

Review on Actors and their Value Adding Activities in Honey Value chain; Challenges and Opportunities in Ethiopia

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ABSTRACT: This review was conducted to assess actors and their value adding activities in honey value chain in Ethiopia. The objective is specifically to review the production and marketing of honey, to review the different functions, actors and service providers along the honey value chain and to review the challenges and opportunities in honey value chain development. Ethiopia has huge apicultural resources that made it the leading honey producer in Africa similarly, exports honey to different destination countries. The country has the potential of producing up to 500,000 tons of honey per annum. But currently production is limited to 50,000 tons of honey and the commercialization of other high value bee products such as pollen, propolis and bee venom is not yet practiced at a marketable volume, even not yet recognized. And still the country is facing with many constraints of beekeeping such as shortage of trained manpower, shortage of beekeeping equipment, adulteration, lack of value addition, pests and predators and inadequate research works to support development programs. To make considerable improvement on beekeeping sub-sector, it is essential that the government and relevant development partners work hand in hand to design and promote forums and how to add value onto the products.

Keywords: Honey, production and marketing, value chain

I. INTRODUCTION

Apiculture is a promising off-farm enterprise, which directly and indirectly contributes to smallholder's income in particular and nation's economy in general (Agonafir, 2005). Honey is the major product of apiculture industry worldwide and produced in nearly all countries. The diversified agro climatic conditions of the country create environmental conditions conducive for the growth of over 7000 species of flowering plants of which most are bee plants (MoA and ILRI, 2013). Ethiopia has comparative advantage for beekeeping or apiculture. It has the largest bee population in Africa with over 10 million bee colonies (MoARD, 2007). This is attributed to the qualitative nature of honey produced from different floral/nectar sources in different geographical regions.

In Ethiopia around 1.4-1.7 million farm households are engaged in this sector by using the traditional, intermediate and modern hives (USAID, AGP-AMDe, 2012). The sector contributes 1.3% of agricultural gross domestic product (GDP) and significantly affects the country's export trade (Demisew, 2016). Ethiopia stands ninth in the world and first in the Africa in honey production (Tesfaye et al., 2017).

Honey is produced in almost all parts of Ethiopia. However, the most important honey regions are Oromia (38%), Amhara (26%), SNNPR (18%), Tigray (8%) and Benshangul-Gumuz accounts for (7%) of the total honey production in the country (AAU, 2015).

In Ethiopia, Beekeeping is an important component of agriculture and rural development program. This, being a non-land-based activity, does not compete with other resource demanding components of farming systems (FAO, 1990). Hence sustainable beekeeping seeks to address the importance of beekeeping in terms of its ecological, social and economic benefits. In communities where beekeeping is done for commercial purposes, it has led to self-reliance through the innovation of local industries associated with the production of beekeeping equipment and bee products

(Brad bear, 2003). Thus, it would be one of the most important intervention areas for sustainable development of poor countries like Ethiopia (Gibbon, 2001).

The apiculture sector in Ethiopia, however, is far from realizing its potential for earning foreign exchange, as well as generating income for smallholder beekeepers and other actors in the value chain. Less than 10% of the honey and wax potential have been tapped, and the commercialization of other high value bee products such as pollen, propolis and bee venom is non-existent (MoA and ILRI, 2013). The country has the potential of producing up to 500,000 tons of honey per annum (GDS, 2009). But currently production is limited to 50,000 tons of honey (FAOSTAT, 2017/18). However, the products obtained from this sub sector are still low as compared to the potential of the country.

The major constraints that hinder beekeeping development in Ethiopia can be stringent rules and conditions set by honey importing countries, very limited domestic market, only basic knowledge of honey production and limited access to market information and technologies, pests and predators, poor storage of products, lack of quality monitoring and control plan in place and inadequate laboratory facilities and poor institutional set-up for assuring quality and etc are the main challenges that were identified by different scholars. Besides these there are so many other problems that hinder the production and marketing of honey along the value chain in the country. Therefore, this review is focused on actors and their value adding activities in honey value chain in Ethiopia with the following specific objectives:

- To review the production and marketing of honey in Ethiopia.
- To review the different functions, actors and service providers along the honey value chain.
- To review the challenges and opportunities in honey value chain development.

