



**VALUE CHAIN ANALYSIS OF HONEY: IN SMIEN SHEWA
ZONE OF AMHARA ETHIOPIA; CASE OF BASONA WORENA
WOREDA**

M.B.A. Thesis

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**August 2016
Addis Ababa**

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**THESIS SUBMITTED TO SAINT MARY'S UNIVERSITY,
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**ST.MARY’S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
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DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Tesfaye Wolde (Phd). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Name

Signature & Date

ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

Advisor

Signature & Date

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LISTS OF ABBREVIATIONS

CSA	Central Statistical Agency of Ethiopia
DAs	Development Agents
FAO	Food and Agricultural Organization
HH	Household
NGOs	Non-Governmental Organizations
OoARD	Office of Agriculture and Rural Development
PA	Peasant Association
SD	Standard Deviation
SID	Support Integrated Development
SNV	Netherlands Development Organization
VC	Value Chain

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ABSTRACT

This study was conducted in Basona Worena of North shewa Ethiopia in 2016. The objectives of the study was to identify major actors involved in the honey value chain and their function, major opportunities and constraint in honey value chain, the gender role at the farm level and factors affecting market outlet choice of beekeepers. The data was collected from both primary and secondary sources. The primary data was collected from 220 beekeepers, 8 retailers, 1 cooperative, 3 tej makers and 15 consumers through application of an appropriate simple descriptive statistical procedures .From the surveyed households there were only 5.9 % female-headed HHs. The study result showed that the major value chain actors in the Woreda are input suppliers, beekeepers, retailers, cooperatives, tej makers, exporter and consumers. The support service providers are governmental organizations, and financial institutions. The result showed that the women participation is less in productive activities and decision making as compared with men and women's participation is higher in reproductive activities as compared with men's. the major opportunities are higher demand, the presence of dense forest, and constraint in honey value chain are beekeeping, access for training, credit sources and market information. There were four honey market outlet choices in the study area such as trader, cooperative, tej makers, processor and consumer. Simple Descriptive statistic percent result showed that the market outlet choice of the farmers is consumer and distance to the nearest market, membership in cooperative, information access, credit access and mode of sale. Therefore, policies promoting farmers access to modern beekeeping technologies, improving extension service, credit and market information access, gender consideration and cooperative development are recommended to improve honey value chain in the study area. In addition, the study was also required improving the existing honey production and marketing system in the study area.

Keywords: value chain analysis, honey, actor, constraint, Gender role, market outlet, Basona worena district.

CHAPTER ONE: INTRODUCTION

1.1 Background

Beekeeping is an important activity that helps rural communities to raise additional income to improve their livelihoods. In addition, it is a sustainable form of agriculture beneficial to the environment. In Africa, traditional beekeeping is more common than modern beekeeping Affognon, H. D., Kingori, W. S., Omondi, A. I., Diro, M. G., Muriithi, B. W., Makau, S., & Raina, S. K. (2015.) Countries such as Sudan, Uganda, Somali and Ethiopia largely use traditional beehives compared to countries such as Kenya, South Africa and Tunisia among others. In comparison to Europe, beekeeping in Africa is practiced as a supplemental income source to households Dietemann, V., Pirk, C. W. W., & Crewe, R. (2009); Carroll and Kinsella (2013).

Beekeeping sector is therefore worthy of an in-depth study due to its economic and ecological importance to the people. For economic benefits, beekeeping serves as one of the possible options to the small-holder farmers in sustaining their livelihood through the use of honey as food and for income Nuru (1999). Ecologically, bees are important pollinators and are known to be useful in helping fallow plots regenerate and increase yields of various food crops Cairns (2002).

Ethiopia is one of the countries of the African continent with big honey production potential. Owing to its varied ecological and climatic conditions, Ethiopia is home to some of the most diverse flora and fauna in Africa. Its forests and woodlands contain diverse plant species that provide surplus nectar and pollen to foraging bees Girma (1998). Beekeeping is a longstanding practice in the farming communities of Ethiopia

Ayalew and Gezahegn, (1991). More than one million households are estimated to keep bees using traditional, intermediate and modern hives Gidey and Mekonen (2010).

The annual honey production of Ethiopia is estimated to be 45,300 metric tons, which makes the country rank first honey- producing country in Africa and ninth in the world FAO (2010). In the country, more than ten types of traditional hives are used with an average

honey yield of 5 to 8 kg per colony per year. The variation of hives is based on their volumes, shapes and the type of materials used for construction. Production is dependent on forest resources and Ethiopia's diverse sources of bee forage. Nuru (2007).

The main challenges that are affecting the promotion and development of honey production and marketing are dependence on traditional and low technology input, poor pre and post-harvest management, inadequate extension services and poor marketing infrastructure. Furthermore, lack of smallholders' access to finance contributes to inhibiting the adoption of improved technologies for honey production. Poor quality, limited supply in the face of high local demand entailing higher domestic prices, coupled with the absence of an organized market channels and lack of information have made Ethiopian honey uncompetitive in the international market. In spite of the existing constraints, a few honey processors and exporters have emerged; these have managed to certify their products and are able to penetrate markets in the United States, Europe and the Middle East SNV (2009).

1.2. Statement of the problem

The Ethiopian climate and the extended flowering season are favorable for apiculture. Beekeeping is widespread in most parts of Ethiopia; especially in the southwest montane forest region. Mohammed and Freerk (2006). Despite the huge potential, honey production has not been fully exploited in the country. A number of factors such as honeybee enemies namely (ants, honey badgers, birds and small hive beetles), damaging of honeybee and stingless bee colonies during harvesting which causes drastic population reduction, the forest beekeeping practices that discourage the participation of women and old men in beekeeping, low adoption of improved beekeeping technology, low productivity of bees due to poor handling conditions, poor storage conditions of honey, absence of diversification of bee products (propolis, pollen and other high value of bee products), lack of skilled human power on apiculture to help beekeepers managing honey bees for better production, presence of honeybee poisonous plants, reduction of the sustainability of forest-based production due to high rate of deforestation, problems of sustainable marketing of bee products and high risk of forest beekeeping (falling from tall trees) Awraris et.al. (2012).

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In addition, limited value addition activities, inadequate government and NGOs support survives, lack of processors, inefficient organized market and infrastructure and poor collaboration between value chain actors have contribution on un-exploitation of honey production and marketing potential and affect the entire value chain. The importances of facilitating market access and value addition activities to farmers are valuable preconditions to improve their livelihoods. Therefore, farmers improve their incomes and diversify their livelihoods through value addition, diversification of income generating activities, vertical integration, and improved marketing arrangements through groups Lundy, M., Felipe, C. and Best, R. (2002).

Value chain analysis is essential to explain the connection between all the actors in a particular chain of production and distribution and it shows who adds value and where along the chain. It helps to identify pressure points and make improvements in weaker links where returns are low Schmitz (2005).

Therefore, Value chain analysis is an important process in the study area to identify, to analyze the gender role at the farm level and to investigate different problems from input supply up to consumption stage of honey value chain to improve the existing system about honey value chain in the study area.

The value chain and cost-benefit analysis of honey: a comparative analysis of certified organic and conventional honey conducted by Amanuel (2011) in Gimbo Woreda of Kaffa Zone identified the value chain actors, cost benefit and their marketing margins, the role of certified organic and conventional honey production in HH food security. Value chain analysis of bee honey and credit market participation of bee keepers conducted by Jajiso (2015) in Damot Getle district identify major honey value chain actors and their linkages, marketing margin distribution of the actors, factors affecting participation of honey producers in credit services and level of credit utilized in honey production and marketing from the loan.

However, the study on the identification the major opportunities and constraint in honey value chain, the gender role and market outlet choice of farmers were not done in the

research. Therefore, this study is designed to investigate the value chain analysis of Honey in Basona Worena district, Semien Shewa Zone of Ethiopia.

1.3. Research Questions

In this study, the following research questions were raised to be answered.

1. What are the major opportunities and constraint in honey value chain?
2. What is the role of gender at the farm level?
3. What are the key factors affecting farmers honey market outlet choice decision?

1.4 Objective of the study

1.4.1. General Objective

The general objective of this study is to analyze the value chain of Honey in Basona Worena District of Semien Shewa Zone.

1.4.2. Specific Objectives

1. To identify the major opportunities and constraint in honey value.
2. To assess the role of gender at the farm level.
3. To identify factors determining the market outlet choice of producer.

1.5. Significance of the Study

The result of the study could provide background information for planners and policy makers to develop a sound strategy that can help increase the productivity and income of beekeepers. The output of this study could provide input for researchers for identifying research gaps and undertake a detailed value chain analysis in the area. This study could also help development actors in designing their intervention strategies in line with the existing production and marketing conditions in the area. Moreover, Farmers, traders and other actors are also expected to be beneficiaries from the possible strategies and interventions that could be developed using the information generated from the output of this study.

1.6. Scope of the study

This study was conducted in Basona Worena of Semien Shewa zone Ethiopia. The study was conducted in Bee honey producing area by collecting important and necessary

information from sample households and other chain actor's operating in the Woreda. The reason why this study focus only in Bee honey that, in the area many beekeepers engaged in traditional beekeeping system by backyard beekeeping and hanging the beehives on trees near homestead and in dense forest area, which is far from human settlement and any chemical contamination.

1.7 Limitation of the Study

The main limitation of this study was mainly related to coverage of the study area. The topography of land and forest area, which is far from human settlement, was the limitations to collect data through field observation. Also in the study area, more than 489 beekeepers are registered. Hence, this investigation was conducted by apply information collect from Bee honey producers and actors.

1.8 Organization of the thesis

The study consists of five chapters. The first chapter deals with the introduction of the study. The second chapter comprises relevant literature reviews. The third chapter describes the materials and methods, which include sampling technique and data analysis procedures. Chapter four comprises results and discussion. In the results and discussion chapter demographic characteristic of household respondents, honey value chain actors, roles and major opportunities and constraint, the gender role at the farm level, and different market outlets for farmers the honey value chain discussed. Summaries of findings and recommendations were treated in section five.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1 Introduction

Value chain describes the full range of activities required to bring a product from conception through the different phases of production and transformation. A value chain is made up of a series of actors (or stakeholders) ranging from input suppliers, producers and processors to exporters and buyers engaged in activities required to bring agricultural product from its conception to its end use Kaplinsky and Morris (2001).

2.2 Basic Concepts and Definitions

Value: It is the money worth of an asset or a product. Value does not necessarily include dollar value only. There could be value in information exchange, in building networks and in learning new processes Vermeulen, S., J. Woodhill, F.J. Proctor and R. Delnoye (2008).

Value chain: It is the full range of activities which are required to bring a product or service from conception through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use. It is the sequence of activities required to make a product or provide a service Vermeulen et.al. (2008).

Value chain analysis: It is examining of a full range of activities in the chain that elaborate the competitive strength of the organization. It is useful for identifying constraints and opportunities for the provision of financial services through identifying demand for financial services within value chains. Value chain analysis is an original methodological tool that enables design teams in the product definition phase to comprehensively identify pertinent actors, their relationships with each other and their role in the product's life cycle Donaldson, K.M., K. Ishii and S.D. Sheppard (2006).

Three important levels of value chain could be identified according to Bammann (2007). These are:

Value chain actors: The chain actors, who directly deal with the products, i.e. produce, process, trade and own them.

Value chain supporters: The services provided by various actors who never directly deal with the product, but whose services add value to the product.

Value chain influencers: The regulatory framework, policies, infrastructures, etc.

The value chain concept entails the addition of value as the product progresses from input suppliers to producers and then to 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, packaging, transporting, storing and processing Anandaja and Berhanu (2009).

2.3. Governance and Upgrading in the Value Chain

Value chain analysis is not only about the activities a firm operates but also takes into consideration governance and its effects on actors' activities in the chain (Belcher, 2009).

According to Gereffi and Korzeniewics (1994), governance highlights the authority and power relationships which determine how financial, material, information and human resources are distributed within a value chain. Nugraha (2007) in his study of the application of value chain analysis in development of milk cluster in Indonesia, identified governance in a value chain by three information types flowing from the consumer (buyer) to the producer (supplier). These include: information about buyer requirements, technical assistance and signal of conformity to standards. Information about buyer requirements in either codified or non-codified forms explain how the backward suppliers are forced to comply with what buyers want. Information on technical assistance measures the transfer of technology, capacity building, financial investment and advisory services undertaken to enable the suppliers meet the defined requirements. Finally information on signal of conformity to standards comprises of a system in which producers can measure their performance against the requirements set by the buyers Nugraha (2007).

Upgrading the value chain comprises all efforts to improve inefficiencies discovered in the previous steps Nugraha (2007). In a study to integrate the local value chains into the

global value chains, Humphrey and Schmitz (2002) proposed that firms can pursue the objective of upgrading through four major typologies; product, process, functional and inter-sectoral or chain upgrading. Product upgrading introduces new products or improves measures that lead to quality products and make them more desirable to the consumer to earn a higher unit price such as compliance with food safety, environmental and social standards Gibbon (2001).

Process upgrading introduces measures that result in an increase in production efficiency and a reduction in the costs of production like introducing improved technology Ponte, S. & Ewertm J. (2009). Functional upgrading is realized by changing the mix of activities conducted in-house to enter a new, higher value-added level in the value chain such as moving from production to processing or eliminating low value activities or producers selling directly to exporters rather than selling to intermediaries Laven (2010).

Inter-sectoral or chain upgrading is used to identify which new value chain is integrated within the business or entering a new marketing channel in the value chain like smallholders beginning to sell bee products to domestic herbal or brewery industries as well as to local consumers Dunn, E., Sebstad, J., Batzdorff, L., & Parsons, H. (2006). This study focused on a two main dimensional method proposed by Gibbon (2001) where the sources of capabilities that make upgrading strategies possible were identified and then the conditions and directions that lead to improved situations were examined and developed for the honey value chain upgrading.

