

Honey value chain Analysis - A case study of gahate Village, Lamjung District of Nepal

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Abstract

Beekeeping is a low investment and low input business enterprise with immediate return. It not only has the potential to transform thousands of lives of Nepalese people but also makes the sustainable use of natural resources prevalent throughout the country. In Nepal, honey production is successfully acquired in a wide range of altitude i.e. from 70 to 4,200 meters above sea level. In recent years beekeeping has been recognized as a pivotal avenue towards poverty alleviation, livelihood enhancement and food security. The assessment of honey value chain was conducted in Lamjung district of Nepal which is located to the west of Kathmandu, the Capital city of Nepal. A village of Lamjung district named as Gahate, which is approaching towards commercialisation of honey despite being one of the remote and undeveloped areas of Nepal was selected for the study. The information was primarily collected through Key Informant Interview (KII) and Focus Group Discussion (FGD). Visits were also carried out to agencies like District Agriculture Development Office (DADO), Agriculture Service Centre (ASC), Chamber of Commerce and Industry in Lamjung and discussions were held with the key officials. The various actors engaged in honey value chain in Gahate, Lamjung include input suppliers, service providers and stakeholders, producers, wholesalers, retailers, consumers and transporters. In the study, it was found that almost every house possess one beehive with maximum number of beehive equal to 80. *Apis cerana* is the major honey bee reared in this region. It was found that the beekeepers of this region sell honey directly to local consumers at Rs.700 per kg or to the wholesalers from Kathmandu and Pokhara at Rs 675 per kg. Payment for the product is mostly done through direct cash but sometimes credit transactions also take place between different value chain actors. There is no provision of grading, processing and labelling of the product at producer's point. The country's demand for honey is in increasing trend every year.

Keywords: beekeeping, honey, poverty alleviation, livelihood enhancement, food security, commercialization, value chain actors

1. Introduction

Bee keeping has been prosecuted through a number of generations of mankind. It is a low investment and low input business enterprise with immediate return holding the potential to transform thousands of lives of Nepalese people which makes sustainable use of natural resources as well. Honey is the natural sweet substance prepared by honeybees from nectar of flowers or natural plant secretions or insect excretion on plants after combining these with some of their own specific substances and stored in honeycombs for maturation and ripening (The Codex Alimentarius Commission (CAC, 2006)). The CAC (2001) further states that honey should be free from any objectionable matter, flavour, aroma or taint that may be absorbed from foreign matter and the original constituent of honey i.e. pollen should not be removed as far as possible during its production, harvesting, processing and storage. In addition, the honey should not have fermented or begun to effervesce. Nepal is the only country in the world where honey production is successfully acquired in a wide range of area i.e. from 70 to 4,200 meters above sea level (Surendra Raj Joshi, 2008). Owing to its wide range of variation in altitude and climatic conditions, the country is rich in plant diversity and consequently produces a wide variety of specialized honey. Maximum amount of the honey harvested in Nepal is multifloral, which include mustard, sunflower, *rudilo*, *chiuri*, buckwheat and others (INCLUDE, 2014). Out of 849 farmers surveyed in five districts of Nepal (Nawalparasi, Kavre,

Sindhuli, Arghakhanchi and Rautahat), about 49% reported that honey production is especially made out of *Aesandra butyracea* in hilly region while *Nyctanthes arbortristis* in Terai (Baidhya et al., 1997). Mustard, buckwheat and litchi are major sources as well (Anon., 1990 a, 1990 b). The honey in the Terai region is produced by *Apis mellifera* while in the hills by *Apis cerana*. Particularly the honey harvested from hills and high hills of the country is found to have sterling sensory quality with high physico-chemical quality when produced, harvested and stored under efficient management system (Surendra Raj Joshi, 2008). In recent years beekeeping has been recognized as a pivotal avenue towards poverty alleviation, livelihood enhancement and food security. It forms an integral part in cropping system with significant contribution to farmers' income and thus to national economy. It is compatible for destitute, under-privileged, landless and marginalized groups as well as women group as it requires small initial investment and yields faster return. As a sure-fire pathway to success beekeeping enterprise has been a light of hope to the marginalised farmers. There are numerous health benefits of honey. It provides 3500 calories energy per kg with only slight requirement of digestive action (Surendra Raj Joshi, 2008). Honey is a high medicinal value food with antibacterial and anti-inflammatory properties. Traditionally it has been used to cure many diseases. According to the Norwegian Mission Report (2003), Nepal holds the potential to produce over 10,000 MT of honey annually along with a capacity to hold 1 million beehives. Although Nepal is

endowed with great floral diversity and wide variation in altitude and climatic conditions, Nepalese honey has not been able to establish a significant position in the world market. The contribution of Nepalese honey is only 0.05% in the world (INCLUDE, 2014). In addition to raw honey, bee waxes are also obtained from beekeeping which can be used for making cosmetics, candles, furniture polish, etc. So beekeeping can be a potential sector to solve the unemployment problem and to improve the income of people thus uplifting their living standard.

