FACTORS AFFECTING VALUE CHAIN PERFORMANCE OF COFFEE: THECASE OF SHEKA ZONE, SOUTH WEST ETHIOPIA

A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY, SCHOOL OF COMMERCE FOR PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT

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MAY, 2019

ADDIS ABABA

Declaration

I, the under signed, declare that this thesis titled '*Factors affecting value chain performance of Coffee: the case of Sheka Zone, South West Ethiopia',* is my original work and to the best of my knowledge has not been presented for a degree by any other person, and that all the sources of material used for the thesis have been duly acknowledged.

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Statement of Certification

This is to certify that the thesis carried out by NurilignEndashaw on the topic in titled: "*Factors affecting value chain performance of Coffee: the case of Sheka Zone, South West Ethiopia*" is his original work and is suitable for submission for the award of Master of Art Degree in Logistics and Supply Chain Management.

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Letter of Certification

Addis Ababa University

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This is to certify that the thesis carried out by Nurilign Endashaw, titled "*Factors affecting value chain performance of Coffee: the case of Sheka Zone, South West Ethiopia*" and submitted in partial fulfillment of the requirements of the Degree of Master of Art in Logistics and Supply Chain Management complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Abstract

The study was conducted to analyze and explain factors affecting value chain performance of coffee in Sheka Zone, South west Ethiopia. Sheka coffee is definitely among the most distinguished coffee varieties grown in South Western Ethiopia, a region known for its fine coffees. Towards this end, this descriptive and explanatory study utilized a combination of multistage, census woredas survey to quantitatively assess the supposed relationship between the dependent and independent variables. Primary data was collected by distributing a total of 197 questionnaires and collecting 178 questionnaires with 90.35 % response rate. Secondary data was gathered for sales volume and grade of coffee from 2009 – 2018. The study employed quantitative and qualitative analysis. Findings of the study identified that the finance, access to market, access to information, government policy and the physical environment in place for the subsector are contributing to the performance of coffee value chain in terms of coffee quality grade, sales volume and value addition. Finally, constraints in efficiency of value chain of coffee, the role of government policy in creating favorable production and marketing environment to value chain actors by alleviating the problems related with access to market ,access to information and physical environment, support of financial institutions in encouraging coffee related investments, services provided by market institutions (Ethiopian Commodity Exchange) in alleviating obstacles in the value chain performance are areas that need greater attention in order to robust coffee value chain performance in Sheka Zone's.

Key words: - Coffee, Value, Chains, Performance, Factors

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Abbreviation and Acronyms

ECEA: Ethiopian coffee exporter association

FDRE: Federal Democratic Republic of Ethiopia

FAO: Food and Agricultural Organization

GDP: Gross Domestic Product

GTZ: German Technical Cooperation

ICO: International Coffee Organization

IDS: Institute of Development Studies

MOT: Ministry of Trade

SNNPR: Southern Nations, Nationalities and Peoples Region

SZAO: Sheka Zone Agriculture Office

SZCFU: Sheka zone Coffee Farmers' Cooperative Unions

UNIDO: United Nations Industrial Development Organization

USAID: United States Agency for International Development

USD: United States Dollar

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Arabica coffee is a vital crop in the national economy of Ethiopia. Substantial proportion of the people in the country in one way or the other earns their livelihood from coffee production or its trade. It is still Ethiopia's number one export item (Daniel, 2018). It accounts for 25 to 30 percent of total export earnings. But its share of total export earnings has gradually declined in recent years due to increased exports of other commodities such as gold, flowers, Khat (Catha edulis), textiles, and leather products (wakuma, 2019). Globally, Coffee Arabica production is about 97092 thousand bags in 2017 (ICO, 2018). Brazil (33.09%) is the leading coffee producing country, which is followed by Vietnam (18.51%) in global coffee supply (ICO, 2018). Ethiopia remains the largest coffee producer in Africa and is the sixth producer in the world next to Brazil, Vietnam, Colombia, Indonesia and Honduras contributing to about 4.8% of the total world coffee production (ICO, 2018). Coffee is cultivated by over 4 million primarily smallholder farming households Girma and CSA, (2017) and, with those employed in ancillary activities to coffee production, even more households are dependent on coffee for part of their livelihoods. It has been used income generation for that about 20 percent of the populations, directly or indirectly, depend for a living on coffee production and trading.