2.4. Beekeeping in Ethiopia

Ethiopia is blessed with adequate water resources and various honeybee floras, which create fertile ground for the development of beekeeping. Honey hunting and beekeeping have been practiced in the country for the exploitation of honey. In places where wild colonies of bees living in hollow trees and caves are found, honey hunting is still a common practice in Ethiopia Tessega (2009).

There is no well-documented evidence that indicates when and where beekeeping practice started in Ethiopia. However, according to Ayalew (1978) as cited by Giday and Kibrom (2010) beekeeping had started in the country between 3500-3000 B.C. Among all

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countries of the world; probably no country has a longer tradition of beekeeping than Ethiopia Hartmann (2004). In Ethiopia except for some places in Afar and Somalia regions honeybees are fairly distributed in the country adapting varying degree of weather conditions. They all produce honey, the nutritious natural food good for both man and animals FAO (1990).

Although the number of farmers engaged in honey production is not well known, but is estimated that around 1.8 million households are actively involved in honey production MoA (2012). According to this researcher the moderate climate of Ethiopia makes one of the most successful countries in the tropics in box beehive utilization. Historically, Ethiopia has been an important honey and beeswax producing country dominated by local consumption. Thus, the Hieroglyphs of ancient Egypt refer to Abyssinia (ancient name of Ethiopia), as source of honey and beeswax and Abyssinia has been known for its beeswax export to Egypt for centuries when other items were not exported Gezahegn (2001).

However, in modern times Ethiopia lost its charm as honey exporter and produced largely to serve the demands of local markets and those in neighboring countries Sreejith A., Worku J. N., Mir H. K., Waliu G. (2011).

Traditionally honey is consumed in the form of Tej (honey wine) and birz (non-alcoholic) and some for medicinal use Ayalew and Gezahegn (1991). The report by MoA (2012) stated that annual honey consumption nearly equals annual crude honey production, currently estimated at 54,000 tones. In the country, beekeeping is an integral part of the life style of the farming communities, and except for a few extreme areas, it is a common practice in every place where humankind has settled. In addition, Ethiopia has probably the longest tradition of all the African countries in beeswax and honey marketing. Plentiful forage availability coupled with favorable and diversified agro-climatic conditions of Ethiopia create environmental conditions conducive for the growth of over 7000 species of flowering plants which has supported the existence of large number of local honeybee colonies (*Apis mellifera*) in Ethiopia Girma (1998).

The density of beehives occupied by the honeybees on the land may be the highest, at the present moment, of any country in the African continent Ayalew and Gezahegn (1991).

Generally, in Ethiopia there are three types of beekeeping practices: traditional forest beekeeping, traditional back yard beekeeping, transitional beekeeping and improved (modern) beekeeping. According to Amssalu (2004), about 90 % of beekeeping that farmers practice in Ethiopia is traditional.

2.5. Beekeeping Systems

2.5.1. Traditional beekeeping

Traditional beekeeping is the oldest and the richest practice, which has been carried out by the people for thousands of years in Ethiopia. This beekeeping practice is extensive and closely tied to swarm management: beehives are hung up in trees to catch swarms and are then transferred to the ground. Often, such beehives are placed in a kind of bee house that protects the beehives from the heat and rain. Traditional beehives are crafted by creating a tube shaped structure using branches, straw, cow dung and clay. Beehives are typically 30-40 cm across and 1 m long. Sometimes they can be carved from a soft log, such as from a cactus tree Gallmann and Thomas (2012). Several million bee colonies are managed with the same old traditional beekeeping methods in almost all parts of the country Fichtl and Admasu (1994).

This beekeeping practice different based on the resource in the area for the beekeeping activities. Thus, two types of traditional beekeeping is found in the country: forest beekeeping and backyard beekeeping. In some places, especially in the western and southern parts of the country, forest beekeeping by hanging a number of traditional beehives on trees is widely practiced. In other most parts of the country backyard beekeeping with relatively better management are common Nuru, (2002), Gallmann and Thomas (2012). The beekeepers that are experienced and skillful in using these beehives could do many operations with less facility Tessega (2009).

This production system is characterized by a very low honey production, where under Ethiopian farmers' management condition; the average amount of crude honey produced from traditional beehive is estimated to be on average only about of 8 to 15 kg honey per harvest/beehive/year Beyene and David (2007).

Traditional husbandry is practiced with many millions of fixed comb beehives particularly in the remote areas of the country. For the period until frame beehives are introduced, these fixed comb beehives can yield a modest amount of honey, and also about 8-10% of its weight is beeswax. This harvest is achieved with minimal cost and labor, and it is valuable to people living a marginal existence Tessega (2009).

2.5.2. Transitional beekeeping system

Transitional system is a type of beekeeping intermediate between traditional and modern beekeeping methods. Generally, top-bar beehive is a single story long box with slopping sidewalls inward toward the bottom (forming an angle of 115o with the floor) and covered with bars of fixed width, 32 mm for east African honeybees Segeren (1995).

Transitional (intermediate) beekeeping practice has different advantages such as, it can be opened easily and quickly, the bees are guided into building parallel combs by following the line of the top bars, the top bars are easily removable and this enables beekeepers to work fast, the top bars are easier to construct than frames, honeycombs can be removed from the beehive for harvesting without disturbing combs containing broods, the beehive can be suspended with wires or ropes and this gives protection against pests. Transitional beekeeping has its own disadvantages such as, top bar beehives are relatively more expensive than traditional beehives, and combs suspended from the top bars are more apt to break off than combs which are building within frames HBRC (2004).

According to this, center transitional beekeeping started in Ethiopia since 1976 and the types of beehives used are: Kenya top-bar beehive, Tanzania top-bar beehive and Mud-block beehives. Among these, KTB is widely known and commonly used in many parts of the country HBRC (1997).

2.5.3. Modern beehive beekeeping system

The modern beekeeping methods aim to obtain the maximum honey crop, season after season, without harming bees Nicola (2002).

It uses different types of frame beehives. Zandar and Langstroth beehives are the most common that exist in the country. Dadant, Modified Zandar, and foam beehive are found

rarely. These beehives differ in number and size of frames. The most commonly used beehive type in Ethiopia is Zandar type. Modern movable- frame beehive consists of precisely made rectangular box beehives (beehive bodies) superimposed one above the other in a tier. The number of boxes is varied seasonally according to the population size and activities of bees. Improved box beehive has advantages over the others in that it gives high honey yield in quality and in quantity. The other advantages of improved box beehive are its possibilities to control swarming by supering and it is easy to transport the honeybees from place to place for searching honeybee flower and for pollination services. On the other hand, its disadvantages are- the equipment are relatively expensive, requires skilled manpower and the equipment needs very specific precaution.

Generally, about 4,601,806 beehives exist in Ethiopia, out of which about 95.5% were traditional, 4.3% transitional and 0.2% frame beehives Beyene and Davide (2007). Based on the national estimate, the average yield of pure honey from movable frame beehive is 15-20 kg/year, and the amount of beeswax produced is 1-2% of the honey yield Gezahegn (2001). However, in potential areas, up to 50-60 kg harvest has been reported HBRC (1997).

2.6. Honeybees and their distribution in Ethiopia

The topography of Ethiopia is complex and the altitude varies from the lowest point below 126 m to the highest on RasDashen about 4620 meters above sea level Amssalu (2004). These variable agro ecological zones lead to huge diversification in species of fauna and flora. Its forests and woodlands contain diverse plant species that provide high amount of nectar and pollen to foraging bees Girma (1998). These potential makes the country the largest honey producer in Africa. Also considerable amount of wax is produced in the country. Regardless of the potential Ethiopia is fourth in beeswax and tenth in honey production at global level Girma (1998).

Based on morphometric analyses, different researchers have different and controversial findings about the origin of the bee species, *Apis mellifera*. Smith (1961) reported the existence of *Apis mellifera monticola* from the Ethiopian plateaus, and later Ruttner (1975) also reported the presence of *A.m. scutellata* and *A.m. jemenitica*. The existence of five honeybee races: *Apis mellifera jemenitica* (in eastern lowlands), *A.m. monticola* (in the

southern mountains), *A.m. litorea* (in the extreme western low lands), *A.m. adansonii* (in the southern mid-altitude areas) and *A.m. abyssinica* (central plateau and southwestern parts of tropical forest) also suggested Ayalew (1990). Moreover, Radloff and Hepburn (1997) reported *A.m. jemenitica*, *A.m. bandasii* and *A.m. sudanensis* from Ethiopia.

According to Amssalu (2004), the multivariate analysis of the morphometric characters revealed the existence of five statistically discrete populations occupying different ecologies in the country: *A.m. jemenitica*, in the northwest and eastern arid and semiarid lowlands, *A.m. scutellata* in the west, south and southwest humid midlands, *A.m. bandansii*, in the central moist highlands, *A.m. monticola* from the northern mountainous highlands and “Woyi-gambela” in south western semiarid to sub humid lowland parts of the country.

Research by Marina D. M. Messele A. L. Nikolaus K. Stefan F. (2011) brought a controversy idea about the different honey bee sub species of Ethiopia. They described a new subspecies, *Apismelliferasimensis*, on the basis of morphometrical analyses. The Ethiopian bees are clearly distinct and statistically separable from honeybees belonging to neighboring subspecies in eastern Africa. Considerable variation of morphological characters in relation to altitude is present in the samples under analysis, but there are no statistically separable subgroups within this population. There is no indication for the presence of more than one subspecies of honey bee in Ethiopia. This indicated that there should be additional efforts to delineate the geographical distribution of the bee races.

2.7. Evolution and Development of Value Chain Analysis

Value chain analysis is a concept in business management that evolved from the “filiere and Wallenstein’s concept” and developed by a French economist in the 1960s Rutgers (2010).

In the filiere, the main idea was to highlight and map out specific physical commodity flows and relationships within a sector including key stakeholders in domestic markets Raikes, P., Jensen, M.F.. and Ponte, S. (2000); Kaplinsky and Morris, (2001).The filiere concept was an analytical tool for empirical agricultural research whose main objective was to increase efficiency through identifying flows of physical inputs and services required in the production of a final product as well as the actors involved Christin (2006).

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The approach was used to gain more understanding of economic processes in production and distribution chains in agricultural commodities such as analysis of the production of cocoa in the developing countries formerly under French colonization Nugraha (2007). The filiere concept has been criticised for its static character with regards to relations and weak emphasis on governance Raikes et al. (2000).

In 1974, Wallenstein's concept of "commodity chains" was developed upon the principles of world systems theory where the world's nations were classified into two separate groups; core and periphery with the core dominating the world through capitalist system and exploits the periphery to sustain itself due to inequalities in power relations Rutgers (2010). By mid 1980s the modern Value Chain Analysis (VCA) was developed by Michael Porter and popularized in his 1985 seminal work, "Competitive Advantage" as an instrument for identifying the value of each step in the production process Porter (1985).

Porters VCA was established during an era of intense competition where strategic management became important for the survival of businesses and it was the theoretical framework that enterprises used to detect their resources of competitive advantage Nangole, E.M., Mithoder, D. & Franzel, S. (2011). The generic form of Porter's value chain is:

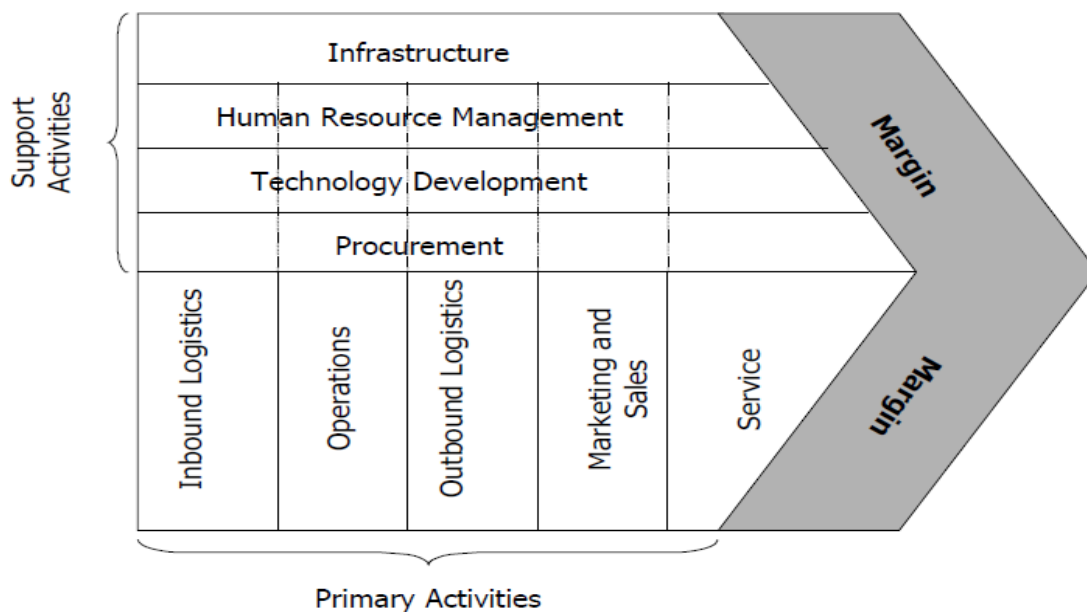


Figure 1: Porter's generic value chain

According to Van den Berg, M., Boomsma, M., Cucco, I., Cuna, L., Janssen, N., Moustier, P., Prosta, L., Purcell, T., Smith, D. & VanWijk, S. (2009), inbound logistics are primary activities which directly contribute to add value to the production of goods and service whilst outbound logistics are support activities with indirect effect on the final value of the product. Roduner (2004) found that the primary and support activities offer the customer a level of value that exceeds the cost of the activities resulting in a profit margin. The weakness of Porter's approach according to Fasse, A., Grote, U., & Winter, E. (2009) was its restriction to the firm level activities neglecting the analysis of upstream or downstream activities beyond the industry. This paved way for the launching of the Global Commodity Chain Approach (GCCA) which was derived from the earlier Wallenstein's

commodity chain Gereffi and Korzeniewiz (1994). Within this framework was the development of the four core dimensions through which a value chain could be analysed holistically thus input-output structure, geographical territory covered, institutional framework, and governance Gereffi and Korzeniewiz (1994). Another concept which is not of interest to this study was the development of GCC concept into the Global Value Chain (GVC) Concept reflecting a more dynamic view of value chain governance Sturgeon (2008); Gereffi, G., Humphrey, J. and Sturgeon, T. (2005).