II. LITERATURE REVIEW

2.1. Basic concept

Honey is the natural sweet substance produced by honeybees. Honey is sweet, thick, supersaturated sugar solution manufactured by bees to feed their larvae and for subsistence in winter. Bee honey is composed of fructose, glucose, and water, in varying proportions; it also contains several enzymes and oils (Agonafir, 2005).

2.2. Honey Production System

Currently, there are three production systems of bee products are underway in Ethiopia, namely, traditional, intermediate (transitional) and modern (frame beehive) system. The critical classification of each production system is based on employed technologies and probable productivity of each system (AAU, 2015).

2.2.1. Traditional Forest and Backyard System

There are over ten types of traditional beehives made of cheap and locally available materials like clay, straw, bamboo, false banana leaves, bark of trees, logs, animal dung, grasses, wicker etc. Since the combs (brood, honey, pollen combs) are fixed on the top of the hive body, the honey can only be removed by breaking or cutting out the combs. Although the construction of the beehive is very simple and less expensive (can be constructed from locally available materials), the beehives are inconvenient for inspection and management. Moreover, the beehives are very small in size and triggers swarming, no possibilities of supering (adding extra spaces) and have no partition between brood chamber and honey chamber for quality honey harvest (AAU, 2015).

This subsistence means of production system has been practiced over many centuries in the country. About 90% of both honey and beeswax production is underway using this traditional and less productive beekeeping system (MoA, 2013/2014). During the year 2013-2014, the number of the traditional hives found in the country was 4,768,103 and total production from this type of hive was 39,831.7 tons with an average production of 8kg/hive/season. But based on the data CSA (2017/18), it is estimated to be 6,327,197hives with average production of 63,798,054kg.

2.2.2. Transitional System

A transitional system is a system between traditional and frame hive or modern system (Sisay et al., 2012). It has an advantage over traditional hives in that combs containing honey can be selected during harvesting to maintain the quality of honey. Transitional system had started in Ethiopia in the year of 1976 and the types of beehives used are: Kenya top-bar beehives, Tanzania top-bar beehive, Mud-block beehives and Ethio-ribrab hive. But Ethio-ribrab is commonly used in many parts of the country (Abebe , 2017).The total crude honey production from this type of hive was 497,737kg (CSA, 2017/18).

2.2.3. Modern/Frame Hive System

This system strives for maximum output, highest productivity and optimum quality of honey. The beehive is suitable to manage bee colonies with better techniques. However, it requires relatively expensive equipment and skilled manpower compared to the former two production systems (AAU, 2015). It uses different types of frame beehives such as Zandar, Langstroth, Dadant, Modified Zandar, and Foam beehives exist in the Ethiopia (Ayalew, 2001). These beehives differ in number of frames and size of the hive. The most commonly used frame beehive type in Ethiopia is Zandar type (Abebe, 2017). According to CSA (2017/18), 926, 432kg of honey is produced from 127,373 modern hives (Table 1).

Table 1: Summary of number of beehives, production potential and average frequency of harvesting honey in 2017, 18

All types of Beehives	In number	Production (Kilograms)	Average Frequency (Harvests/Year)
Traditional Beehives (Forest and backyard)	6,327,197	63,798,054	1.59
Intermediate/transitional Beehives	69,399	497,737	1.63
Modern Beehives	127,373	1,926,432	1.63
Total	6,523,969	66,221,823	1.59

Source: CSA, 2017/18

2.3. Production of Honey in Ethiopia

2.3.1. Production Regions and Volumes

In general, the potential areas for honey production in the country include Southwestern, Western and Northwestern parts of the country (Gezahegn, 2001). These are grouped into high, medium and low potential areas. More specifically, southwestern and western areas of Kefa zone, Masha, Tepi, Dembi Dolo, Gerra, Limu, Metu, Yayu-Hurumu, and Seka Chekorsa do have high honey production potential areas covered with moderate forest trees, shrubs, bushes, herbs and cultivated crops whereas the southern, southeast and the northwest zones, and central high lands of the country have medium potentials for beekeeping. These include most of the areas in west Gojam, south Gondar, Jimma, west Shewa, Bale, Borena and Gofa. On the other hand, many of the districts in Tigray, Wollo and Hararge and in some other parts of the country which are covered with marginal forests do have relatively low potential in honey production (Fenet and Alemayehu, 2016).