Ethiopia has suitable agro-ecologies for *Coffee Arabica* production and has the potential to produce large amounts of differentiated high-quality green coffee, which were liked for their unique flavor and taste. However, many growing locations in Ethiopia were not benefited from this huge potential, as they should have. Similarly, despite coffee plays dominant role in the national economy and in spite of the fact that the country is home of *Coffee arabica*, the country's coffee production is characterized by low productivity about 619 kg ha-1 (CSA,2018), which is blow global productivity of 790.7 kg ha-1 (Wakuma, 2019).

According to CSA (2017), the estimated area of land covered by coffee in Ethiopia is about 700474.69 hectares and from the total area 63.3 percent is in Oromia, 35.9 percent in SNNPR and 0.8 percent in Gambella. Smallholder producers are responsible for about 95 percent of production, while state-owned plantations account for 4.4 percent and private investor plantations 0.6 per cent (FDRE 2018). In Ethiopia, the production yields are considered to be very low compared to other countries, with estimates of less than 619 kg per hectares (CSA 2018). Coffee is vital to the cultural and socio-

economic life of Ethiopians. It sustains the livelihoods for over 15 million and provides important income from casual labor and for many additional poor rural peoples. It contributes 25%-30% of the country's foreign exchange earnings (FDRE MOT, 2018).

1.2. Coffee Growing in Sheka Zone

Sheka Coffee Producer Farmers' Cooperative Unions is located in Masha, Andracha and Yekiworedas, Southern Nations Nationalities and Peoples' Regional State, South Western Ethiopia. It was established in 2004 by 27 Primary Cooperatives. Currently, the unions have the individual farmer of 4,427 in yekiworeda, 8258 in Andracha and 10,600 in Masha, and the total individual membership of 23,285 small holder farmers. The 75,374-hectare dedicated to garden coffee produce on average around 6,535 tons of sheka washed and sun-dried coffee per year. (SZCFU, 2018).

1.3. Statement of the problem

Coffee is the most important export item in generating foreign currency- which in turn helps the country to purchase and import the needed foreign product. However, recently, coffee price has been declining by 33% for the last two years which resulted in the reduction of revenue for the nation in general and coffee farmers in particular (TRT WORLD, 2019).However, because of the insufficient market information, quality improvement, and value chain schemes and also due to insufficient pre-processing facilities, scattered and remoteness of coffee plantation area in Ethiopia, a few traders and processors primarily dominate the present marketing channel (Belay, 2017).

According to (SZAO, 2018) annual report, Sheka coffee is often supposed to be the best at the time of picking but during the post-harvest handling, processing and distribution, it loses its essential quality. Losses may occur at all stages of the processing chain. Moreover, in the absence of pulping centers, adequate numbers of coffee farmers are still practicing dry processing method which isn't desirable for the export market. Coffee producers in Sheka Zones are widely characterized by limited marketing linkage which emanates from limited infrastructure. This result in their inability to force local collectors and traders' price setting and exploitation at farm get level. Despite high coffee production potential of the Zones, the market supply of coffee is low as compared to its potentiality. This seems to be due to lack of access to finance, low production, lack market access and government policy related negative factors. The market and marketing system of the area is generally dominated by conventional