2.8. Honey marketing system

World production of honey in 2004 was in excess of 1.38 million metric tons (MT) per year and beeswax production was more than 60,153 MT per year FAO (2005). Russia and China are the two biggest honey suppliers in the world which produce more than one third of the total production. Among the total production in the world, developing countries produce near to 500,000 tons and a small proportion of this honey meets exportable quality standard. Africa also exports only 2% of its total product though several African countries are major producers of honey Bezabh (2010). This is due to unfitting of the EU (European Union) food quality standards.

Even if beekeeping is one of an oldest economic activity in Ethiopia Hartmann (2004), and its market surplus accounts for over 90 per cent of the total harvest, 99.2 percent was consumed domestically and only 0.8 percent was exported due to low quality. Quality issue

is the main concern for export commodities, and the volume of export in both honey and beeswax products in Ethiopia have declined since the last decade. This is due to the deterioration in the quality of the product and increasing demand of the product in the domestic market Beyene and David (2007).

The quality of Ethiopian honey is generally poor, as 95 per cent of beekeepers follow traditional beekeeping practices with no improved techniques or technology Oxfam (2008).

The total volume of Ethiopian honey exports in 2007–2011 was 1,297,716 kg, with a total value of US\$4,066,528. Income from the apiculture sector is minimal, primarily due to low productivity and poor quality, but also because of limited market access, which forces producers to sell locally at low prices. Out of the total honey marketed within the country, over 97 per cent of the production is sold via formal and informal domestic spot markets. Of the total, 70 per cent goes to the production of Tej (beverage) and only around 30 per cent is used as table honey Amanuel (2011).

2.8.1. Market channels

Market channel is a business structure of dependent firms which shows the flow of commodities from its production place to the consumer with the aim of moving products to their last consumption destination. This process can be short or long which depends up on the kind and quality of product marketed Gray (2004).

There are two marketing channels through which farmers dispose their product. They are independent and in union Barker, cited by Tewelde (2010).

- **Farmer's choice of marketing channels;**

Regardless of their orientation either production or market orientated farmers have to use marketing channels to dispose their product/service which is excess of their consumption. for some , this simply a matter of routine ,selling through the same out lets year and year out ,however , producers are obliged to prefer among different marketing channels in order to sell their product other natives surely exist for the market – oriented farmers to improve their profit potential. If they are prepared to spend time deliberating over

which marketing channels to use and then makes their decision on the bases of sound economic motives Barker, cited by Tewelde (2010).

- **Individual Channels Used By Producers**

Whenever producers run individually in the market their ability to influence the market is negligible. Though such disadvantages, the bulks of agricultural product is selling by farmers operating independently through different outlets (ibid).

- **Union Channels Used By Producers**

Cooperative is one of the channels used by producers. One of the main objectives of cooperative is to minimize all weakness of farmers acting individually in the market process. Because the influence of individual in the market is highly limited by the relative smallness of their scale of operation compared to the people with whom they are trading. If individual farmers act as individual but partly in some way to market their product union and there will be synergistic returns available because of increased scale of operation, when farmers cooperate, there is a pooling of different resources (ibid).

2.9. Honey Production in Ethiopia

In the country about 30,200 tons of honey is estimated to be produced annually. This makes the country first in Africa and one of ten major honey producing countries in the world. However, most of honey goes for preparation of local beverage Tejj while small amount being used for other purposes. In many regions of country, apiculture is considered as one of the income generating activities for resource poor farmers including women, youth and unemployed sectors of the community. Apiculture also provides attractive options for rural employment and income generation in harsh agro-ecosystem where crop production is marginal and the risk of crop failure is high. There is a great potential in the country for working with communities by introducing minor and easily adaptable apiculture production system, leading to considerable gains in productivity beyond family consumption needs. The potential for improvement of the traditional honey and wax production has led to apiculture promotion as part of policy initiatives taken by government of Ethiopia although they have been, in the past, defeated by impact of major constraints and lack of appropriate

research working paper no. 8, Melaku Girma, Shifa Ballo, Azage Tegene, Negatu Alemayehu and Lulseged Belayneh (2008).

Currently Ethiopia is listed as a third country to export honey by European commission. To export to European Union a number of requirements must be met the primary and the secondary requirements. The primary requirements listed were: viable offer to the market, listed in the EU inventory of third countries eligible to export honey to EU and clean honey. The secondary requirements s comprised of: Business relation with the buyer, a traceability system for quality control and Hazard analysis and critical control points concept P. Gall Mann and H. Thomas (2012).

2.10. Major Opportunities and Constraints of Beekeeping in Ethiopia

Ethiopia has enormous untapped potential for promoting beekeeping; both for local use and for export purpose. Ethiopia is one of the countries of the continent that has the largest honey bee population and owns a big potential of honey production owing to its varied ecological and climatic conditions. Moreover, beekeeping is an appropriate and well-accepted farming technology and is best suited to extensive range of ecosystems of tropical Africa (Chala et al., 2012).

Major constraints to the development apiculture in the study district were pests and predators, bee forage, beekeeping equipment, absconding, honeybee colony, pesticides and herbicides, death of colony, water shortage, honey storage materials, swarming and marketing in their order of importance. Different researchers identified similar constraints in beekeeping sector in different parts of Ethiopia (Workneh, 2007; Tessega, 2009; Tesfaw, 2012; Nebiyu and Messele, 2013; Tariku and Mechthild, 2013). According to ADBG (2011), infrastructure, inadequate access to credit and lack of extension services were identified as key constraints to agricultural productivity. Moreover, Mengistu (2010) identified lack of skilled human powers (apicultural extension staffs), absence of national training center and lack of standard training materials, high cost of beekeeping materials, absence of medium and long term credit institutions in rural areas and technological problems as a major constraints.

2.10.1 Bee Disease

The bees and their products are vulnerable to various diseases, parasites and pests. The existences of two adult honeybee diseases namely *Nosema apis* and *Meliponineoeba mellifica* and their distribution was studied and reported by Gezahegn and Amsalu (1991). The occurrence of brood disease known as Chalk brood in Ethiopia for the first time was reported by Desalegn (2006). Some major types of honeybee pests and predators, magnitude of their damage, and some possible solutions to minimize the damage they cause on bees and their products were discussed by Desalegn (2001). Moreover, the occurrence of small hive beetle (*Aethina tumida* Murray; Coleoptera: Nitidulidae) in honeybees was assessed by Desalegn and Amssalu (2006) and recently the effect of ant (*Dorylus fulvus*) on honeybee colony and their products in West and Southwest Shewa zones was examined by Desalegn (2006). The most commonly known honeybee diseases reported to exist in Ethiopia are *Nosema*, *Amoeba* and Chalk brood diseases (Gezahegn and Amssalu (1991).

2.11. Roles of men and women along the beekeeping value chain

Gender division of labor is socially determined ideas and practices, which define what roles and activities, are deemed appropriate for women and men. Women are invisible and underserved suppliers, buyers in many agricultural value chains (Mayoux 2010, Manfre 2010). The need by women to improve their household's livelihood is attributable to modern technologies that make it easy for them to participate in apiary maintenance activities. However, the extent of their participation and activities they shy away from are unknown. In addition, it is important to unearth some of the constraints leading to non-participation in such activities if the enterprise is to be beneficial to men and women. Studies have shown that traditionally, men practised beekeeping unlike women who kept away due to taboos and bee sting phobia IFAD (2009); Qaise, P. Jensen, M. F., and Ponte, S. (2013).

The extent to which erosion of such fears and taboos has occurred is accessible through evaluation of roles undertaken by participants with modern beekeeping technologies. Further, roles performed by women are increasingly changing to resemble those performed by men in the modern world where equality is sought Presser and Sen (2000).

2.12. Theoretical Framework of Value Chain Analysis

This research focuses on Porter's value chain analysis based on the separation of economic activities into value adding activities and evaluation of the value each particular activity adds to bee products through the four key elements of GCC approach of Kaplinsky and Morris (2001). The input-output structure describes the supply of inputs to producers and how the inputs are used to improve the products Rutgers (2010).

Geographical coverage that involves Margin Service Marketing & Sales Outbound logistics Operations Inbound logistics the mapping of the value chain and the extent to which actors are spread along the source-make-deliver approach Eva (2006).

Governance which identifies the conditions under which key or lead agents incorporate subordinate agents through their control of market access and information and the power relationship that regulates quality standards along the value chain Christin (2006). Institutional dimension which recognizes that value chains are not „closed systems“ since actors acquire external inputs in terms of skills and extension services from technical research institutes and are influenced by trade unions, NGOs and driven by national governments or international organizations through policies and social structures as value chain supporters Nugraha (2007).

A look at Messners (2002) concept of the world economic triangle based on the assumption that actors, governance and regulation systems determine the scope of action to take to improve a particular commodity is important. According to Roduner (2004), product improvement is based on upgrading the entire economic triangle theory (actors, governance and regulation systems) in the value chain. The focus of this research was the theory of the “sub-sector” introduced by Shaffer in 1970 and based on Porter's value chain analysis. According to Staatz (1997), sub-sector involves a set of actors with their activities and rules in governing the production, processing and distribution of an agricultural commodity. The agriculture sector is divided into sub-sectors like the beekeeping sector which is defined in terms of the end product produced and covers all the distribution channels for this end product Mitchell, J., Jodie, K., & Coles, C. (2009). Focusing on the sub-sector concept but using the value chain perspective is more appropriate for the study of the beekeeping

industry since Belcher (2009) proposed that different Non-Traditional Forest Products (NTFP) originating from the same source such as honey, wax and propolis each could be classified as separate value chains. This is based on the premise that researchers using the value chain approach and analysis need to combine with more analytical methods to go beyond case-specific conclusions and ensure comparability across sites and applications Rich, k.M., Ross, R.B., Baker, A.D. & Negassa, A. (2011).

This study goes beyond just a sub-sector analysis to using the approach taken at the Institute of Development Studies at the University of Sussex (IDS) targeting on development, although it was not limited to agriculture but had been applied to agricultural commodity studies Karl, M.R., Baker, D., (2009).

The IDS approach to VCA has four components which begin with mapping the actors participating in the production, distribution, marketing, and sales of a particular product including profit and cost structures, flow of goods, employment characteristics and the destination and volumes of domestic and foreign sales Kaplinsky and Morris (2001). IDS also examine the impact of upgrading within the chain which involves improvement in quality and product design, access to new markets, and diversification Mitchell et al. (2009).

An analysis of the upgrading process includes an assessment of the profitability of actors within the chain as well as information on constraints that are currently present and further addresses the innovation capability of actors, ensuring continuous improvement in product and process Karl et al. (2009). Finally, IDS identifies the distribution of benefits of actors in the chain through analysis of value-added so that one can determine who benefits from participation in the chain and which actors could benefit from increased support.

2.13. Empirical Review

There are a number of empirical studies on value chain approach and profit margin analysis of agricultural commodities. Value chain study conducted on apiculture subsector by SNV (2009) in Ethiopia indicates that the subsector faces a number of challenges and limitations including dependence on technologies with low productivity, poor pre and post-harvest management, limited number of industrial honey processors, inadequate capacity building and extension service, poor marketing infrastructure, lack of access to inputs,

inadequate access to finance by smallholder farmers and lack of information for marketing on both honey and beeswax. The study recommended that adoption of modern beehives, creation of market linkage and development and establishment of domestic honey testing laboratory to reduce the challenges. Market assessment and value chain analysis conducted on honey by SID (2010) in Benishangul Gumuz Regional State of Ethiopia indicates that smallholders, collectors, local market wholesalers, brokers, AA market wholesalers, tej makers, processors, retailers and individual consumers are the actors involved in honey value chain in the region. The study indicates that the subsector faces a number of challenges including lack of organized market, low product quality, poor harvesting and handling techniques, poor road infrastructure, limited value addition activities, lack of honey processing equipments and skill and low adoption of modern beehives. The study recommended that Provide seed money/credit to initiate modern beekeeping, skill building in modern beekeeping, establish honey processing and marketing cooperatives/union, skill building in modern beekeeping and honey processing and packing, support private bee colony multiplication and marketing for income generation, link honey coops/union with the local market in Addis to reduce the challenges.

Kosgei, R., Sulo, T., Chepng'eno, W. (2011) used cost benefit analysis on honey in west pokot district of Kenya and the result indicated that the main market participants for honey marketing in the region during the survey period were honey collectors, retailers and processors. Besides, a significant amount of honey produced is sold directly to consumers by producers. Major problems of the production identified and prioritized by beekeepers in the study area were drought, pests and diseases of honey bee, lack of apiary equipments, death of colony, marketing problems and shortages of bee forage and lack of adequate apiary skills.

Amanuel (2011) found that the certified Beehoney producers incur lower unit production cost and higher profit margin than conventional honey producers in GimboWoreda. 83.0 percent of the total labor cost of certified producer comes from the family labor while, 57.3 percent of the total labor cost of the conventional honey producers emanates from family labor. The total average labor cost of the certified producers was birr 541.83 and birr 460.89 for the conventional producers. Material cost for the certified Beehoney producers was

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226.60 Birr per year and 100.53 Birr for the conventional one. The total production cost incurred by the certified producers was birr 1486 and the total revenue was birr 3964.12 while the production cost incurred by conventional producers was birr 1224.67 and total revenue was birr 1364.95.