Value chain represents all the activities that are required to bring a product or service from formation to final consumers, even final disposal after use. It undergoes different production phases, marketing and distribution in this process (Kaplinski and Morris, 2003). National and international chains linkages and boundaries and buyer's requirements are known with the help of value chain analysis. It further gives information about the international standards and can well be used as a tool for international benchmarking (Richter, 2005). It helps in analyzing the links and flow of information within the chain. The strengths, weaknesses and losses in the process are also revealed.

1.1 Objectives

The overall purpose of analysis/study was to identify the current status of honey value chain and to suggest appropriate interventions or suggestions for the promotion of honey value chain process in Gahate, Lamjung.

The specific objectives of the study were to:

- Identify key actors of honey value chain in the region,
- Identify the horizontal and vertical linkages and relationships between the prevalent honey value chain actors,
- Identify the key strengths, weaknesses, opportunities and threats at different levels of value chain,
- Identify the major constraints in value chain and
- Propose appropriate suggestions/recommendations to upgrade the value chain process.

1.2 Limitations

There were several limitations incurred during the study. These include:

- Unavailability of precise data and figures related to honey production, processing, and marketing (wholesaling and retailing),
- Unavailability of secondary data like the no. of beekeepers, cost of production, annual production, annual income or profits, quantity sold, etc.,
- Scarcity of data related to honey production and honey value chain process in DADO, Lamjung,
- Most data are obtained from local producers/beekeepers that are mostly subjective and may not be precise and
- Some data and information presented in this paper are collected on the basis of studies carried out in the past due to lack of sufficient information from the producers.

2. Materials and methods

2.1 Study site

The assessment of honey value chain was conducted in Lamjung district of Nepal which is located to the west of Kathmandu, the Capital city of Nepal. Lamjung, a part of Province No. 4 is located in Gandaki zone with its district

headquarter in Besishahar. It lies in the mid-hills of Nepal covering an area of 1,692 square kilometres and with population of 167,724 as of 2011 (National Population and Housing Census 2011). A village named as Gahate was selected for the study which is approaching towards commercialisation of honey despite being one of the remote and undeveloped areas of Nepal.

2.2 Methodology

The information was primarily collected through Key Informant Interview (KII) and Focus Group Discussion (FGD). Standardised questionnaires were worked out to be inquired and discussed among the producers in the group to ascertain the cost of production, production system, productivity, channel of honey marketing, challenges and constraints in the value chain and its relationship with other value chain actors. FGD was conducted with a group of producers named *Gahate Vijay Kalika Krishi Samuha* (English Translation: Gahate Vijay Kalika Agriculture Group) with 15 participants including 12 male and 3 female. Visits were also carried out to agencies like District Agriculture Development Office (DADO), Agriculture Service Centre (ASC), Chamber of Commerce and Industry in Lamjung and discussions were held with the key officials. Approaches undertaken to accomplish the study included literature review as well.

3. Findings and Discussions

3.1 Value chain actors

From the study it was found that the actors engaged in honey value chain in this region include input suppliers, service providers and stakeholders, producers, wholesalers, retailers, consumers and transporters. The linkages within the honey value chain are relatively short here, initiating with input suppliers and terminating in final consumers with three or four actors in between. There is no strict division of functions among different value chain actors. Each individual actor rather performs multiple functions in value chain.

3.2 Current status of Value Chain in Gahate, Lamjung

3.2.1 Input suppliers and service providers

Input suppliers contribute for the foundation of the value chain and they comprise organizations and or individual entrepreneurs engaged in the construction and supply of beekeeping gear to interested producers. They mostly focus on producing modern beehives along with other hive equipments. Inputs for beekeeping include beehive, bee veils, bee colonies, hive stands, gloves, hat, brush, smoker, medicines, supplementary feeds (sugar, soyabean, etc.) and honey extractors. People of this region obtain most of their inputs from DADO/ASC at 50% grant. Inputs are also supplied by different organizations like Self-Reliant Society Service Centre (SERSOC) in collaboration with World Vision (SERSOC/World Vision). Centre for Community Development (CECOD, Nepal) used to be a major input supplier and service provider during the initial days of beekeeping establishment in Gahate. According to the producers, CECOD was the main reason for their motivation towards commercialized beekeeping in Gahate, Lamjung but this NGO is no longer working in the region. In case the inputs supplied by government and non-government organizations are not sufficient, they are brought from Kathmandu and Pokhara. A cottage industry named as *Sujita mauripalan and ghaar*