system of marketing and producers are forced to sale directly for conventional transaction root which they do not get premium price for their coffee produce and results low market margins (SZAO, 2018). In addition to the above problem the following problems were identified as the major one which has influence on the performance of Coffee value chain. based on the preliminary interview assessment with the Sheka Zone selected Agricultural office staffs and selected value chain actors also explained that in Sheka Zone Coffee value chain performance is constrained by many factors such as: poor quality, inadequacy of the allocation of resources or budgets to the demanded materials, lack of market facilities, weak extension services by respective body which ignored marketing development and absence of marketing information and also Many smallholder farmers do not own or have to hand pulpers. This increases the transports costs and delays immediate processing, a key requirement for wet processed coffee (SZAO, 2018). Since, the union and value chain actors are struggling to become the best Ethiopian highland Arabica Sheka coffee grower, processor and exporter, but its capacity is limited due shortage of funds. So, this may be impacting the smooth flow of coffee in the chain. The difficulty of market acquisition in the limited size of fair-trade market is another constraint to the expansion of cooperative activities in the coffee value chain. Also, the Sheka zone does not received any types of support from the international aid agencies like USAID. This might be also impacting the value adding process of the farmers. Moreover, full information about the overall potential of this subsector in general and existing bottlenecks/constraints across the value chain did not been well studied and documented for better understanding of the coffee value chain and assess possible improvement strategies to upgrade coffee value chain for the benefit of smallholder farmers, existing and new processor, traders, and other Coffee value chain actors. Therefore, most of the problems mentioned above need the involvement of researchers in order to verify them and it needs the involvement of value chain actor's support in order to give a solution. If the above problems are discovered in such type of mini interview, if there is a possibility to explore in depth study on the critical influencing factors can affect Coffee value chain performance there is a big chance to get some other problems in the case Sheka Zone. This encourages the researcher to conduct the study on factors affecting coffee value chain performance in Sheka Zone by using different independent variables.

1.4. Research Question

The research questions that will have been addressed in this study are:

1. How does the financial constraint affect coffee value chin performance in Sheka Zone?
2. How does the access to market affect coffee value chain performance in Sheka Zone?
3. How does access to information affect coffee value chain performance in Sheka Zone?
4. How does government policy role on affect coffee value chain performance in Sheka Zone?
5. How does physical environment affect coffee value chain performance in Sheka Zone?

1.5. Objectives of the study

1.5.1. General objective

The general objective of this study is to undertake factors affecting value chain performance of coffee in Sheka Zone, South west Ethiopia.

1.5.2. Specific Objective

- To analyze the financial factors, affect coffee value chain performance in Sheka Zone.
- To determine the access to market factors affect coffee value chain performance in Sheka Zone.
- To examine the access to information factors affect coffee value chain performance in Sheka Zone.
- To investigate the role government policy on coffee value chain performance in Sheka Zone.
- To examine physical environment factors affect coffee value chain performance in Sheka Zone

1.6. Significance of the Study

The justifications of the study were to generate new knowledge and comprehensive approaches to be used by local cooperatives and private coffee growers. The findings of this study were valuable to diverse segments of the people. The study results provided considerable information on coffee value chain and how the value added was distributed within the different actors. Besides, the findings were identifying the constraints and opportunities of coffee value chain in Sheka Zone. The result of the study was helpful for the coffee growers and traders in planning, monitoring and evaluations of their activities. The regional and local government benefited from the findings in drafting policies for coffee production and marketing. Additionally, the study was generated important information for research and development organizations, extension service providers, government and nongovernmental organizations to formulate coffee marketing development programs and guidelines for interventions that would improve efficiency of the coffee marketing system. The other benefit that could be anticipated is its significance as a source for further studies.

1.7. Scope of the Study

The geographic coverage of the study is on the South-Western part of the country focusing on Coffee cultivating Woredas of three major areas namely Yeki, Masha and Andracha wereda of Sheka zone. Each area has Coffee growing woredas and data was collected from smallholder farmers, commercial farmers and suppliers in primary markets established in the growing woredas. The sample woredas was selected based on Coffee growing topography, volume of production and convenience purpose as these are main Coffee growing areas of Sheka Zone. Due to strong spatial patterns in coffee production study areas are narrowed to the south western part of the country. Moreover, the study was restricted to the period from 2009 to 2018 that gives ten years of observation. In addition to this the study value chain is restricted at Exporting stage due to length of market chain, financial & time constraints. Data was also collected from value chain & market support actors in the subsector from Ethiopia Commodity Exchange members, Exporters, and District Cooperative officials.

1.8. Limitations of the Study

Given that the study is cross sectional, it is important to consider different scenarios that have happened during the study period in order to have correct estimates. The study concerned only assessing the coffee value chain the case of sheka zone, southwest Ethiopia. As the study was done on sample basis in Yeki Woreda,Masha Woreda and Andracha Woreda, some percentage of farmers may not be addressed methodologically in addition to this, the farmers those have more than three hectares of coffee can be designed for sampling purpose.