Assefa (2009) used marketing margin analysis on honey in Atsebi Womberta district and he found that producers incurred the highest production cost, of which interest payment takes the largest proportion which was 39.29 percent followed by labor cost which accounts about 26 percent of the total production costs, followed by retailers. Rent for retail shop took the largest proportion for retailers about 58 percent of all marketing costs. About 17 percent of total gross marketing margin was added to honey price when it reaches to the final consumers at the regional capital of Mekelle. Out of the total gross marketing margin about 6% was gross margin of honey collectors, while 11% was that of retailers. The study pointed out that all marketing participants of the commodity operated at profit. This indicated that all the marketing agents were advantageous through the channel.

Risper (2009) used the value chain approach on honey value addition decision and extent of honey producers in Baringo district, Kenya. He used Heckman two stage model and found that the decision to add value was positively and significantly influenced by the amount of honey harvested, group membership and amount of hours spent on off-farm activities. On the other hand, value addition was negatively influenced by the age of the farmers as well education level. He suggested that adoption of new technologies, farmers training and encouragement of value addition practices are needed to alleviate poverty.

Antenehet, A., R., Muradian, R., and Ruben. (2011) used market outlet choice approach on coffee in Sidama Zone, Ethiopia. The result indicated that the farmers sell their produce through different but limited marketing channels. The study found out that the main marketing channels existing in the area were coffee marketing cooperatives, private traders, neighboring cooperatives and informal traders. The study revealed that 42% of cooperative member coffee farmers sell their coffee to private traders and in opposite direction a 46% of non-member coffee growers deliver their coffee to coffee cooperatives. They used Tobit regression model and the regression results for member farmers revealed that factors such as education, proportion of land allocated to coffee, proportion of off farm income to total

income, coop performance, satisfaction on coop performance, and second payment affected market outlet choice. While age of the household head, proportion of off farm income, and access to training has positively influenced nonmember coffee grower's buyer selection decision.

Patrick (2010) also used the value chain approach on factors influencing agricultural products value addition by butchery agribusinesses in Igembe North district, Kenya. He used probit and ordered logit models to determine the socio-economic factors influencing value addition by butchery agribusiness. He found that value addition was positively and significantly influenced by household size and the type of the complementary businesses. Age, employment status, access to credit and frequency of slaughtering animals was negatively and significantly affect the value addition.

2.14. Conceptual Framework

The conceptual framework in Figure 1 outlines the conceptualized interrelationships in the study, the key variables involved and how they will interrelate. The reasoning is that some farmers will decide to add value while others will choose not. The decision to add value will influence by a number of factors discussed as follows.

Market and institutional arrangements influence value addition as well as farmer and farm circumstances. Farmers who access credit for example can enhance their ability to practice value addition. Membership of cooperative vocalizes the choice and ability to practice in honey value addition. Membership of cooperative ensures accessibility to credit, equipment and collective marketing which is more effective than individual marketing thus fosters value addition. Value addition is also influenced by individual farmer and farm circumstances such as age, education level, sex and honey output. Education level may positively influence value addition in terms of training and skills required to grasp new techniques and undertake value addition. The sex of household head may influence the ability of the household to adopt new technologies and the replication of these technologies. The quantity of honey produced will also positively influence value addition, with farmers having higher output expected to be participating in more value addition.

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There are four market outlet choices of honey in the study area such as tej makers, retailers, cooperatives and processor. The market outlet choices of farmers are influenced by different factors such as age, education level, experience, and market information access, mode of sale, distance to the nearest market outlet and membership of cooperative. Farmers who are cooperative member for example choose cooperative outlet to sale their honey than other market outlet choices.

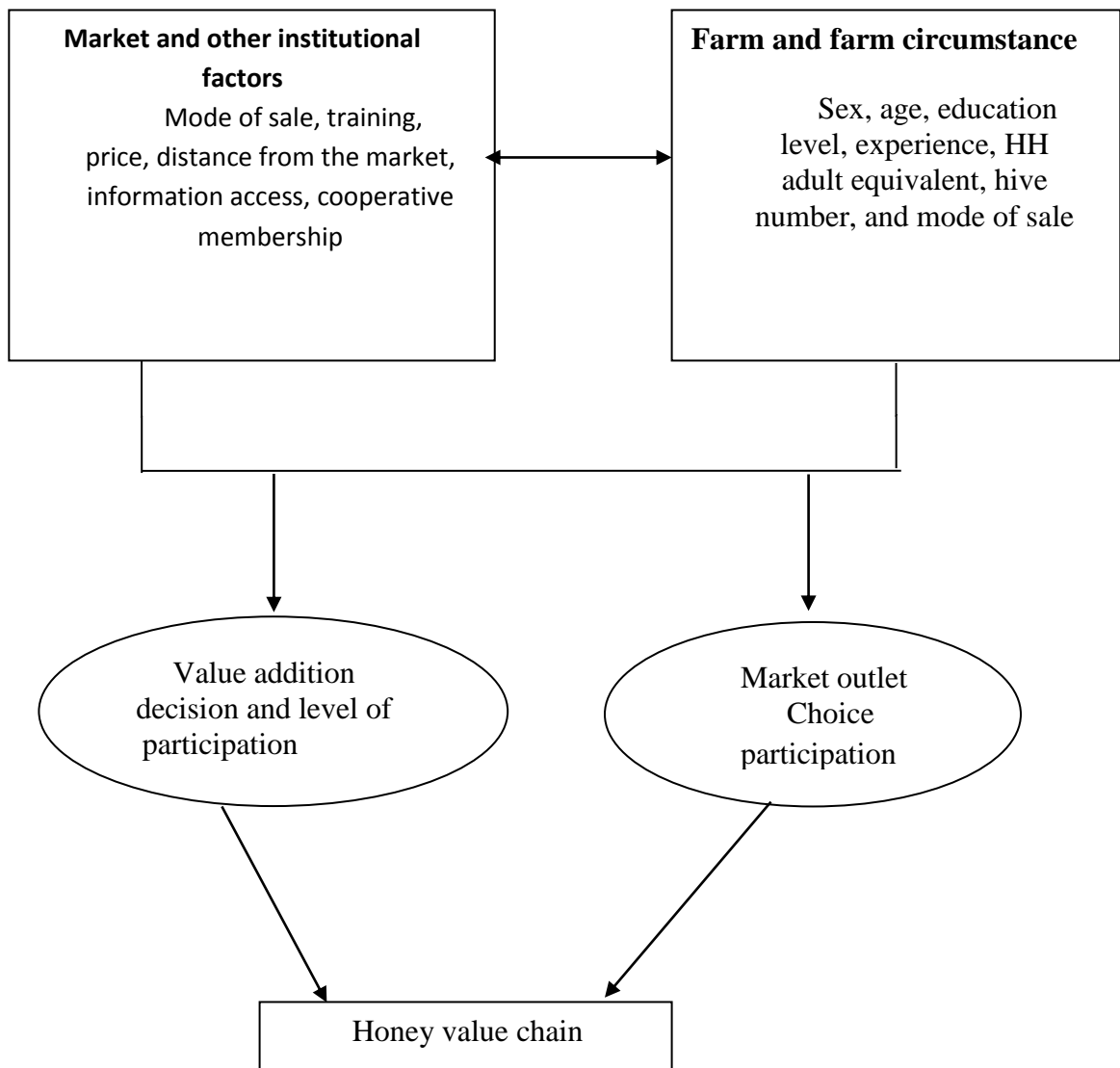


Fig.2. Conceptual framework 2016

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Description of the Study Area

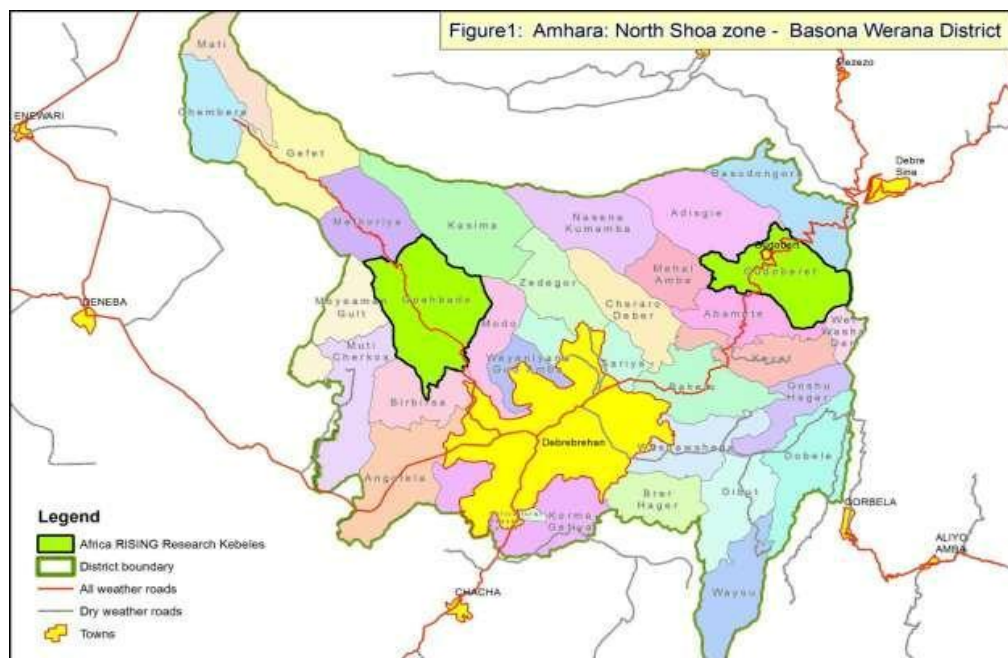
The study conducted in Basona Werana is one of the woredas in the Amhara Region of Ethiopia. Located at the eastern edge of the Ethiopian highlands in the Semien Shewa Zone, Basona Werana is bordered on the south by Angolalla Tera, on the southwest by the Oromia Region, on the west by Siyadebrina Wayu, on the northwest by Moretna Jiru, on the north by Mojana Wadera, on the northeast by Termaber, and on the east by Ankober. The town and woreda of Debre Berhan is an enclave inside this woreda. Basona Worena district is comprised of 30 kebeles of which Goshe Bado and Gudo Beret have been selected for testing the initial set of production interventions. The total population of the district is 134,600 (2014, Woreda office of Finance and Economic Development report) and almost 100% Orthodox in religion. The district capital, Debre Birhan also serves as the zonal capital for the North Shoa zone and is therefore a major supplier of inputs and services and trading and processing. Part of the district has a well-developed road network—see map with main socio economic characteristics.

Most of Basona Worena is classified in Agro-Ecological Zone (AEZ) ‘moist Dega’. The bulk of the area receives rainfall between 900 and 1050 mm annually and most of the area is between 2250 and 3200masl. Average temperature in most of the district varies between 9–15°C. The majority of the soils are Cambisols and Vertisols with some Arenosols in the undulating lower parts of the district. Most of the area is cultivated with some grazing areas at mid and high altitude.

Basona Worena district is comprised of 30 kebeles and one Debre Birhan Town Area is 139,000sq.km. The total population of the district is 130,536 (2014) Male 66,835 and Female 63,701, Woreda office of Finance and Economic Development report). Part of the district has a well-developed road network—see map with main socio economic characteristics. Most of Basona Worena is classified in Agro-Ecological Zone (AEZ) moist Dega 50%, Weyna Dega 48% and Wirch 2%. The soil characteristic are Black 21%, Brown 40% and Red 39%. The bulk of the area receives rainfall between 900 and 1050 mm annually and most of the area is between 2250 and 3200masl. Average temperature in most of the district varies between 10–22°C. The dominant livestock types include cattle and

sheep. The natural vegetation is Forest 12,203 sq. km, Arable 63,185 sq. km and Grazing 26,667 sq. km it are grown in the topography is mainly composed of a few remnants of different tree species such as Hageniaabyssinica, Erica arborea, Acacia abyssinica, Oleaafriicana, Prunusafricana and scrubs and grasses. As a result of past afforestation programs, Eucalyptus is the dominant tree species in the upper part of the topography. Homesteads are also surrounded by groves of Eucalyptus. Most of the area is cultivated with some grazing areas at mid and high altitude.

Figure 3. Basona Worena district



Source: Temesgen and Eliud (2015)

3.2. Sample and sampling techniques

The sample frame are included all actors that participate in honey value chain in the study area. The sample size of the beekeepers was determined by using Yamane (1967) formula to calculate sample size.

$$n = \frac{N}{1 + N(e)^2}$$

Where;

n = the sample size,

N = N is the total population of Bee honey producer households which is 489, and

e = the level of precision which is ±5%.

When this formula is applied to the honey producers of the sampled kebeles, the sample size is determined as follows:

$$n = \frac{489}{1 + 489(0.05)^2} = 220$$

Table 1: Sample distribution of honey producers

Kebeles	Number of households (n=5008)	of Number of honey producers (n=489)	Sample households (n=99)
Debele	1,444	306	138
GosheBado	1,864	105	47
Gudo Beret	1,700	78	35
Total	5008	489	220

Source: Basona Worena district bureau of Agriculture and rural development

3.3. Types of Data and Tools

In order to get the overall picture of honey producers, cooperatives, traders, tej makers and exporter and consumers of the honey value chain in the study area; the study were used both primary and secondary data. The primary data were collected from farmers focused on major actor in the value chain and their function, major opportunities and constrain, market information, credit access, accesses to market, numbers of beehives owned, and demographic characteristics of the household.

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The data were collected from traders and exporter focus on, buying and selling strategies, and source of market information. Moreover, data collected from tej makers inputs uses to make tej and advantage of honey to tej making.

Secondary data collected from different sources, such as the District Office of Agriculture and Rural Development (DOARD), marketing and cooperative office and reports to generate relevant secondary data on honey production and marketing.

Primary data were collected using key-informal and formal surveys. Data collected from key informants by using a checklist. The formal survey were undertaken through formal interviews with select farmers, cooperatives, traders, processor, tej makers and consumers using a pretested semi-structured questionnaire for each group. The data collected from select farmers by the researcher using semi-structured questionnaire.