udhyog (English Translation: Sujita beekeeping and beehive industry) has been established to provide beehives to the local producers. *Bakaino* and *utis* are mostly used for making beehive. Some of the inputs like beehive stand and sugar are accessed from local market. Similarly, one of the participants Mr. Lalit Gurung has been producing queen bee by grafting and making them available to other local producers and customers as well at the rate of Rs. 700 per queen bee. This beekeeping has been very helpful in self-employment of local people and generating some income for their livelihood. After extracting honey from honeycomb, it is refined to make base honeycomb, which is inserted in beehive that aids in faster and increased honey production. People here provide sugar syrup as supplementary feed to the bees, which is not a common practice among most of the remote beekeepers of the country. All these evidences prove that people of this region are way more forward in commercial beekeeping.

3.2.2 Producers (Beekeepers)

Table 1: Total honey production in Lamjung district in the year 2015/16

S. No	Beehive	Total no. of hives	Total production (Metric ton)	Consumption
1	Modern beehive	4900	29.3	60% within the district, 40% outside the district
2	Traditional beehive	1000	3	
3	Wild bees		0.70	
	Total	5900	32	

Source: Annual report of District Agriculture Development Office (DADO), Lamjung 2015/16

3.2.3 Wholesalers

The wholesalers are urban based traders who collect honey from producers in bulk and sell it to retailers or directly to consumers. Wholesalers from Kathmandu and Pokhara contact their regular producers in the village and demand for the product. But in few cases, they visit the producers themselves at the production site to buy honey. The wholesalers either sell honey directly to the consumers after packaging or they supply honey to retail shops and supermarkets after packaging. Sometimes they also carry out door- to- door marketing. They also have storage facility for stocking the packed honey. Payment to producers is done through hard cash during the time of their visit. Credit transactions also take place between wholesalers and producers. Wholesalers later deposit the incurred cost in producer’s account.

3.2.4 Retailers

Retailers are the value chain actors who buy the products from wholesalers and sell them to the final consumers. The supermarkets, shopping centers, grocery stores and Ayurvedic shops are the major retailers prevalent in the market. Honey is packaged in plastic or glass jars of different weight, generally ranging from 200 grams to 2 kg and sold to the consumers. In this region, selling of honey through retail outlets is rather low compared to urban centres.

3.2.5 Consumers

Consumers are the final value chain operators who buy the product from retailers or sometimes from wholesalers as per their requirement. Honey producers of Gahate sell honey directly to the local consumers according to their demand. The consumers of the village are entirely satisfied with the product produced by the producers. Consumers in urban areas include hotels, restaurants, trekking agencies, other ayurvedic medicine producers and individuals. Since the people these

Producers are the major actors in value chain who aggregate all the required inputs from different possible sources and manage them in an efficient way for high quality and quantity honey production. In this region it was found that almost every house possess at least one beehive with maximum number of beehive equal to 80. *Apis cerana* is mostly reared in this area which is the most commonly reared honey bee in hilly region. Modern beehives have been in practice these days which are found to be more convenient and productive as compared to the traditional ones. 40 kg of honey has been extracted at most from each beehive annually. Honey is harvested normally thrice a year, with best quality obtained in winter harvest. The people of Gahate sell honey either directly to the local consumers at Rs.700 per kg or to the wholesalers from Kathmandu and Pokhara at Rs 675 per kg. There is no provision of grading, processing and labelling of the product at producer’s point.

days are becoming health conscious, they understand the health benefits of honey. So the demand for honey is in increasing trend every year.

3.3 Marketing system and market infrastructure

The total honey production in the district during 2015/2016 was 32 metric ton. About 60 % of the production was consumed within the district and the remaining 40% was supplied to the market places outside the district during that period (DADO, Lamjung). There is no systematic and organized honey marketing system in the village or even in the district as well. It was observed during the study that domestic honey marketing at the producer level is totally on individual contact basis. In case of local consumers, the consumers visit the producers at the production site for honey or producers take the product to consumers according to their demand. The general mode of transportation for local area is walking. The wholesalers contact and travel to individual producer's houses and bargain for purchase. Major urban buyers of honey of Gahate are Kathmandu and Pokhara. The producers send the product to the wholesalers of Kathmandu and Pokhara as per their demand. The product is packed in a container of 30 kg and transported on public buses or trucks. The transportation cost is charged at the rate of Rs. 300 per container which is borne by the wholesalers. In some cases wholesalers themselves visit the producers with their own vehicles. The wholesalers then package the product in a suitable weight packet (250 grams, 0.5 kg, 1 kg or 2 kg) and sell to retailers, supermarkets, hotels, restaurants, ayurvedic medicine factories, etc. In urban areas, honey is transported in small van from wholesale to retail markets or honey retailer's shops. Wholesalers sometimes carry out door -to- door marketing. The road and transportation facilities are the major hindrances towards improving the efficiency of value chain and hence