1.9. Definition of Terms

Value Chain: 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 (Kaplinsky and Morris, 2000).

Value chain analysis: - the activities within and around an organization, and relates them to an analysis of the competitive strength of the organization (Porter, 1985).

Coffee value chain: -are actors that are directly involved from farming, collecting, purchase boiling, grading to vending to business users/final consumers.

1.10. Organization of the Thesis

The thesis was organized under three chapters. Chapter one was identify background, statement of the problem, research questions, objectives, significance of the study, scope and limitations of the study and organization of the thesis. Chapter two was presented review of theoretical and empirical evidences to the study. Chapter three was discussed research methodology (description of the study area, data types and sources, methods of data collection, sampling techniques and methods of data analysis) of the study. The collected data from the subject of the study carefully analyzed and interpreted under the fourth chapter. The fifth chapter presents summary, conclusions and recommendations on the findings of the study.

CHAPTER: TWO: REVIEW OF LITERATURE

In this chapter, an attempt has been made to explain certain concepts used in this study. In addition, this part is intended to critically review the literature of the past research work in relevance to present study objective, so that theoretical views and empirical evidences of the reviews enables better understanding of the subject

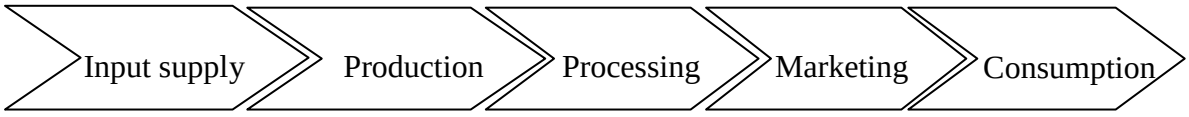
2.1 Concepts and Theoretical Explanation

2.1.1 Overview of Value Chain

Kolinsky (2000) describes Value Chain as "full range of activities which are required to bring a product or service passing through the intermediate phases of production to delivery to consumers and final disposal after use". According to Gereffi (1994), the actors of a value chain as well as the input-output, and the territorial structure along with technical structure also define a value chain.

There are different approaches for value chain research. Gereffi *et al* (2003) elaborated that global value chain research as the different ways to scrutinize how global production and distribution systems are integrated and possibilities of firms in developing countries to progress their position in global markets. Although this definition covers most important core of the value chain, additionally it becomes necessary that institutional and other aspects like legal framework need to be considered in the value chain (Schipmann, 2006).

Figure 2.1: Visual representation of different aspects of value chain



Source: - (Schipmann, 2006).

2.1.2. Purpose of Value Chain Analysis

According to Kaplinsky and Morris (2002), there are three main sets of motives why value chain analysis is important in this era of rapid globalization. The first reason they raised is that with the growing division of labour and the global dispersion of the production of components, systemic competitiveness has become increasingly important. Second, efficiency in production is only a necessary condition for successfully penetrating global markets. Third, entry into global markets which allows for sustained income growth requires an understanding of dynamic factors within the whole value chain.

Value chain analysis is conducted for a diversity of rationales. The primary purpose of value chain analysis, however, is to understand the reasons for inefficiencies in the chain, and identify potential leverage points for improving the performance of the chain, using both qualitative and quantitative data. Value chain analysis facilitates an improved understanding of competitive challenges, helps in the identification of relationships and coordination mechanisms, and assists in understanding how chain actors deal with powers and who governs or influences the chain. The value chain framework seeks to overcome these constraints by identifying different entry-points and linkages that small and medium enterprises can leverage in a given production or supply chain (USAID, 2008).

The promotion of value chains in agribusiness aims to improve the competitiveness of agriculture in national and international markets and to generate greater value added within the country or region (German technical cooperation, 2006). The key criterion in this context is broad impact, i.e. growth that benefits the rural poor to the greatest possible extent or, at least, does not worsen their position relative to other demographic groups (German technical cooperation, 2006).