Relevant information was further collected through discussions with the district OARD experts, PA administrators, and key informants that play significant role in beekeeping activities of the district. During the survey, major opportunities and constraint and Gender role was identified and used as a base for the honey value chain analysis study.

3.3.1. Formal survey

A formal survey was conducted using semi-structured questionnaire, with open-ended and closed-ended questions with the help of trained enumerators. A semi-structured questionnaire was prepared and pre-tested before administration and some re-arrangements in accordance with respondents' perception were made. The questionnaire was administered to the simple randomly selected household heads by enumerators recruited and trained for this purpose with close supervision by the researcher. The questionnaire was designed to capture information such as: household demographics including sex, marital status and age of the respondent; beekeeping activities and potential, Beekeeping equipment and protective materials, marketing condition, constraints of beekeeping, credit source and availability. The survey considered the following major issues.

3.3.2 Focus group discussion

In discussions had been made with agricultural development agents, elders, village leaders and individuals who have knowledge about the beekeeping practices, and constraints of beekeeping in the area. Focus group discussions consisting of 6 knowledgeable individuals were made to complement the survey work and the researcher facilitated the discussions at all sites. Individuals for focus group discussions were selected by the help of agricultural extension workers considering their age and experience with beekeeping activity, knowledge about beehive types, beekeeping activities, honey utilization and major constraints of beekeeping.

3.3.3. Key-informants interview

Primary data were also generated by informal interview of extension workers in addition to beekeepers, and focus group discussion with the intent of gathering information related to beekeeping systems, and constraints of beekeeping.

3.4. Sampling Procedure

For this study in order to select a representative sample, a three-stage sampling procedure was employed to select a specific honey producer household from Honey producer kebeles. To determine the sample households from the districts, the following three stages were used.

In the first stage, the district was selected purposively based on honey production potential. In the second stage, with the help of district agricultural experts and development agents, out of 30 kebeles in the district of Bosana Worena, three kebele selected purposively based on presence of large number of producer. In the third stage, from the selected rural kebeles, sample households were select simple randomly based on proportional to the population size of Beehoney producers of respective kebeles.

Finally, simple random sampling was used to select 220 representative households using list of Beehoney producers in each kebele as a sampling frame.

Data from retailers, cooperatives, tej makers, exporter and consumers were also collected. There were 8 registered honey retailers in the study area by woreda trade and

industry office and all of them were taken. There were 1 honey producers and marketing cooperatives in the woreda and all of them were taken. In addition 3 tej makers and 15 consumers were selected randomly.

3.4.1. Sample test

The household survey questionnaire was tested on non-randomly selected households. Based on the interview results some modifications were made to improve its relevance to the local context. In order to conduct the interview, interviewers who know the area very well were recruited and trained for one day on the objectives of the study, methods of data collection and interviewing techniques before data collection was carried out. In addition, the checklists that were prepared for different value chain actors were conducted on the concerned actors for an extended period of time for the sake of convenience due to their scattered location.

The researcher was responsible for conducting the research as per the designed methodology and provided guidance or explanations to make respondents understand the questions clearly. Meanwhile the recorder wrote the responses from the respondents genuinely. Once the required amount of interviews was collected, it was encoded in the SPSS software as an input for analysis.

3.5. Method of data analysis

The quantitative primary and secondary data were collected from the identified value chain actors encoded into Simple descriptive statistics such as mean, frequency and percentages were used for analysis. The qualitative data gathered through group discussion and the honey chain actors' interviews were summarized by putting the same responses in the same category.

3.6. Instrument Validity and reliability

Validity is the degree to which a test measures what it purports to measure (Creswell, 2009). Validity defined as the accuracy and meaningfulness of the inferences which are based on the research results. It is the degree to which results obtained from the analysis of the data actually represents the phenomena under study. He contends that the validity of

the questionnaire data depends on a crucial way the ability and willingness of the respondents to provide the information requested. A pilot study was conducted to refine the methodology and test instrument such as a questionnaire before administering the final phase. Questionnaires were tested on potential respondents to make the data collecting instruments objective, relevant, suitable to the problem and reliable as recommended by John Adams et al. (2007). Issues raised by respondents were corrected and questionnaires were refined. Besides, proper detection by an advisor was also taken to ensure validity of the instruments. Finally, the improved version of the questionnaires were printed, duplicated and dispatched. The instruments selected can help to show value chain analysis of honey. It can clearly address how these value chain analysis are identified. The relevant data was collected on the value chain analysis of honey in Basona woreda district. Moreover, to have valid conclusion, simple descriptive statistical was used to test the relationship between the variables.

The reliability test is an important instrument to measure the degree of consistency of an attribute which is supposed to measure. As stated by Mahon and Yarcheski (2002) the less variation of the instruments produces in repeated measurements of an attribute the higher its reliability. Reliability can be equated with the stability, consistency, or dependability of a measuring tool. Cronbach's alpha is one of the most commonly accepted measures of reliability. It measures the internal consistency of the items in a scale. It indicates that the extent to which the items in a questionnaire are related to each other. The normal range of Cronbach's coefficient alpha value ranges between 0-1 and the higher values reflects a higher degree of internal consistency. Different authors accept different values of this test in order to achieve internal reliability, but the most commonly accepted value is 0.70 as it should be equal to or higher than to reach internal reliability (Hair et al., 2003).

Table 2: Cronbach's Alpha for each field of the questionnaire

No	Field	Number of Items	Cronbach's Alpha
1	Honey beekeeping	5	0.718
2	Market Information in the value chain	7	0.722
3	Access for Beekeeping Training	7	0.723
4	Credit sources and Availability	7	0.733
5	Constraint in beekeeping	10	0.865
Over all		36	0.879

Source: Field Survey (2016)

The Cronbach's coefficient alpha was calculated for each field of the questionnaire. The table4.1 shows the values of Cronbach's Alpha for each field of the questionnaire and the entire questionnaire. For the fields, values of Cronbach's Alpha ranged from 0.7138 and 0.865. This range is considered high as the result ensures the reliability of each field of the questionnaire. Cronbach's Alpha equals 0.879 for the overall questionnaire which indicates very good reliability of the entire questionnaire. Therefore, based on the test, the results for the items are reliable and acceptable.

CHAPTER FOUR: RESULT AND DISCUSSION

This chapter presents the major finding of the study that addressed the objectives of the study. It has five sections. The first section deals with beekeeping activities that includes honey value addition. The second section discusses the major opportunities and constraint in honey value chain. The role of gender in the honey value chain is presented in the third section. Finally, the determinants of honey producer's market outlet choice are presented in the fifth section.

4.1 Socio economic and Demographic characteristics of honey producers' household

As per indicated the under Table 4 demographic results of the respondents, the total sample farmer respondents of the survey were 220 Out of 220 samples, 94.1 % were male-headed and 5.9 % was female-headed households. This arises from the traditional believe that beekeeping is a man's activity and women are therefore not allowed to venture into the activity. Majority districts male household has a contribution to the incomes of households in particular and the economy of the nation in general in honey production.

In the study area beekeeping is practice in backyard and under the eaves of the house as well as hanging on trees near homestead and forest areas by hanging the beehives in trees and it is a taboo for women to harvest honey and therefore, the few women that are involved are required to employ men to undertake most of the tasks ranging from hive construction, hanging of hives on trees and subsequently harvesting. Concerning education level of beekeepers, 40 % of the respondents were literate and 60 % were illiterate. Educational qualification has an effect in honey production.

About 83.2 % of the bee keepers are married, 13.6 % are single. The rest 1.8 and 1.4 were widowed and separated. 3.6 %, 2.3 %, 19.5 % and 74.5 of the respondents were political leader, spiritual leader and elder and community member respectively. The mean age of members of households involved in beekeeping is 43.1727 years (maximum 60 and minimum 23) and this indicates that those involved in beekeeping are the active and energetic member of society.

Table 3. Demographic characteristic honey produce's

Activities	Variable	Frequency	Relative Percentage (%)	Cumulative %	
Sex	Male	207	94.1	94.1	
	Female	13	5.9	100	
Marital status	Married	183	83.2	83.2	
	Single	30	13.6	96.8	
	Divorced	3	1.4	98.2	
	Widowed	4	1.8	100	
Position of HH in the community	Political Leader	8	3.6	3.6	
	Spiritual Leader	5	2.3	5.9	
	Elder	43	19.5	25.5	
	Community member	164	74.5	100	
Educational status	Illiterate	132	60	60	
	Literate	88	40	100	
	N	Minimum	Maximum	Mean	Std.
Age	220	23.00	62.00	43.1727	12.8229
Years lived in the area		20.00	62.00	37.8409	11.74256

Source from house hold field survey data, 2016.

4.1.1. Beekeeping activities

In Basona Worena wereda, many farmers engage in beekeeping for a longer period. In the area, the majority of household keep honeybees as source of additional income from honey sell and beekeeping is an integral part of the farming communities of the area.

4.1.2. Honey Producers' characteristics by honey value addition

In this study value addition activity means the participation of farmers in straining(semi processing) of crude honey by using different materials such as cloth, sieves, decantation and by hand. There was also a price difference in crude and semi-processed honey. In the study area most farmers use decantation to strain (semi-process) their honey.

Table 4. Characteristics of surveyed households across honey value addition

Question	Variable	Frequency	%	Cumulative %
What material do you use for straining?				
	Honey extractor	3	1.4	1.4
	Honey presser	17	7.7	9.1
	Cloth	44	20.0	29.1
	Sieve	14	6.4	35.5
	Decantation	93	42.3	77.7
	Using Hand	49	22.3	100
N=220				
If you don't strain your honey why?				
	Lack of Material	49	100	100

***Source from survey data 2016

From above table 5 data the majority of 42.3 % respondents respond that they use decantation to strain honey in the farm level. The second 22.3 % respondents replied that using hand. Third 20 % respondents are also strain materials using clothe and the rest of 7.7%, 6.4% and 1.4% are used for strain Using honey presser, sieve and honey extractor. Regarding the table 5 result out of 49 respondent 100% who don't strain the honey, due to Lack of material. Honey producers participate in value addition activities depending on different demographic and socioeconomic characteristics of the households. The highest honey producers using decantation for participate in honey value addition in 2016 production season.

Table 5. Honey beekeeping

Activities	N	Minimum	Maximum	Mean	Std.	
Do you keep honeybees?	220	1.00	1.00	1.00	0.0000	
If yes, When did you start beekeeping? (in years)	220	1973	2011	1994	12.00926	
How many honeybee colonies you owned	Traditional	220	1.00	10.00	3.381	2.09797
	Intermediate	54	1.00	9.00	2.148	1.68688
	Movable frame	34	1.00	7.00	2.470	1.9838

***Source from household field data 2016

Regarding to above table 6 of survey result, how many honeybee colonies you owned? Traditional is also has the first highest mean average of 3.381 and Intermediate is the second highest mean average 2.148. Movable frame is the third greater of the average mean 2.470. According to the survey Std.12.009 indicate that the highest mean average respondents are starting beekeeping form 1994 Etc.

4.1.3. Beekeeping honeybee colonies

According to the survey result, majority of the respondents 70 % respondent are using traditional hives in the back yard and the rest of respondents are Under the eaves of the house 17 % on trees near homestead6 %, Hanging on trees in forests 7 %. Similarly, Previous study Amssalu (2004) in Ethiopia there are three types of beekeeping practices: traditional forest beekeeping, traditional back yard beekeeping, transitional beekeeping and improved (modern) beekeeping. About 90 % of beekeeping that farmers practice in Ethiopia is traditional.

However, the honey production is very traditional which is practiced mainly by hanging traditional hives on tall trees in the backyard and forest near and far from human settlement. Currently, three types of beehives undertake beekeeping: - traditional, intermediate and

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Zander model box hives. In the area traditional hive, beekeeping practice is the dominant while intermediate and modern hives are less used. Only very few beekeepers reported having Modern hive that has been supplied Woreda Agricultural and Rural development Bureaus... In the study area the majority of farmers construct their traditional beehives from different locally available plants locally called, hareg (*Solanecoangelatus*) and bamboo. Traditional hives have a cylindrical shape with a length of 0.75 to 1.5 meters. Constructing and hanging of traditional beehives are made exclusively for men due to its cumbersome nature and culture.



***Source from survey data 2016

4.2. Opportunities and constraints in honey value chain in the study area

Problem identification and solution searching is important to utilize the beekeeping sub-sector more efficiently and effectively. During the survey, the respondents identified many challenges in honey production and marketing. As a result, prioritization of the problems was made to identify the most important constraints that hinder the development of beekeeping sub-sector in the study area.

4.2.1. Major Constraint in honey value chain in the study area**Table 6. Constraint in beekeeping**

Constraints	Frequency	%	Cumulative %	Rank
Pests and predators	79	35.9	35.9	1
Diseases	67	30.5	66.4	2
Pesticides and herbicides application	15	6.8	73.2	3
Absconding	13	5.9	79.1	4
Beekeeping equipment's/Materials	11	5.0	84.1	5
Honeybee colony	10	4.5	88.6	6
Death of colony	8	3.6	92.2	7
Beehives	8	3.6	95.8	7
Migration	4	1.8	97.6	8
Storage facilities	3	1.4	99	9
Marketing	2	0.9	100	10
Others (specify)				

***Source from survey data 2016

Regarding to above table 7 “the major constraint in the beekeeping” the study result that the first highest rank 35.9% of damage the honey is Pests and predators, 30.5% second highest Diseases and then 6.8% third highest predators are Pesticides and herbicides application and the last one is marketing ranked to 10%. Previous Close results with research works Kosgei, et. Al. (2011) in west pokot district of Kenya and the result indicated that Major problems of the production identified and prioritized by beekeepers in the study area were drought, pests and diseases of honey bee, lack of apiary equipment's, death of colony, marketing problems and shortages of bee forage and lack of adequate apiary skills. In other previous study (Workneh, 2007; Tessega, 2009; Tesfaw, 2012; Nebiyu and Messele, 2013; Tariku and Mechthild, 2013) the study were pests and predators, bee forage, beekeeping equipment, absconding, honeybee colony, pesticides and herbicides, death of colony, water shortage, honey storage materials, swarming and

marketing in their order of importance. Different researchers identified similar constraints in beekeeping sector in different parts of Ethiopia

4.2.1.1. Access for Beekeeping Training

Table 7. Access for Beekeeping Training

Activities	Frequency	Percent	Cumulative percent
Do you get beekeeping training?			
Yes	88	40	40
No	132	60	100
If your response yes, do you need beekeeping training?			
Yes	74	85.1	85.1
No	13	14.9	100

According to Table 8 data out of 220 respondents 60% are not gotten beekeeping training. The third most important constraints are lack of training. Out of 88 respondent 85 % need training facility. In the participation of bee production majorities of respondents are not took the training. And majorities of respondents said that they would have taken training if training is provided. Previous researcher identified similar constraints in beekeeping sector. According to Mengistu (2010) identified lack of skilled human powers (apicultural extension staffs), absence of national training center and lack of standard training materials. high cost of beekeeping materials, absence of medium and long term credit institutions in rural areas and technological problems as a major constraints.