towards the commercialisation of honey. Price fixation is done by District Bee keeping Association and is equal to Rs. 700 per kg.

3.4. SWOT Analysis

Table 2

Strength	Weakness
Wide variation in climatic condition and abundant flora for commercial beekeeping.	Unavailability and inaccessibility of input materials when required and in sufficient quantity.
Sweet taste and aroma of local honey due to diverse climate and flora preferred by consumers.	Lack of access to financial services.
Relatively easier to rear and handle.	Lack of business enterprise management skills.
Availability of technical and economic support from government as well as non-government organizations.	Lack of clear cut policies, regulations and strategies to promote beekeeping.
Honey possesses a number of health benefits.	Lack of understanding about colony size, stocking rate, disease and pests.
Subsidy provided by government for beekeeping.	Lack of testing and quality control facilities.
Beekeeping has positive environmental effects.	Small land holding.
Bees help in agricultural production through pollination.	Poor marketing of products which are sold more on an individual contacts and relationship basis.

Table 3

Opportunities	Threats
Easy access to the local market.	Competition with cheaper honey available in the market.
Diversified business can be made out like wax (candle) production, colony production, queen production, production of beehives and other beekeeping gears.	Lack of concern from government regarding pest and diseases of bees.
Wholesalers themselves search for producers due to high demand for honey.	Increment in substitute sweeteners.
Increasing awareness among public about health benefits of honey.	Development partners pulling out support.
Market expansion.	
Honey can be stored for a long time without damage.	