2.1.3. Dimensions in Value Chain

Value chain analysis forms an important tool to examine structural change. Altogether, it comprises five dimensions which include the technical structure, the actors in a chain, the territorial, the input output and the governance structure (Gereffi, 1994). The analysis of these structures answers a set of questions like how does the production process, who participates at which stage, where do the different stages take place, how are they linked, who has which benefits, etc. These answers are required to find the pertinent points of intervention for a successful integration of poor population sections. However, this study focuses on the agricultural sector all executions and examples relate to the agricultural sector and in sector others than this, different situations might be found.

2.1.4. Technical Structure of value chain and Actors Roles

Technical production process can generally be separated into five stages: input supply, primary production, processing, marketing and consumption (Schipmann, 2006). Different actors can be found in each of technical production process. Input supply, being the first step in the production process considers everything from the seeds to the technical equipment needed for the production of the concerned product.

Input supply facilitates the primary production of raw materials like grains and vegetables (Schipmann, 2006). Actors at this stage can be individual small, middle or big sized smallholders as well as enterprises with own production plants. If the product does not have market in its raw form, processing becomes essential. Primary production: In this stage transformation of raw materials into processed products takes place. There is huge demand for processed products among consumers in industrialized countries. Different actors found in this stage depend on the amount and quality of the product, complexity of product and production process (Schipmann, 2006). The next stage in the process is trade and marketing. Transportation and Distribution of products to the places of demand forms an important activity here. Marketing can be directly done by the producers or processors, but as the amount and quality of the traded goods becomes higher, the requirement for marketing is also higher (Schipmann, 2006). In such cases logistic companies and supermarket chains are mainly found.

The last stage is consumption of a good. In most cases the consumer is the driving power of the whole process. It is true that even though the consumer does neither participate in the production neither process nor add value to the product, he forms an important part of the chain. Consumer demand is the determining factor for the kind, amount and quality of a product. Trading activities takes place at each stage of the above-mentioned process. However, it is assumed that trading activities between these stages takes place as a pure transfer of goods within the production process (Schipmann, 2006).

2.1.5 Value Chain Governance and Coordination

Kaplinsky (2000) argues that the term coordination often used describes the non-market relationships that exist between firms in different segments, or between external (e.g., NGOs) and internal parties in the chain although Roldan and others (2005) uses the term coordination to describe the exchange of non-market information, capabilities, and activities between two segments of the commodity chain which are not linked through ownership.

Gibbon(2001) describes value chain co-ordination as enhancing barriers to entry, more precisely allowing 'driving' agents to incorporate measures that can reduce costs and risks as well as increasing the speed and reliability of supply, bringing in increase of sales. Furthermore, chain co-ordination and upgrading usually occurs when it benefits the chain driver.

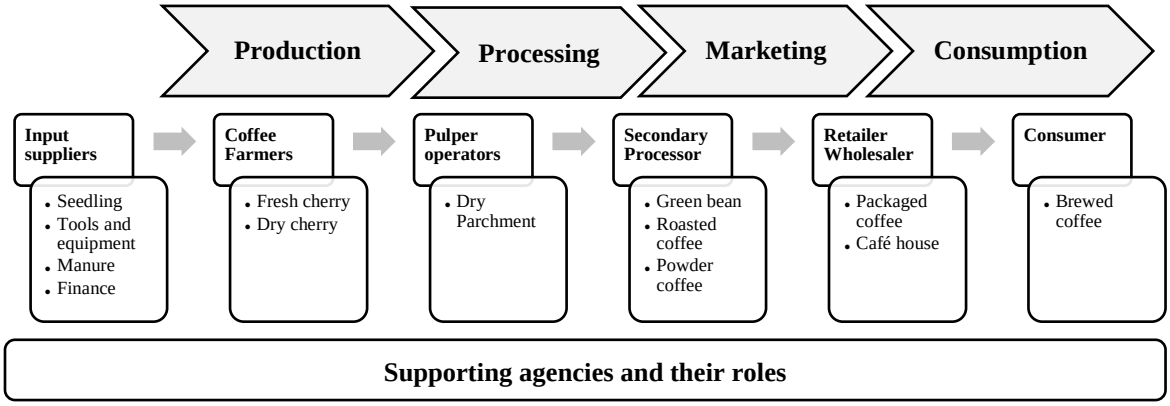
A market-based governance structure is characterized by many buyers and sellers, and is more characteristic of the 'traditional' coffee Global Value Chain (GVC). This type of GVC has much looser form of co-ordination, In the market-based system, the products are standardized which implies that there are low barriers to entry as all the products are essentially being similar to each other (Jodie*et al*, 2004).

