

   5. ምህላዊ ልዑል ጠለብ ዕዳጋ ፅሩይ መዓር [ ] 6. ካሊእ_____

ንትሕብብርኩም የመስግን !!!