As a result, there are many varieties of honey harvested from each region of Ethiopia. The types of honeys harvested range from light to dark amber (WEEMA, 2016). It is even common to find different flavors of honey within a given region. Generally, Ethiopian honey is known for its low moisture and high nutrition content. But the qualities and prices differ between regions. The most in-demand honey among Ethiopians comes from Eastern Tigray, similarly Amhara,

Oromia, SNNPR, Gambella and Benishangul-Gumuz region honey varieties have very good qualities and are cheaper than Tigray honey (Agonafir 2005).

Ethiopia has about 1.4–1.7 million households that are engaged in beekeeping and produce different types of honey that vary regionally as well as in terms of color, consistency, and purity (USAID, 2012). Probably the most famous and characteristic in terms of color and taste comes from Tigray. The honey's pure white color (due to bees foraging on Tebeb plant [*Basium claudiforbium*]) and its low moisture content have garnered fame; some people even believe that this honey has medicine like properties. Even though such claims related to the healing capabilities of Tigray's honey have not been proven scientifically, they are well grounded in local people's minds and widely accepted as fact. Similar in terms of color, white honey is produced in the Highlands of southwest and southeast Ethiopia, but it does not have the same prestige and renown as Tigray's honey (Agonafir 2005). Honey from SNNPR, is characterized by a blend of flora giving it a distinct taste from other monofloral honey varieties in the country (WEEMA 2016).

The yellow honey, also referred to as multi-flora honey, is also commonly produced and available in almost all regions of Ethiopia. It is harvested in many different parts of the country and gets its color from the various crops produced. The third type of honey is referred to as Lalibela honey (Acacia honey), is produced in central Ethiopia. Its main characteristics include light color and fine creaminess that come from bees foraging on acacia trees. This particular honey variety is well known and in high demand in the domestic market (USAID, 2012).

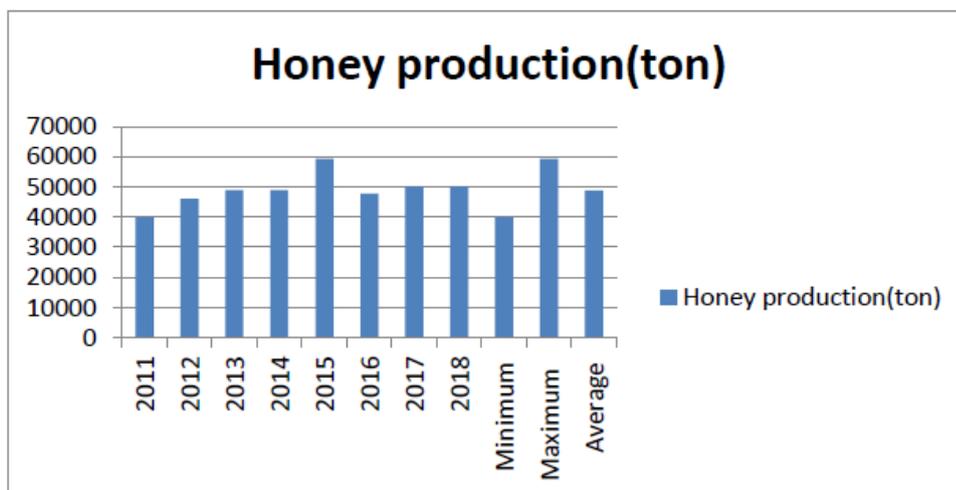
Somewhat less-appreciated varieties of Ethiopian honey are dark brown in color and bitter in taste, making them less popular for consumption. They are produced in areas with altitudes of 1,200 to 2,400 meters (m) above sea level. The last type of honey widely produced and marketed is crude red honey. Its main usefulness and popularity among beekeepers comes from its low quality requirements, because tej houses buy it in crude, totally unprocessed form to produce an Ethiopian type of mead (Agonafir 2005).