2.1.6. Mapping a Value Chain

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

According to Kaplinsky and Morris (2000) mapping the chain means giving a visual representation of the connections between actors and tracing a product flow through an entire channel from the point of product concept to the point of consumption. It is an ideal tool for measuring and quantifying the cost of administrative distortions that hinder competitiveness of products and industries.

Figure 2.2: Value chain mapping of coffee (Gaurab Rablutel,2017)



Source: - (GaurabRablutel,2017)

2.1.7. Upgrading in value chains

Stamm (2004) defines upgrading as "the process that enables a firm or any other actor of the chain to take on more value intensive functions in the chain, make itself harder to replace, and thus appropriate a larger share of the generated profits". Upgrading means that individuals, firms or even a whole country improves its original situation through changes in the nature and mix of activities, both within each linkage in the chain, and in the distribution of intra-chain activities (Kaplinsky et al, 2000).

Humphery*et al* (2000) uses this concept of upgrading to understand the three different shifts that firms might undertake in the global chain. Firstly, a firm can upgrade through transformation of inputs into outputs more efficiently by reorganizing the production system or by introducing superior technology which is often referred as Process Upgrading. Secondly, Product upgrading through which a firm can upgrade from moving into more sophisticated product lines. Thirdly, upgrading by value addition referred as Functional Upgrading. In addition, fourth case is added by Kaplinsky *et al*, (2000) termed as inter-sectorial upgrading where firm can upgrade by moving out of a chain into new one.

2.1.7.1. Preconditions for Upgrading

Upgrading is not only improving position but more than a necessity to secure the position within the chain (Schmitz, 2006). Preconditions for upgrading are the strategic intent of the firm and the policy environment but also the innovation process and investment needs. First and foremost, one should be aware that learning processes that are available to the single actors of a chain influence upgrading. As a result of learning processes, firms are able to improve their position in the value chain" (Stamm, 2004). While on the other hand, learning is influenced by governance structure of a chain. Besides production systems, knowledge systems exist in value chains through which different kinds of know how are transferred between the single stages of a chain the organization of information flow and its intensity depends on the interest of the leading party in a chain, which is most times the buyer. It can be assumed that information transferred from a buyer to his suppliers is limited to the amount that favors the buyer (Humphery *et al*, 2002).

2.1.7.2 Value addition strategies and Upgrading possibilities

According to Leopold and Mureithi (2008), the objective of upgrading in any economic sector is to augment the value of the coffee supply chain by developing a sustainable coffee economy in keeping with the United Nations Millennium Development Goal of poverty eradication within a framework of sustainable development. We should examine, stage by stage, what steps can be taken to achieve this Goal but at the same time improve earnings, especially the payout to the farmer. The value chain analysis carries the advantage that it aims to optimize the use of the resources at each stage.

2.1.8 Coffee processing

2.1.8.1. Coffee seed and seedling quality

Coffee seeds, first and foremost, must be of the best quality available to produce a strong crop. As the saying goes, good beginning makes good ending. The agricultural expert is responsible for inspecting the same to ensure compliance with good seed source (e.g. high yielding healthy trees); seed handling (pulped and fermented beans mixed with wood ash should be shade-dried to 15–18 percent parchment moisture content (Leopold and Mureithi, 2008). Seeds must be sown in a nursery/seedbed immediately after drying with parchment attached. Seedlings can also be developed from cuttings for vegetative propagation or through grafting. Good seedbed husbandry is a sound foundation for coffee crop output and productivity of land and other resources (Leopold and Mureithi, 2008).