4.2.1.2. Credit Sources and Availability

Table 8. Credit sources and Availability

Activities	Frequency	Percent	Cumulative percent
Do you ever obtain credit for your farming operations?			
Yes			
No	220	100	100
If your response No, why?			
Inaccessibility of credit agent			
Debit collection problem			
High interest rate	220	100	100
Unavailability of credit			

Regarding to above table 9 data, “credit source and availability” the study result that 100 of respondents during the survey they haven’t taken a credit because of fear of large interest rate they believed. They believe that it is not essential for products obtained from this sub sector are still low as compared to the potential of the country. Although thousands of tons of honey are produced every year it is usually poorly managed and unattractive in appearance they know. Majorities are uses traditional hive honey is believed to be a good quality as long as it is in the hive. Faulty handling, from the time of its harvest until it reaches to market is responsible for its inferior quality.

Previous researcher identified similar constraints in beekeeping sector. According to ADBG (2011), infrastructure, inadequate access to credit and lack of extension services were identified as key constraints to agricultural productivity. As well as Mengistu (2010) identified absence of medium and long term credit institutions in rural areas and technological problems a major constraints.

4.2.1.3. Market Information in the value chain**Table 9. Market information in the value chain**

Activities	Frequency	Percent	Cumulative %
Did you get information on time?			
	Yes 73	33.2	33.2
	No 147	66.8	100
If your response yes, What type of information did you get			
Price information	48	21.8	64
Market place information	21	9.5	92
Buyers' information	6	2.7	100
At what time interval do you get the information?			
Daily			
Weekly	36	16.4	54.5
Monthly	30	13.6	100

***Source of data from field survey data 2016

According to the above table 10 data 66.8 % of respondents replied that they don't get timely information. 21.8 % of respondents replied that they are only getting price information. In the other hand 16.4 % respondents replied that who get information weekly bases. Similar to previous study in Tigray region Gidey and Mekonen (2010) this limited market information was reported for the study.

4.2.2 The Major Opportunities in honey value chain in the study area

According to office of District Agriculture and rural development report, there is still huge potential to increase honey production and to improve the livelihood of the beekeepers in the district. The presence of dense forest, which name is wefwasha, far from any agro chemicals that affect organic production and human settlements, is the major opportunity for the production of organic honey in the area. Besides the existing natural base, government has recently put in its agenda the need to develop apiculture as one of the strategies to reduce poverty and to diversify national exports. This will give BasonaWorena district

farmers the opportunity to access improved technologies and capacity building (training on apiculture). Availability of market demand throughout the year, growing number of buyers, high experience in honey production and trade, marketing situation of bee products are some of the opportunities for honey production and marketing by most of the producers. In addition, Eme Mar Trading will give a good opportunity to create increasing demand for honey and competitive market in the area and to promote export of hive products, which will in turn result in endogenous technological change and overall development of the sub-sector for the district.

4.3. Analysis of the gender role at the farm level

4.3.1. Gender division of labor at the farm level

Gender division of labor is socially determined ideas and practices, which define what roles and activities, are deemed appropriate for women and men. Women are invisible and underserved suppliers, buyers in many agricultural value chains (Mayoux 2010, Manfre 2010) .Women are generally expected to fulfill the reproductive role of bearing, and raising children, caring for other family members, and household management tasks, as well as home based production. Men tend to be more associated with productive roles, particularly paid work, and market production. As indicated in table 10 both man and women participate in different activities in the beekeeping sector.

Table 10. Comparison of roles done by men, women and joint effort at the apiary

Activities		Frequency	Percent	Cumulative %
Hive construction				
	Women	22	10	10
	Men	176	80	90
	Both	22	10	100
Harvesting				
	Women	33	15	15
	Men	184	83.6	98.6
	Both	3	1.4	100
Processing				
	Women	154	70	70
	Men	66	30	100
	Both			
Packaging				
	Women	110	50	50
	Men	44	20	70
	Both	66	30	100
Selling				
	Women	44	20	20
	Men	110	50	70
	Both	66	30	100

***Source of data from field survey data 2016

According to the above table 11 data, 52.72 % of respondents replied that men are highly participation of in productive activities. The second highest is women participation 33 % in honey productivity. The last one is both participated 14.28 %. From the above table the participation of women in productive activities was less when we compare with men and the women participation was higher than men in reproductive activities were. However, in

packaging activities level of women's were more as compared with men's. Similarly in previous research with Studies IFAD (2009); Qaise et.al. (2013). that have shown that traditionally, men practiced beekeeping unlike women who kept away due to taboos and bee sting phobia.

4.3.2. Opportunities and challenges faced for women's to participate in honey production and marketing

Opportunities

The opportunities for both women and men to participate in honey production and marketing particularly for women's is the government attention and the presence of extension services at the kebeles level is a good opportunity for women to get information and participate equally with men. Awareness of women about the advantage of the value chains through different forums, trainings and field visits and equal access of credit to women are some of the opportunities for women to participate in beekeeping. The presence of FTCs (Farmers Training Centers) is also an opportunity for women and men farmers, which serve as centers of extension service and information due to their proximity.

Challenges

Despite these opportunities, women faced different challenges that affect them from efficiently participating and benefiting from the beekeeping sector. These challenges are emanated from cultural influences, low economic capacity, and cumbersome nature of honey production and information gap between women. The specific challenges that affect women's participation in the value chain are the forest beekeeping practices that discourage the participation of women. Women also lack skill, efficiency and capacity due to their low participation in trainings, field visits and less access to radio and paper media and some inherited cultural perceptions about women's roles. Due to cultural influences and the workload at home, women have low mobility to get information and to use alternative markets. The workload of women as household heads, mothers and producers affects their efficiency in the beekeeping sector.

4.4. Determinants of market outlet choice

Table 11. Determinants of market outlet choice

Activities	Frequency	Percent	Cumulative %	
To whom do you sell?				
Trader	21	9.5	9.5	
Cooperative	16	7.3	19.2	
Tej houses	7	3.2	22.8	
Processor	-	-		
Consumer	149	67.7	100	
Others				
Reason for preferred seller				
Better Price	72	32.7	37.3	
Better scale	72	22.3	74.6	
Proximity	49	87.7	100	
Other				
Market distance from your home				
N	Minimum	Maximum	Mean	Std.
168	0.00	20.00	8.256	8.10928

***Source of data from field survey data 2016

Regarding to Table 12 data average respondent result showed that in place of who are farmer customers? 67.7 % Respondent replied that selling in to customer in the local market. Customers are the most actors in order to buying honey product. And the rest from 9.5 % and 7.3 cooperative and 3.2 % are from the teji house.

“Reason for preferred seller,” Majorities of 32.7 % respondent that are replied for better price. However, it is very low than current honey market price in the central city market. But the most community is reported that all market prices are not relevant to the homed benefit.

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Regarding to the study ‘Market distance from farmer’ that indicate the average respondent 8.25km from the market.

The education level result indicates that, literate household’s sale their honey to cooperatives, traders and processor outlets because literate HHs can get market information easily than illiterate HH and they can understand the market outlets needs regarding the type of their honey(processed or crude honey).

The result of the above table indicates that the farmer’s market outlet choice was affected by different factors Therefore, these factors must be promoted by developing beekeepers awareness about the use of cooperative membership. In addition, government must give special attention to financial institutions. The study results were closer to that reported by researcher in the country.

Similar results with previous research works Kosgei, et. Al. (2011) in west pokot district of Kenya and the result indicated that the a significant amount of honey produced is sold directly to consumers by producers.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Introduction

This chapter involves the summary of the key findings to the research work, the conclusions drawn and recommendations for further studies and suggestions for policy makers to implement for development of the honey industry.

5.2. Summary

The study was conducted with the objective of analyzing the value chain of honey in Basona Worena Woreda of North Shewa. Honey has been identified in the Woreda as cash income-generating commodity. Honey in the Woreda is important market-oriented commodity. Basona Worena Woreda has high potential for honey production. The specific objective of the study include analyzing major value chain actors in honey value chain and their function; and major opportunities and constraint in honey the value chain; analyzing the role of gender in honey value chain and identifying factors determining the market outlet choices of honey producers. The data were gathered from both primary and secondary sources. The primary data were collected from individual interview using pre- tested semi-structured questionnaires. This was supplemented by secondary data collected from different published sources. A total of 220-beekeeper farmer respondents were selected simple randomly in the district. In addition, 8 honey traders, 1cooperatives, 5 tej makers and 15 consumers were also interviewed. The analysis was made with the help of descriptive statistics using software. From the 220 households 207 were male headed and 13 were female-headed households. The average age of the sample, respondents were 43.2 years. The average experience was 12 years. Majority are using traditional hives, that is low productive, in the back yard and the rest of are under the eaves of the house, hanging on trees near homestead, hanging on trees in forests.

As a result, the main value chain actors are input suppliers, honey producer beekeepers, cooperatives, retailers, tej makers and processor. There were governmental and nongovernmental supportive actors who support the honey value chain in the study area directly and indirectly. The main supporters of the honey value chain in the study areas are

office of agricultural and rural development (OoARD), and service cooperative, and Eme Mar honey processing company.

5.3. Conclusion

Based on the result of this study, there are different constraints in the honey value chain both at the farm level and at the marketing side. In the farm level beekeepers, face different constraints including Very low adoption of improved technologies, Honeybee enemies (ants, small hive beetles and lizards) Honeybee enemies reduce the productivity and quality of honey, disease, pesticide and agrochemical application, Absconding, lack of beekeeping equipment's (protective cloth, modern beehives, smoker, honey presser, honey strainer and honey extractor) are the major challenges in honey production. Almost all beekeepers practice traditional beekeeping in the study area are identified by beekeepers. lack of training and credit access. On the marketing side, the constraints include access to market, poor marketing infrastructure lack of storage, lack of transport and lack of market information. Beekeepers much suffered from a number of difficulties and challenges that are antagonistic to the success desired in honey production. There are very low provision of improved beehives from governmental and nongovernmental organizations and it is expensive to purchase the modern beehive. Due to this problem, the productivity and quality of honey become low.

Both women and men in Basona Woreda district participate in beekeeping. The result showed that the women participation is less in productive activities and decision making than men and women participation is high in reproductive activities than men. The major challenges of women's participation in honey production and marketing include cultural influences, low economic capacity, cumbersome nature of honey production and workload.

The beekeepers market outlet choice which results suggest that farmers' nearest market and better price are their choice, Access to information is other determinant of the market outlet choice, the HHs who has an information access are more likely to choose the consumer, cooperative, trader and Teji house. The HHs who has contractual agreement is more likely to choose the cooperative outlet.

5.4. Recommendation

Based on the findings of this study, the following policy measures could be recommended, because there is a need for the promotion of honey value chain in the study area.

- Beekeeping is culturally defined as a men's occupation. This was also indicated by the result of descriptive analysis therefore, women should be encouraged to participate and receive training and intutional support in the form of credit in improved beekeeping methods. The intervention of both governmental and non-governmental organizations is needed to improve honey value chain in the study area. To increase the production as well as the honey value addition and women's participation in the honey sector modern beekeeping technologies are essential.
- Major problems of beekeeping identified and prioritized in the study area were pests and predator, and disease of honey bees, absconding, lack of beekeeping materials, and death of colony, training, credit and Lack of information. Therefore, providing the necessary exposure and skills, and institutional support in the form of credit, training, experience in improved beekeeping methods and marketing linkages need to be addressed simultaneously to improve the existing honey value chain in the study area.
- Introduction of improved varieties, application of chemical fertilizers, using of modern technologies, controlling disease and pest practices should be promoted to increase production. Quantity production of honey is beekeeping experience, access to market information.
- In order to improve the beekeepers value addition participation cooperatives play an important role. The beekeepers in the cooperatives have a collective effort to produce more and participate in value addition largely, they have an access to credit, market information and training on honey value addition through their cooperative and they have better access to modern technologies. Therefore, policies that would improve farmer's cooperatives are needed. The Woreda marketing and cooperative office is the major institution working at the Kebele level. To obtain this advantage there is a need to improve the Kebele level cooperative DAs system, and technical

supervision and follow up must be strong. Strengthening of cooperatives is necessary. In addition, it is necessary to provide information and enhance the knowledge and skills of farmer's cooperatives and other institutional changes ought to be made.

- Apart from being poor; beekeepers share little knowledge and relevant skills about modern beekeeping. In order to enable them benefit, and actually get out of poverty by embracing such occupation; it is recommended to educate them on the basics of undertaking modern beekeeping.
- Distance to nearest market, access to extension service and district. Therefore, strengthening efficient and area specific extension systems, improving road infrastructure, supporting DAs by giving continuous capacity building trainings.
- The intensity of honey value addition, To improve farmer's participation in honey value addition government must give special attention to honey value addition by strengthening the existing and inviting agro industries investors who have to support beekeepers.