Ethiopian honey differs not only in color, taste, and quality but also in the quantity produced and the timing of harvesting seasons that vary by region and type of honey (Miklyaev et al., 2013). The main harvesting seasons are October through December for Tigray's and Lalibela honey, with an additional harvest period for Tigray's white honey in June and July; November and December for yellow honey; April and May for white honey from the southwest and southeast Highlands; and February, March, May, and June for dark-brown varieties of honey (GDS, 2009).

Honey production is one of the direct contributions of beekeeping practices (ARSD, 2000). In terms of economic contribution and exports commodities, honey is one of the marketed livestock products of Ethiopia. As a result, there is an increased demand for honey production (EIAR, 2017). According to FAOSTAT, between 2011 and 2018 the total honey production in Ethiopia has increased from 39,892 to 50,000 tons and produced 48,818.25 tons of honey on average which makes the country the leading honey producer in Africa and one of the nine largest honey producing countries in the world. However, between 2015 and 2018, it was decreased from with fluctuation from 59,161 in 2015 to 50,000 tons in 2018 (Figure 1). It has been showing low growth due to some constraints such as: improper harvesting, bee diseases, pests and predators, poisoning due to agro-chemicals and deforestation, only basic knowledge of honey production and limited access to market information and technologies, faulty handling of traditional hive honey etc (Tesfaye et al., 2017).

According to CSA data, the total honey production in Ethiopia has been a small portion of the estimated potential, indicating the state of underutilization of the existing resources. The country has the potential of producing up to 500,000 tons of honey per annum (GDS, 2009). As can be seen from the following figure, the best years of production were in 2015 with 59,161 tons of honey.

Figure 1: Production of honey in Ethiopia (2011-2018)



Source: FAOSTAT, 2017/18

2.4. Marketing of Honey in Ethiopia

2.4.1. Domestic Market

In Ethiopia main market for honey is traditional honey wine making, called tej. Since this local brew doesn't require high quality honey, crude honey is the major type of honey produced in Ethiopia. According to reports from MoARD (2003), only about 10% of the honey produced in Ethiopia is consumed by the beekeeping households while the remaining 90% is sold for income generation and of this amount, it is estimated that 80% is used for tej brewing (Hartmann, 2004). In the domestic market, farmers either sell directly or through middlemen, collectors and suppliers. According to the study by Assefa (2009), market chain analysis of honey production conducted in Atsbi wemberta district northern part of Ethiopia, found that quantity of honey supplied to the market passed through different marketing agents from farmers to consumers. About 43.4% (4876 kg), 34.8% (3921 kg), 14.4% (1622 kg) and 7.4% (838 kg) of the total honey marketed were purchased by consumers directly from producers, honey collectors, retailers and processors, respectively. Yetimwork (2015), in Kilde Awlaelo district, Eastern Tigray indicated that honey marketing in the study district was characterized by direct to individual consumers (96.8%), whole seller (89.7%), retailers (66.7%); and to middle men or brokers (57.7%). However, the role of processing companies and cooperatives was very minimal 19.2% and 13.5% of the beekeepers sell their honey to the processing companies and co-operatives, respectively. In line with this, Kassa et al. (2018), found that most of the honey producers in Keffa and Sheka zones of SNNPR sell their honey to different buyers involved in the market at farm gate, village or district market center. They sell crude honey to cooperatives, local collectors, retailers, processors and consumers at the local market or farm gate. In some areas of the country, beekeepers form producing and marketing cooperatives to cope with the market challenge they face. The cooperatives collect crude honey from their members and sell the semi processed honey to processing companies and other intermediaries who buy in bulk and retail.