3.5. Value chain

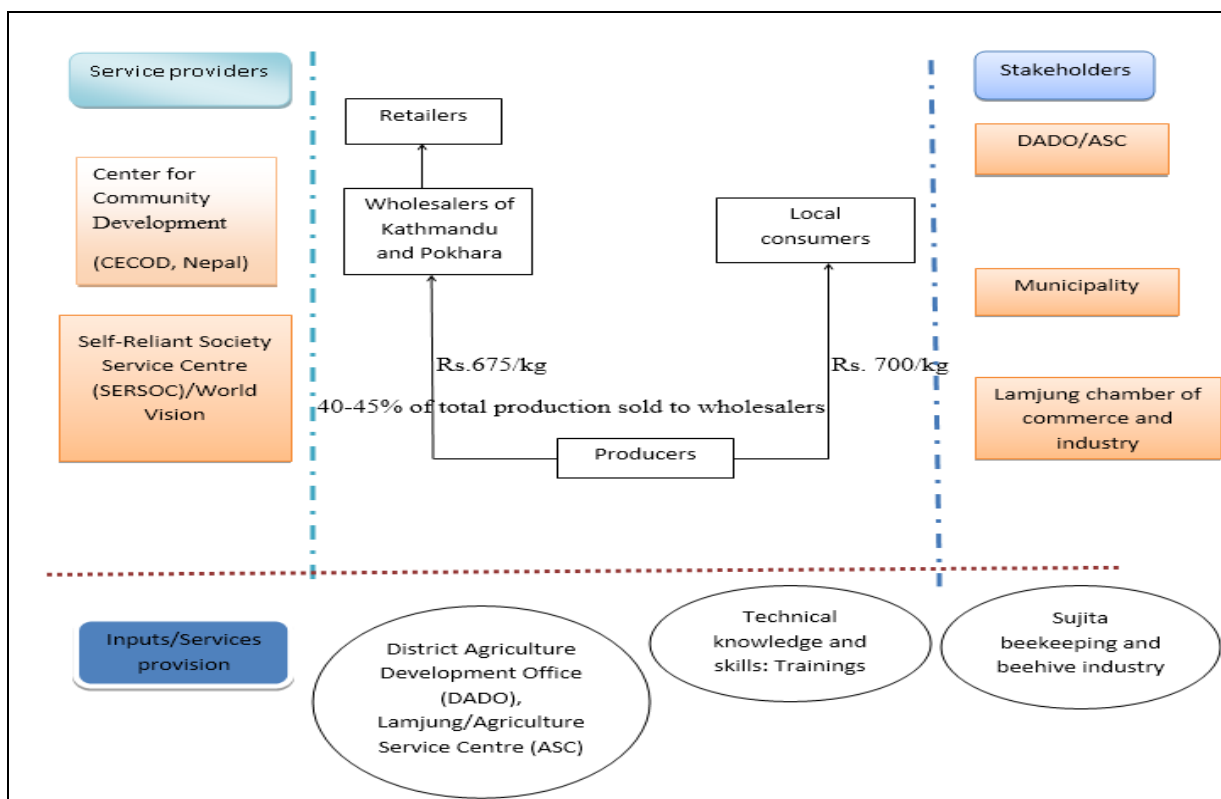


Fig: Value chain of honey

3.6 Vertical and Horizontal Linkages

3.6.1 Vertical Linkages: It depicts the relationship between various value chain actors acting at different level. It persists among the input suppliers, producers, wholesalers, retailers and consumers. There occurs the provision of service on payment basis among the value chain actors. Input suppliers provide the producers with required supplies and resources and producers in return pay for the service they receive. Financial support to the farmers is not satisfactory. Extension service provided by the service providers is not adequate. Good relation exists between producers and wholesalers. Wholesalers of Kathmandu and Pokhara directly contact the producers for buying honey and delivery is made through public transportation. Wholesalers sometimes visit the producers themselves to buy the product. Payment for the product by wholesalers is done as direct cash payment or through cash deposits as well. The product is sold directly to the local consumers as well. Wholesalers then sell the product either to retailers or to hotels, restaurants, ayurvedic factories, etc. or to the final consumers after packaging the product in plastics or glass jars. Payment is generally done through cash.

3.6.2 Horizontal Linkages: It depicts the relationship among value chain actors operating at the same level. It can be observed at producers' level where each producer works at an individual level. No cooperatives were found to exist at the producers' point for collective production. The cooperation and harmony among the producers were observed to be so incredible with no or less feeling of competition. Local consumers are so secured and satisfied with the quality of product produced in their own places. There was a slight competition among the wholesalers for the price of product paid to the producers. The relationship between the retailers is strong. They charge more or less same amount of money for same product. People are becoming health conscious and are aware of nutritional and medicinal value of honey. So honey consumption is increasing. However poor people are not able to afford honey for day to day consumption.

3.7 Major constraints in honey value chain

From the study, the beekeepers of Gahate were found to be more forward in beekeeping than most beekeepers of the country. Still they did not have adequate technical and business skill to run commercial beekeeping. Some of the problems faced by the beekeepers of Gahate as observed and identified during the study are:

- Unavailability and inaccessibility of input materials in time,
- Inadequate supply of input materials,
- Lack of adequate working capital for beekeeping,
- Low accessibility to financial services,
- No knowledge of bees medicine,
- Lack of sufficient artificial feeds to the bees,
- Poor development of infrastructure (i.e. road) for transportation of produced honey and
- Lack of clear cut government policies for promotion of beekeeping and inadequate budget allocation towards honey sector.

4. Conclusion

Beekeeping has been recognized as one of the most important commodities which can be integrated in programmes for poverty alleviation, livelihood enhancement and food security

in Nepal. Even with minimum effort and investment it is found to yield quick and higher return. It is the commodity which holds nutritional, medicinal as well as economic importance. After a survey conducted in a village of Lamjung district it was found that the honey value chain in the region is relatively short initiating from producers and ending in consumers and includes actors like input suppliers and service providers, producers, wholesalers, retailers and consumers. We came to know about the horizontal and vertical linkages among the value chain operators. We became well acquainted with the problems being faced by the value chain actors. A number of organizations and agencies are working for the promotion and amelioration of beekeeping. In spite of those valiant efforts copacetic results have not been observed since several factors have created obstruction in the path of commercialization of honey.

5. Suggestions and Recommendations

For the commercialization of honey production, focus should be given on following aspects:

- Increase the production and productivity of honey by increasing the number of beehives,
- Timely and adequate supply of inputs and supplies,
- Increment in accessibility towards financial services for the augmentation of beekeeping enterprise,
- Enforcement of laws from the government level keeping the honey sector under major priority,
- Improvement in road infrastructures and transportation facilities,
- Production in groups or cooperatives for enterprise linkages,
- Provision of entrepreneurship training regarding beekeeping and enhancement of enterprise management skill through trainings, workshops, seminars, etc.,
- Raising awareness about supplementary and artificial bee feeds and
- Raising awareness about bee medicine and about various diseases and pests of bees.

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