Further research should be carried out on minimization of Honeybee enemies (pest, predator and diseases) its effect.

REFERENCES

- ADBG (African Development Bank Group) (2011). Federal Democratic Republic of Ethiopia Country Strategy Paper 2011-2015, Addis Ababa, Ethiopia.
- Affognon, H. D., Kingori, W. S., Omondi, A. I., Diiro, M. G., Muriithi, B. W., Makau, S., & Raina, S. K. (2015). Adoption of modern beekeeping and its impact on honey production in the former Mwingi District of Kenya: assessment using theory-based impact evaluation approach. *International Journal of Tropical Insect Science*, 35(02), 96-102.
- Amanueal, T. (2011). Value chain and cost benefit analysis of honey production and its implication on household food security: A comparative analysis of certified organic and conventional honey in Gimbo Woreda in southern Ethiopia
- Amssalu B. (2004). Multivariate morphometric analysis and behaviour of Honeybees (*Apis mellifera* L.) in the Ethiopia Regions. *Apidologie* Volume 35, Number 1, INRA, EDP Sciences, DIB, GIB 2004.
- Anandaja, Y., 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.
- Anteneh A, R., Muradian, R., and Ruben R. (2011). Factors Affecting Coffee Farmers Market Outlet Choice. The Case of Sidama Zone, Ethiopia.
- Assefa A. (2009). Market chain analysis of honey production: in Atsbi Wemberta district, eastern zone of Tigray national Regional state. A Thesis Submitted to College of Agriculture Department of Agricultural Economics, School of Graduate Studies Haramaya University.
- Awraris, G. S., Yemisrach, G., Dejen, A., Nuru, A., Gebeyehu, G. and Workneh, A. (2012). Honey production systems (*Apis mellifera* L.) in Kaffa, Sheka and Bench-Maji zones of Ethiopia

- Ayalew K. (1990). The Honeybee (*Apis mellifera*) of Ethiopia: A Morphometric Study. M.Sc. Thesis, Agricultural University of Norway, Norway.
- Ayalew K. and Gezahegn T. (1991). Suitability Classification in Agricultural Development, Ministry of Agriculture, Addis Ababa, Ethiopia.
- Bammann H. (2007). Participatory Value Chain Analysis for Improved Farmer Incomes, Employment Opportunities and Food Security, Pacific Economic Bulletin Vol. 22 Number 3 October, Accessed at: <http://peb.anu.edu.au/pdf/PEB22-3-bammann.pdf>.
- Belcher, B.M. (2009). Forest products markets and poverty reduction. *International Forest Review*, 7 (2), pp.2-8.
- 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.
- Bezabih Emana, (2010). Market assessment and value chain analysis in Benishangul Gumuz Regional State, Ethiopia. SID-Consult-Support Integrated Development, Addis Ababa, Ethiopia.
- Cairns, E. C. (2002). "Effects of invasive Africanized honey bees (*Apis mellifera*) on native stingless bee populations (*Meliponinae*) and traditional Mayan beekeeping in Central Quintana Roo, Mexico". Unpublished M.Sc. Thesis, Florida International University.
- Carroll, T., & Kinsella, J. (2013). Livelihood improvement and smallholder beekeeping in Kenya: the unrealised potential. *Development in Practice*, 23(3), 332-345.
- Chala K., Taye T., Kebede D. and Tadele T. (2012). Opportunities and challenges of honey production in Gomma district of Jimma zone, South-west Ethiopia. *Journal of Agricultural Extension and Rural Development* Vol. 4(4), pp. 85-91, 5 March, 2012. Available online <http://academicjournals.org/JAERD> Codex Alimentarius Commission (2001). Revised Codex Standard for Honey.

- Christin, S. (2006). "Value chains for a better integration of Small Holders to trade: The case of Chilli in Ghana". Unpublished M.Sc. Thesis, Humboldt University.
- CSA (2009). Ethiopia, Statistical Abstract 2002. Central Statistics Authority. Addis Ababa, Ethiopia. Enumeration, Executive Summary, Addis Ababa, Ethiopia.
- Desalegn (2001). Honeybee pest and predators of Ethiopia Proceedings of the third National Annual Conference of Ethiopian Beekeepers Association (EBA). September 3-4, Addis Ababa, Ethiopia. pp 59-67, Addis Ababa, Ethiopia.
- Desalegn (2006). The occurrence of Chalk brood (*Ascosphaera apis*): A new honeybee (*A. mellifera* L.) disease in West Shoa, Ethiopia. Ethiopian journal of animal production. 6(1):1-8, Addis Ababa, Ethiopia.
- Dietemann, V., Pirk, C. W. W., & Crewe, R. (2009). Is there a need for conservation of honeybees in Africa? *Apidologie*, 40(3), 285-295.
- Donaldson, K.M., K. Ishii and S.D. Sheppard, (2006). Customer value chain analysis. Springer Verlag London Limited, 2006. Research in Engineering Design 2006.
- Dunn, E., Sebstad, J., Batzdorff, L., & Parsons, H. (2006). Lessons learned on MSE upgrading in value chains: A Synthesis Paper. Micro Report No 71. Prepared for the United States Agency for International Development, USAID.
- Eva, K. (2006). "Management of the supply chain: Case of Danfosheating business area. Denmark". Unpublished M.Sc. Thesis, Ljubljana university.
- FAO (1990). Beekeeping in Africa, Rome, Italy.
- FAO.(2010). FAOSTAT database on Agriculture and Nutrition. Food and Organization of the United Nations, Rome, Italy.
- FAO.org (2005). Available at <http://www.fao.org/docrep/010/u8770e/u8770e00.htm>
- Fasse, A., Grote, U., & Winter, E. (2009). Value chain analysis and methodologies in the context of environment and trade research. Gottfried Leibniz University of Hannover, Institute for Environmental Economics and World Trade.

- Fichtl, R. and Admasu A. (1994). Honeybee Flora of Ethiopia. Margraf Verlag, Weikersheim, Germany.
- Gereffi, G. & Korzeniewicz, M. (1994). Commodity Chains and Global Capitalism. Westport: Praeger Publishers.
- Gereffi, G., Humphrey, J. and Sturgeon, T. (2005). "The governance of global value chains", Review of International Political Economy, 12(1), pp. 78-104.
- Gezahegn and Amssalu 1991. Identifying and Diagnosing Honeybee Diseases at Holeta Bee Research and Training Center. Proceedings of the fourth National
- Gezahegne T. (2001). Beekeeping (In Amaharic), Mega Printer Enterprise, Addis Ababa, Ethiopia.
- Gibbon, P. (2001). Upgrading primary production: A global commodity chain approach. World Development, 29(2), pp. 345-364.
- Gidey Y. and Kibrom F. (2010). Beekeeping for Rural Development: Its Potentiality and Constraints in Eastern Tigray, Northern Ethiopia. Agricultural Journal Volume: 5 Issue: 3 Pp 201-204.
- Gidey Y. and Mekonen T. (2010). Participatory Technology and Constraints Assessment to Improve the Livelihood of Beekeepers in Tigray Region, northern Ethiopia. Momona Ethiopia journal of Science, Vol.2 No.1.
- Girma, D. (1998). Non-Wood Forest Production in Ethiopia. Addis Ababa, Ethiopia.
- Gray Armstrong (2004). Marketing channels India. Newdelhi India.
- Gudmundsson, E., Asche, F. and Nielsen, M. (2006). Revenue distribution through the seafood value chain. FAO, Rome, Italy. <http://www.fao.org/docrep/009/a0564e/a0564e00.HTM>
- Hartmann I. (2004). "No Tree, No Bee – No Honey, No Money": The Management of Resources and Marginalization in Beekeeping Societies of South West Ethiopia.

VALUE CHAIN ANALYSIS OF HONEY

Paper submitted to the Conference: Bridging Scales and Epistemologies, Alexandria, March 17 – 20, 2004.

HBRC (Holeta Bee Research Center) (1997). Beekeeping Training Manual (unpublished), HBRC, Holeta, Ethiopia.

HBRC (Holeta Bee Research Center) (2004). Beekeeping training manual. Holeta, Ethiopia.

Hess, P. (1998). Population growth and socio-Economic progress in less developed countries: determinants of fertility transition. New York: Praeger.

Humphrey, J., & Schmitz, H. (2002). Developing countries firms in the world economy: Governance and upgrading in global value chains. INEF Report 61, download: <http://inef.uni-duisburg.de/page/documents/Report61.pdf> (22.03.05)

Jagiso (2015) Value Chain Analysis Of Bee Honey And Credit Market Participation Of Bee Keepers: The Case Of Damot Gale District, Southern Ethiopia

Jun N. (2009). Development of Beekeeping in Developing Countries and Practical Procedures – Case Study in Africa – JAICAF (Japan Association for International Collaboration of Agriculture and Forestry). P1.

Kaplinsky, R., and Morris, M. (2001). A Handbook of Value Chain Analysis. Working Paper prepared for the IDRC, Institute for Development Studies, Brighton, UK.

Karl, M.R., Baker, D., Asfaw, N. & Ross, R.B. (2009). Concepts, applications and extensions of value chain analysis to livestock systems in developing countries: Contributed paper prepared for presentation at the International Association of Agricultural Economics Conference in August 16-22, Beijing: China.

Kizilaslan, H. (2007). Factors Affecting Honey Production in Apiculture in Turkey. Journal of Applied Sciences Research, 3(10): 983-987, 2007
Krell, R., (1996). Value added products from beekeeping. Agricultural Services Bulletin No 124. Food and Agriculture Organization of the United Nations: Rome, Italy.

- Kosgei, R., Sulo, T., Chepng'eno, W. (2011). Structure, conduct and performance of honey marketing in West Pokot District, Kenya.
- Laven, A. (2010). The risks of inclusion: Shifts in governance processes and upgrading opportunities for cocoa farmers in Ghana. Available: http://www.kitpublishers.nl/net/KIT_Publicaties_output/ShowFile2.aspx?e=1687. Last accessed: July 7, 2010.
- Lundy, M., Felipe, C. and Best, R. (2002). Value adding, agro enterprise and poverty reduction: a territorial approach for rural business development and rural agro enterprise development project, Colombia.
- Marina D. M. Messele A. L. Nikolaus K. Stefan F. (2011). The honeybees of Ethiopia represent a new subspecies of *Apis mellifera*—*Apis mellifera simensis* n. ssp. INRA, DIB-AGIB and Springer Science+Business Media B.V., 2011, DOI: 10.1007/s13592-011-0007-y
- Melaku, Girma, ShifaBallo, AzageTegene, NegatuAlemayehu and LulsegedBelayneh (2008). Approaches, methods and processes for innovative apiculture development; experience from Ada'a- Libenworeda, Oromia Regional state, Ethiopia. Improving productivity and market success (IPMS) of Ethiopian farmers project working paper 8, ILRI (International Live stock Research Institute), Nairobi, Kenya. 48Pp.
- 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. Msc thesis presented at Copenhagen University, Faculty of Life Sciences.
- Messner, D. (2002). The concept of the “World Economic Triangle”: global governance patterns and options for regions. IDS Working Paper, No. 173.
- Mitchell, J., Jodie, K., & Coles, C. (2009). Trading up: How a value chain approach can benefit the rural poor. London, UK :Overseas Development Institute.
- MoARD (2003). Honey and Beeswax marketing and development. In development, M. O. A.A.R. (Ed.) Plan 2003. Addis Ababa, Ethiopia.

- Mohammed, C., and Freerk, K. W. (2006). Counting on forests: non-timber forest products and their role in the households and national economy in Ethiopia. Commercialization of Ethiopian agriculture. Proceedings of the 8th annual conference of agricultural economics society of Ethiopia, February 24-26, 2005, Addis Ababa. Pp.179-196.
- Nangole, E.M., Mithoder, D. & Franzel, S. (2011). Review of guidelines and manuals for value chain analysis for agricultural and forest products. ICRAF Occasional paper, No. 17, Nairobi: World Agroforestry Centre.
- Nebiyu and Messele (2013). Honeybee production in the three Agro-ecological districts of Gamo Gofa zone of southern Ethiopia with emphasis on constraints and opportunities. Agriculture and biology journal of North America ISSN Print: 2151-7517, ISSN Online: 2151-7525, doi:10.5251/abjna.2013.4.5.560.567.
- Nicola B. (2002). Taking the sting out of beekeeping. Arid Lands Information Network-East Africa (CD-Rom). Nairobi, Kenya.
- Nugraha, D.S. (2007). "Application of value chain analysis in development of milk cluster Boyolali, Indonesia". Unpublished M.Sc. Thesis, Humboldt-University.
- Nuru A. (1999). Quality state and grading of Ethiopian honey. Proceedings of the first National Conference of Ethiopian Beekeepers Association (EBA), June 7-8, 1999, Addis Ababa, Ethiopia pp. 74-82.
- Nuru A. (2002). Geographical races of the Honeybees (*Apis mellifera* L.) of the Northern Regions of Ethiopia. PhD dissertation. Rhodes University, South Africa.
- Nuru A. (2007). Atlas of pollen grains of major honeybee flora of Ethiopia. Holetta bee research center. Holetta, Ethiopia.
- Oxfam. Rudenko, I. (2008). Value Chains for Rural and Regional Development: the case of cotton, wheat, fruits and vegetables value chains in the Lower Reaches of the Amu Darya River, Uzbekistan, pp. 18-27. Saisana, M. A. S., & Tarantola, S. (2005).

Composite indicators—the controversy and the way forward. Statistics. In Knowledge and Policy, OECD World Forum on Key Indicators.