According to Silesi et al. (2019), studied on honey marketing, structure and conduct of honey market in Gozamen district, East Gojjam zone, Amhara region the study confirmed that there exists a price difference between local market, farm gate, and export market. The export price of honey per kilogram was higher than the domestic prices (farm gate and market price) during 2015/ 2016; there was a higher domestic market price than the export price. The average price per kilogram of comb honey at the domestic market in 2015/2016 was 86.09 and 90.2 ETB for farm gate and local market, respectively, whereas the average export price was 68.59 ETB. This indicated that the domestic price was more profitable than the international market, and the domestic honey price has an impact on the export honey market.

According to Yetimwork (2015), about 3.2% of the beekeepers had no market information and sell their products simply by negotiation. For most of the beekeeper (57.7%) the main sources of market information are traders and the beekeepers noted that lack of market information directly affect farmers from obtaining a better price for their honey and other products. Similar to this Mulubrihan (2014), conducted on assessment of honey quality gap, Sheka zone, southwestern

Ethiopia, the relationship between the different honey chain actors were based on trust. No any actor has contractual agreement for their relations. Honey production is mainly made by smallholder beekeepers and cooperatives. The smallholder farmers are selling their honey directly to honey collectors at the local market and then the collectors deliver the honey to the wholesalers and sometimes to small shops. They also deliver the honey which has high wax content to the local brewers or 'tej' houses. Therefore, lack of well-organized market channel for honey is the major problem and these results in lack of grading and standardizing of the product, poor quality control, and inadequate and inconsistent supply to the next users in the chain.

2.4.2. Export Market

Honey is one of the primary exportable agricultural products of Ethiopia (FAOSTAT, 2017/18).The country has been well known in honey trade for a long time and is one of the major biggest honey exporters to the world market with increasing trend from time to time and destined to different countries (EU, USA, Japan, Greece, Great Britain and Netherlands etc...(Bogdanov, 2004). Between the year 2009-2017 the average annual honey export from Ethiopia to different destination countries was 617 ton with the an average value of 2,171,444.44 US\$(FAOSTAT, 2017/18).

The volume and value of honey exported from in Ethiopia was in an increasing trend till 2014 but then after it started declining and the share of the export as compared to honey production potential was very low (Table 2). There are a number of reasons for this but the stringent requirements from the buyers side year after year following honey quality deterioration mainly due to adulteration and fraud are the major ones (EEPA, 2012), The other challenges in the country which include but not limited are illegal cross boarder honey trade; the recurrent draught which affect the supply line, the increase in the cost of laboratory service which usually demand foreign currency are some of the factors that affect the export market for Ethiopian honey.

Table 2: Honey export quantity and value (\$)

Years	Honey export quantity(Ton)	Honey export value(\$)
2009	274	891,000
2010	615	2,106,000
2011	729	2,433,000
2012	729	2,718,000
2013	904	3,246,000
2014	859	2,934,000
2015	689	2,488,000
2016	481	1,734,000
2017	275	993,000
Average	617	2,171,444.44

Source: FAOSTAT, 2017/18

2.5. Honey Value Chain Actors and Their Linkages

According to Cost-Benefit Analysis of USAID-AMDe Honey value chain in Ethiopia a development discussion paper and final report which was held on July, 2012, the following four labels were considered as the main honey value chain actors which are the simplest way to analyze the stages at which key players compete for honey in the market in terms of sales or purchases of honey.

Level 1: Producers (beekeepers). At this level of the value chain, many beekeepers are engaged in honey production, actively taking advantage of the Ethiopian honey market's high domestic demand and relatively low supply (when

compared with demand). Beekeepers actively seek the best possible (highest) prices for honey. Producers, pack their product with different materials especially with clay pot, sack and plastic box. They sort and grade their product based on the color of their product as white or black and sell the white honey at a higher price than the black.

Level 2: Direct buyers of honey. Honey collectors/traders, cooperatives, tej houses, and agribusinesses/processors that buy directly from beekeepers. This level includes a high number of participants in the honey value chain who compete with each other in terms of the purchased quantity, quality, and price of honey. The dominant issue at this level is obtaining an adequate supply of honey, a goal that is affected not only by inadequate honey production but also by the high degree of competition among them. Some of these actors, such as Beza Mar buys honey from beekeepers in SNNPR, have tried to establish vertical integration in honey market by establishing their own beekeepers to supply their commercial needs. In addition, some value chain participants at this level have tried to establish their own commercial apiaries to ensure a constant honey supply and to minimize the risk associated with increasing honey prices in the domestic market.

Level 3: Agribusiness companies. that market honey in domestic and export markets and honey wholesalers in Addis Ababa (Mercato). This level of the honey value chain also includes multiple participants. Wholesalers in Addis Ababa (Mercato) and agribusiness companies that cater to domestic markets compete with agribusinesses that are engaged in sales for export markets in terms of quantity (reliable and timely supply), quality, and price of honey.

Level 4: Domestic retail honey sellers (supermarkets, retail stores) and honey exporters (agribusiness companies/processors). Many participants at this level compete with each other in terms of quantity, quality, and price of honey. Additionally, some agribusinesses/processors that supply honey for export markets are also engaged in sales within the domestic market, so they compete with the wholesalers in Level 3.

2.5.1. Value Adding Activities of Honey Value Chain Actors in Ethiopia

According to Agonafir (2005), the value chain is a high-level model of how honey businesses receive raw materials as input, add value to the honey through various processes, and sell finished purified table honey; crude honey and bees wax products to customers. It involves all the process from the market point back to the beginning of activities usually between input supplies and product marketing to local and foreign markets. Beekeeping is more than a honey and beeswax enterprise. It can create valuable income for the rural and urban poor (Jacobs et al., 2006). Even though, the best known primary beekeeping products in Ethiopia are honey and wax, but pollen, propolis, royal jelly, honeybee venom, queen, honeybee colonies and their larvae are also marketable primary beekeeping products in worldwide (Rainer, 1996).

Honey value chain played a significant role in the economy of the country by engaging around two million farm households (Miklyayev et al., 2013-17). It also engaged different actors participated in different value adding activities which enables them to higher the value of product and increases their bargaining power. The main value adding activities undertaken at each stage of the chain were transporting, sorting and packaging, filtering and processing.

Transportation: According to Biruk et al. (2018), the primary honey value chain actors use different transporting means such as car, cart and donkey to supply the product to the market. But most of the honey products means of transport from rural areas to the main routes or small village towns where there is no route for trucks is using labor or drought animals (Agonafir ,2005).

Sorting and packing: Packing instrument is an indispensable thing to keep the product from spoilage and keep the product quality. In Damot Gale district southern Ethiopia producers, who supply their product to the market, pack their product with different materials especially with clay pot, sack and plastic box. They sort and grade their product based on the color of their product as white or black and sell the white honey at a higher price than the black (Biruk et al., 2018). According to Abrehet (2015), in Adwa and Aheferom district central Tigray collectors collect the honey from producers, grade and sale to the local market directly for the consumers. Sometimes in Kaffa and Sheka zones of SNNPR the collectors add value to honey by making spatial and temporal differences (i.e., collecting from distant location to make easily available to the user and storing for future use for long) (kassa et al., 2018).

Filtering: The establishment of cooperatives initiated honey filtration activities in different parts of Ethiopia and enabled the producers to get higher value. Most of the beekeepers in Ethiopia are organized into cooperatives by NGOs and different stakeholders of the sector. According to Sileshi et al. (2019), Tseday Bee Products Development and Marketing Cooperative (BPDMC) is an active cooperative based at Debre Markos town, was collecting comb honey harvested from traditional hives. Then, the cooperative was removing impurities from the comb honey, and comb honey was crushed to make suitable for heat processing honey is placed on a preheated water-containing cooking pan for 35 min with continuous stirring up until beeswax and other impurities (like dead bees, brood, pollen, and darken comb) float and filtered to get liquid honey without beeswax and impurities. The collected beeswax and other impurities could be used to prepare a local drink called “birz”. In the line to this, in southern Ethiopia cooperatives sale the crude honey they bought directly from producers to their respective zones honey unions by extracting liquid honey from the honey comb and to local breweries (Kassa et al., 2018).