- P. Gall Mann and H. Thomas (2012). Beekeeping and honey production in South Western part of Ethiopia.
- Patrick, M. (2010). Evaluation of factors influencing value addition by butchery agribusinesses in Igembe North district, Kenya.
- Ponte, S. & Ewert, J. (2009). Which way is up in upgrading? Trajectories of change in the value chain for South African wine. *World Development* 37(10), pp. 1637-1650.
- Porter, M.E., (1985). *Competitive Advantage*: Free press, New York.
- Presser, H., & Sen, G. (2000). *Women's empowerment and demographic processes: Moving beyond Cairo*. Oxford University Press.
- Qaiser, T., Ali, M., Taj, S., & Akmal, N. (2013). Impact assessment of beekeeping in sustainable rural livelihood. *Journal of Social Sciences (COES&RJ-JSS)* Vol, 2.
- Radloff S.E., Hepburn H.R. (1997). Biogeographical correlates of population variance in the honeybees (*Apis mellifera* L.) of Africa. *Apidologie* 28, 243–258.
- Raikes, P., Jensen, M.F., and Ponte, S. (2000). Global commodity chain analysis and the French Filière Approach: Comparison and critique. *Economy and Society*, 29 (3), pp. 390-417.
- Rich K. M., Ross R. B., Baker A. D., Negassa A. (2011). Quantifying value chain analysis in the context of livestock systems in developing countries. *Food Policy* 36.214-22.
- Risper, M. (2009). Analysis of the constraints and effects of value addition in honey among producers in Baringo district, Kenya.
- Roduner, D. (2004). Report on value chain: analysis of existing theories, methodologies and discussions of value chain approaches within the development cooperation. Swiss Centre for Agricultural Extension and Rural Development (AGRIDEA).

VALUE CHAIN ANALYSIS OF HONEY

- Rutgers, T. (2010). "An analysis of supply side constraints on Ethiopian red pepper and paprika capsicum production and export: A global value chain approach". Unpublished M.A. Thesis, Utrecht University.
- Ruttner F. (1975). African races of honeybees. Pp325-344. Proceedings of XXVth International Beekeeping Congress, Grenoble, France.
- Schmitz, H. (2005). Value chain analysis for policy makers and practitioners. International Labor Office and Rockefeller Foundation, Geneva, Switzerland.
- Segeren P. (1995). Beekeeping in the Tropics, 5th ed. Agrodok-series No 32, CTA/AGROMISA, Wageningen, The Netherlands.
- Shepherd, A.W. (2007). A Guide to Marketing Costs and How to Calculate Them. FAO, Rome,
- Smith F.G. (1961). Races of honeybees in East Africa. Bee World 42: 255-260.
- SNV (2009). Integrated Value Chain Analyses for Honey and Beeswax Production in Ethiopia and Prospects for Exports. The Netherlands Development Organization (SNV). Global Development Solutions, LLC.
- Sreejith A., Worku J. N., Mir H. K., Waliu G. (2011). Research report On Exploring the Potential of Non-timber Forest Products: The Case of Ethiopian Honey Export to Denmark. Submitted to the University Of Copenhagen Online at <http://mpra.ub.uni-muenchen.de/35483/>
- Staatz, J.M. (1997). Notes on the use of sub-sector analysis as a tool for linking industry and agriculture. Michigan State University.
- Sturgeon, T.J. (2008). From commodity chains to value chains: interdisciplinary theory building in an age of globalisation. Industry Studies Working Paper: No.2, Cambridge: Massachusetts Institute of Technology.
- Support Integrated Development (SID). (2010). Market assessment and value chain analysis in Benishangul Gumuz Regional State Ethiopia, final report.

- Tariku O. and Mechthild R. (2013). Circumstances, Constraints and Prospects of Honey-Bee (*Apis mellifera*) Conservation: The Case of Dale District, Sidama zone, Southern Ethiopia. Available: http://www.tropentag.de/2013/abstracts/links/Jawo_aSyvYLYm.pdf.
- Temesgen and Eliud (2015). Crop and livestock value chain in basonaworena district, Ethiopia. conference paper <http://www.researchgate.net/publication/287199141>.
- Tesfa A. (2012). Beekeeping systems, opportunities and challenges in honey production and marketing in Ada'a district of Oromia region, Ethiopia. A Thesis Submitted to the Department of Animal production studies to Addis Ababa University College of Veterinary Medicine and Agriculture, Ethiopia.
- Tessega B. (2009). Honeybee Production and Marketing Systems, Constraints and opportunities in Burie District of Amhara Region, Ethiopia. A Thesis Submitted to the Department of Animal Science and Technology, School of Graduate Studies Bahirdar University.
- Tewelde G (2010). Analysis of Livestock marketing supply chain, Tigray, Ethiopia.
- Van den Berg, M., Boomsma, M., Cucco, I., Cuna, L., Janssen, N., Moustier, P, Prosta, L., Purcell, T., Smith, D. & VanWijk, S. (2009). Making value chains work better for the poor: a toolbook for practioners of value chain analysis. Making maretts work better for the Poor (M4P).
- Vermeulen, S., J. Woodhill, F.J. Proctor and R. Delnoye (2008). Chain-wide learning for inclusive agro food market development: a guide to multi-stakeholder processes for linking small scale producers with modern markets. International Institute for Environment and Development (IIED). London, UK, and Wageningen University and Research Centre, Wageningen, the Netherlands.
- Workneh A. (2007). Determinants of adoption of improved box hive in Atsbi Wemberta District of Eastern Zone, Tigray Region. M.Sc. Thesis, Haramaya University, Ethiopia.
- Yamane, T. (1967). Statistics: An Introductory Analysis, 2nd Ed., New York: Harper and Row

Appendix

Appendix A. Interview schedules

Instructions for Enumerators:

Introduce yourself before starting the interview. Tell the respondents politely from where you came and the purpose of the study.

Please fill the interview schedule according to the farmers reply (do not put your own feeling).

Write answers on the space provided.

1. GENERAL

- A. Region..... B. Zone..... C. Wereda.....
 D. PA/kebele..... E. Village..... F. Sex.....
 G. Age.....

House hold characteristics

- 1.1. Number of years lived in the area.....
 1.2. Age of the house hold.....
 1.3. Marital status: 1. Married 2. Single 3. Widowed 4. Divorced
 1.4. Education level of house hold:
 1. Illiterate 2. Literate
 1.5. Position of house hold head in the community
 1. Political leader 2. Spiritual leader 3. Elder 4. other specify

2. BEEKEEPING ACTIVITIES AND POTENTIALS

2.1. Honeybee ownership

- 2.1.1. Do you keep honeybees? 1. Yes _____ 2. No _____
 2.1.2. If yes, when did you start beekeeping? _____ year (s).
 2.1.3. How many honeybee colonies you owned?

No	year	Traditional	intermediate	movable-frame
1	2016			

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2.1.4. Where did you keep your bee colonies?

No	Site or placement of hive	traditional	intermediate	movable-frame
1	Backyard			
2	Under the eaves of the house			
4	Hanging on trees near homestead			
5	Hanging on trees in forests			

2.1.5. Do you use agrochemicals/chemicals in your locality? 1. Yes ___ 2. No__

3. BEEKEEPING EQUIPMENT'S AND PROTECTIVE MATERIALS

3.1. Which of the following beekeeping equipment's and protective materials you have or available to you when ever required?

N0	Materials	Home Made	Locally made and purchased	Provide on credit (Purchased)	Donated by GO or NGO's	Price(ETB)		Service period (Years)
						Rent	Purchase	
1	Hives							
2	Smoker							
3	Gloves							
4	Boots							
5	Knife							
6	Honey presser							
7	Honey extractor							
8	Honey strainer							
9	Honey container							
10	Others (specify)							

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3.2 List the home use of honey.

1. as a food
2. as a medicine
3. for beverages
4. for cultural and ritual ceremonies
5. Others (specify):

3.3. Do you strain (semi process) your honey? 1. Yes _____ 2. No _____

3.4. If yes, what materials do you use for straining?

1. Honey extractor
2. Honey presser
3. Cloth
4. Sieve
5. Decantation
6. Using hand

3.5. If you strain, what is the advantage strained honey? _____

3.6. If you don't strain your honey why? (Circle one or more).

1. Lack of materials
2. Lack of knowledge how to strain
3. Consumer do not prefer strained honey
4. The amount of honey will be reduced if strained
5. Others specify: _____

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3.7. For how long do you store your honey? (Circle one or more).

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

4. Marketing Condition

4.1. Do you sale your honey? 1. Yes 2. No

Year	Amount of produced	Amount of consumed	Amount sold	To whom do you sell 1-Trader 2-cooperative 3-Tej houses 4-Processor 5-consumers 6-other	Reason for preferred seller 1-better price 2-better scale (purchase in large Qty) 3-Proximity 4-other	Place of scale 1-in your home 2-nearby market place 3-Beekeepers cooperatives 4-other (specify)	Market distance from your home
2016							

4.2. What are the factors that govern the price of the honey in your locality?

1. Seasons of the year 1. Yes _____ 2. No _____
2. Colour and taste of the honey 1. Yes _____ 2. No _____
3. Distance from market 1. Yes _____ 2. No _____
4. Traditional ceremonies 1. Yes _____ 2. No _____
5. Others(specify): _____

4.3. Who are your customers?

1. Tej' houses
2. Middlemen
3. Retailers
4. Wholesalers
5. Consumers
6. Processers
7. Beekeepers co-operative
8. Others /specify/

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4.4 How do you evaluate the local market price? 1. High___2. Medium___3. Low_

4.5. How is the price trend of honey in your locality?

No	Price trend	Reason
1	Increase	
2	Stable	
3	Decrease	
4	Fluctuate	

4.6.How did you fix the price of honey?

1. Consideration labour and other cost incurred
2. Market force (supply and demand)
3. Colour of honey
4. Table honey and crude honey
5. Customs and Traditional ceremony
6. Others (specify_____)

4.7.Who set the price of the products?

- 1.by seller will only
- 2.by buyers will only
- 3.by the existing market
- 4.Contractual agreement
- 5.Other

5. Constraints of beekeeping

5.1. What are the major constraints of beekeeping in the area? (Rank them)

No	Constraints	Rank
1	Bee hives	
2	Beekeeping equipments / materials	
3	Honeybee colony	
4	Absconding	
5	Pests and predators	
6	Diseases	
7	Pesticides and herbicides application	
8	Death of colony	
9	Storage facilities	
10	Marketing	

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6.1. Access for beekeeping Training

6.1. Do you get beekeeping training? 1. 1. Yes 2. No

6.1.1. If your response is yes:

No	place of the training	duration	organized by

6.2. If your response for question 8.4 is no, do you need beekeeping training?

1. Yes _____ 2. No _____

6.3. Is beekeeping profitable to the area? 1. Yes 2. No

6.4.. Do you participate in beekeeping extension packages? 1. Yes 2.No

4.5. Who participates more in the activities listed below?

No	Activities	Women	Men	Both
1	Hive construction			
2	Harvesting			
3	Processing			
4	Packaging			
5	Selling			

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

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

6.7. What is the supply of honey in the market?

1. Excess 2. Enough 3. Not enough

7. Credit Sources and Availability

7.1 Did you get information on time? A/ yes B/ no

7.1.1 What type of information did you get? A/ Price information B/ Market place information C/ Buyers' information D/ Other (specify)

7.2. At what time interval do you get the information?

A/ Daily B/Weekly C/ Monthly D/ Other (specify)

7.3. Do you ever-obtained credit for your farming operations? 1. Yes ___ 2. No___

6.3.1. If yes, for what purposes you get credit? _____

7.4.1. Who are / were your sources of credits? (Circle one or more).

1. Micro finance institutions (name it): _____

2. Service cooperatives

5. Relatives

3. Ministry of Agriculture

6. Individual lenders

4. NGO

7. Others, specify: _____

7.5. Do you receive credits for your farming activities during this cropping season?

1. Yes _____ 2. No _____

7.6. If yes, for what activities you are using the credit?

7.7. What are the major problems you face to get input on credit?

1. Inaccessibility of credit agents

1. Yes _____ 2. No. _____

2. Debit collection problem

1. Yes _____ 2. No. _____

3. High interest rate

1. Yes _____ 2. No. _____

4. Unavailability of credit

1. Yes _____ 2. No. _____

Others specify:

8. Trader information

8.1. What is your role?

8.2. To which market you participate?

8.3. Who is your supplier?

8.3.1. Why have you preferred the mentioned supplier?

8.4. To whom do you sell most of your honey and beeswax?

8.5. What is your source of working capital?

8.5.1. If it was loan, from whom did you borrow? A/Relative/family B/ Private Money

8.5.2 How much was the rate of interest? _____ Birr for formal, birr for informal

8.5.3How was the repayment schedule?

8.6. Do you carry out any physical treatment to maintain product quality?

8.6.1. If your answer yes, mention

8.6.2 How Do you add any value before sealing the product?

9. Cooperative information

9.1. May you produce; honey on behave of your organization or bought from other?

9.2 From whom you have collected honey?

9.3. At what price you bought per kg?

9.3 Have you mostly buy honey and beeswax in contractual agreement or not?

9.4 What type of honey you collected?

9.5 After you collect honey what value adding activities you have done on it?

9.6 To whom you sell the honey? At what price per kg?

10. Consumer information

10.1. Do you consume honey? A. Yes B. No

10.1.1. If your answer is —Yes, where do you purchase?

10.1.2 If your answer is —No, what are the reasons...?

10.2 What about the price and the quality of the product...

10.3 From whom did you buy the honey? Why

11. Checklist for Key Informants Interview

1. Name of the organization: _____
2. Role of the interviewee in the organization:
3. Location and contact information: Region/Zone/Woreda/ Kebele/ P.O.Box/telephone
4. Type of the organization: public/private/NGO.
5. Organizational mission, vision and objectives
6. What is the role of your organization in honey value chain in the study area?
7. What are the challenges and opportunities you faced in undertaking those roles assigned to your organization?

Linkage /interaction/ partnership/ coordination between actors

Complier name _____

Signature _____

Date _____

Duration time _____

starting time _____

Ending time _____