Processing: Honey that is produced in Ethiopia is sold at different stages as raw, semi processed and processed. Semi processing is done at the farmers’ level to be marketed at local market this is one of value adding activities in the honey value chain which is undertaken by brewers locally known as *tej* makers (Ammanuel, 2011). *Tej* brewers are process of the crude honey to produce *tej* and beeswax. Their primary aim was to produce *tej* out of crude honey (Abrehet, 2015). There are also a range of supermarkets in Addis Ababa that avail processed and packed honeys for urban consumption (Ammanuel, 2011). Ethiopia is the leading honey producing and exporting nation of Africa. There are also large private honey processing companies who purchase crude honey from beekeepers, cooperatives, collectors and wholesalers (Kassa et al., 2018). Processors/exporters then process the raw honey with reference to international standards and export to foreign countries, such as the United States, European countries, and the Middle East (WEEMA, 2016).

2.5.2. Honey Value Chain Service Providers and Their Contributions

According to final report of WEEMA international (2016), indicated that cooperative agency of Ethiopia (FCA), Ministry of livestock and fisheries, research Centers (Holeta beekeeping research center), Ethiopian apiculture board (EAB) and various nongovernmental organizations (NGOs) are the major value chain service providers that shaping the honey sector.

The cooperative agency of Ethiopia assists groups in establishing cooperatives and further development through marketing and market linkages. The other service provider of the sector is ministry of livestock and fisheries it encourages the formation of cooperatives, teach cooperatives about the different types of honey qualities per market demand. In addition, they help facilitate credit from microfinance institutions while offering technical assistance. Bee and honey research centers, which are part of the larger, government-run Ethiopian institute of agricultural research, such as the Holeta beekeeping research center (Holeta, Ethiopia), have played a significant role in improving honey production, identifying natural constraints and opportunities throughout Ethiopia. Ethiopian apiculture board plays a unique role of bringing different stakeholders like government offices, unions, cooperatives, NGOs and private companies on one platform. The board explores potential international markets for promising producers. With continued financial and technical support from donor agencies, the Ethiopian apiculture board has continued providing services to multiple stakeholders. The other service provider that shaping the sector is NGOs are mainly focused on capacity building. They primarily work to fill in gaps along the honey value chain. A few organizations focus on training and supplying materials needed for beekeeping while others focus on market linkages and provision of information, which is needed to improve both quality and quantity of production.

2.6. Challenges and Opportunities in Honey Value Chain

According to Abrehet (2015), Bezabih (2010), Biruk *et al.*,(2018), Demisew, (2016) MoA and ILRI, (2013), Tezera, (2013), WEEMA, (2016) and Yetimwork (2015) and there are many challenges and opportunities of honey at different level of value chain. Form these, the following are the main one:

CHALLENGE	OPPORTUNITIES
<p>Production: There is shortage of beekeeping equipment supply, widespread use of traditional beehives, inadequate trained personnel, and lack of enough financial resources, honeybee pests, predators and diseases, adulteration of honey with sugar, banana, the problem of postharvest handling of the honey, the quality of the honey remains poor resulting in the rejection of the honey for further processing and value addition.</p> <p>Processing: In connection to honey processing problem like lack of value addition along the supply chain, lack of financial resources for investment in honey processing, lack of honey processing skill, honey processing equipment's and problems with packaging especially at the processors' level (e.g., difficulty obtaining a reliable supply of glass jars), low quality of honey due to uncontrolled heating system used during processing.</p> <p>Local market: the major constraints affecting honey marketing in Ethiopia includes; like lack of organized market and market channels, low domestic demand for processed honey and absence of incentive for high quality honey, lack of market information, poor transportation infrastructure, above all the backward and forward linkages between the business community is not at satisfactory level and do not have the forum to share their business knowledge and idea for common development.</p> <p>Export market: Illicit cross border trades, large volume of honey is illegally smuggled through different corners of the country, limited promotional activities for hive products in export markets, limited knowledge of export-market requirements and lack of or weak connections with processors, prohibitive cost for residue monitoring analysis.</p>	<ul style="list-style-type: none"> ➤ Plentiful forage availability coupled with favorable and diversified agro-climatic conditions ➤ Availability of hive construction material and many numbers of local bee hives. ➤ Ethiopian producers and packers have an excellent opportunity to break further away from the commodity business to produce and export honey products that are not tied to commodity honey prices these include coffee berry honey, value added fruit products. ➤ Availability of farmers having indigenous knowledge and skills who are motivated to adopt improved technologies and undertake beekeeping intensively. ➤ Availability of different governmental and nongovernmental organizations that working on beekeeping. ➤ High market demand for crude honey for domestic consumption. ➤ Presence of good government policy.

III. CONCLUSION AND RECOMMENDATION

3.1. Conclusion

Apiculture is a promising off-farm enterprise, which directly and indirectly contributes to smallholder's income in particular and nation's economy in general. Honey is the major product of apiculture industry. The most important honey producing regions are Oromia, Amhara, SNNPR, Tigray and Benshangul-Gumuz. There is an increased demand for honey. Between 2011 and 2018 the total honey production in Ethiopia has increased from 39,892 to 50,000 tons and produced 48,818.25 tons of honey on average which makes the country the leading honey producer in Africa and one of the nine largest honey producing countries in the world.

Honey is one of the primary exportable agricultural products of Ethiopia. Between the years 2009-2017 the average annual honey and beeswax export from Ethiopia to different destination countries was 617 tons with an average value of 2,171,444 US\$ respectively. Honey production is being per formed in three major ways: Traditional (forest and

backyard), transitional and modern ways. Of these traditional system accounts for about 95% of honey produced in the country. The main honey value chain actors producers (beekeepers), direct buyers of honey, agribusiness companies and domestic retail honey sellers (supermarkets, retail stores) and honey exporters (agribusiness companies/processors). The main value adding activities undertaken at each stage of the chain were transporting, sorting and packaging, filtering and processing. Cooperative agency of Ethiopia (FCA), ministry of livestock and fisheries, research Centers (Holeta beekeeping research center), Ethiopian apiculture board (EAB) and various nongovernmental organizations (NGOs) are the major value chain service providers that shaping the honey sector.

Plentiful forage availability coupled with favorable and diversified agro-climatic conditions, availability of hive construction material, availability of farmers having indigenous knowledge and skills are the main opportunities. Shortage of beekeeping equipment supply, inadequate trained personnel, lack of honey processing skill, lack of organized market and market channels, illicit cross border trades, limited knowledge of export-market requirements are the main challenges that hinder production and marketing of honey.

3.2. Recommendation

From the review, the following recommendation are forwarding to concerned body;

- Promoting beekeepers important indigenous knowledge and promoting the construction of non-timber hives with low costs.
- Most of the household were selling the unfiltered honey which makes them to earn small amount of return. So it is better to aware them to supply in more value added form. It is also better to bring new value addition concepts for further development of the product.
- The opportunity of wax, propolis, pollen and other products production from the bee sector should improve and awareness creation on the use, processing system and market value of these products needs attention.
- Availing the strategies to support farmers with beekeeping business through credit availability, cooperative formation, input supply and market facilitation should be put in place with value chain approach.
- Capacity building of both producers and processors, commercialization of the sector to be competitive in the global market and standardization of the products and food safety requirements should be properly addressed.
- Strengthening the linkage among value chain actors is vital for honey value chain development. There is a need to change the mindset of actors regarding benefit share through developing a wide set of attitudes and trainings. In particular, positive attitudes toward partnership, interaction, networking and learning need to be nurtured among the value chain actors. There for, linking traders, cooperatives and potential beekeepers with honey processors, licensing honey traders to control adulteration, establishing honey collection centers and quality control are critical to solve market related problems.
- Designing effective honeybee pests and predators controlling methods.
- Improving pre and post-harvest handling of bee products.
- Further research and development intervention how to use the other bee products so as to leverage the export market should be given a higher priority.

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