2.1.8.2. Farm-level agronomic practices

In the field, proper agronomic practice should be the norm: land preparation; optimal plant spacing; mulching; weeding; pruning; manuring; correct use of fertilizers, chemicals and pesticides; and picking only the perfectly red ripe cherries – avoiding the overripe and under ripe berries that end up as mibuna (coffee berry dried in its skin, usually hulled, roasted and ground to produce coffee) or hard Arabica (Leopold and Mureithi, 2008). These practices would enhance quality and the downward trend in output per area planted with coffee would be reversed (Leopold and Mureithi, 2008).

2.1.8.3. Primary processing

The method of converting cherry to parchment is wet processing at the pulper which uses eleven distinct operations. Rotating discs remove the outer skin of the coffee beans which are then channeled by sieving into separate fermentation tanks for heavy and light ones. Fermentation removes the slippery sugary mucus covering the beans which are then washed and dried in the sun. This parchment (so-called due to the pale papery skin left on the bean) coffee is stored as conditioned beans ready for milling (Leopold and Mureithi, 2008).

Leopold and Mureithi (2008) stated that, the quality of coffee is favorably affected by:

- a high proportion of heavies;
- immediate processing of cherries after picking, but delay can be compensated by pre-pulping soaking to halt fermenting;
- post-pulping fermentation duration (12–72 hours depending on temperature), the longer the better to remove the "sugars" and allow the bean to acquire a gritty consistency;
- the duration of sun-drying, depending on the weather, to keep moisture content at 13–16 per cent; avoid re-wetting;
- conditioning to drive down moisture to 10–12 per cent;
- Proper storage of parchment for not more than three months to reduce post-harvest quality deterioration a well-ventilated store with wooden batten raised 15 cm from the floor and walls.

2.1.9 Factors Affecting of coffee value chain

2.1.9.1 Coffee Production and Constraints

There is high incidence of Coffee Berry Disease and shortage of improved cultivators. Poor harvest and post-harvest practices have been reducing coffee quality, and there is a weak linkage between research, extension services and producers. Environmental degradation is a serious concern in the coffee growing areas of the south-western parts of Ethiopia, threatening its coffee genetic resources. Quality losses also occur in poor post-harvest on-farm processing, including weak storage infrastructure and contamination with other products. Handling during coffee harvesting and storing, processing and warehousing; inability to take care of the coffee plantation properly; inability to control the moisture content of the coffee and mixing high quality coffee with low quality. Lack of sufficient standard coffee processing machine in the major coffee producing areas due to lack of capacity and awareness, or sometimes improper installation of coffee processing machine, lack of proper place for coffee processing, inadequate inspection and supervision of responsible bodies in the assembling, processing or preparation of coffee during harvesting. This may be due to negligence or lack of sufficient awareness. Lack of proper regulatory and controlling system on coffee harvesting, assembling, storing, transporting and

processing activities; there is poor management and handling of coffee by farmers and lack of proper storage with adequate facilities (Gole, 2003).

2.1.9.2. Coffee Trading and Constraints

Primary coffee collectors, locally licensed coffee traders, purchase coffee from individual farmers and play an essential role of bringing coffee from very remote areas to the market. As they have no warehouses of their own, they immediately transfer the coffee to suppliers/wholesalers and there is a delay in unloading coffee at Ethiopian Commodity exchange-which creates additional costs and there is also short supply of coffee or low economics of scale for traders (Belay, 2017).

2.1.9.3 Processing and Constraints

Once the cherries are harvested, they are immediately pulped, fermented in tanks and then finally washed in clean water to remove the mucilage. Historically, over 90% of Ethiopian coffee was sun-dried. However, since washed coffee sells at significant premiums over sun-dried coffee, the government has encouraged cooperatives and traders to invest in machinery to raise the output of washed coffee. Smallholder producers mainly use sun drying methods for coffee processing and a few use hand pulpers to semi-wash their coffee. Coffee is dried on the ground due to the farmers' inability to construct drying beds because the costs of erecting them are too high. Many smallholder farmers do not own or have access to hand pulpers. This raises the transports costs and hinders immediate processing, a key requirement for wet processed coffee. High levels of river pollution are also a major problem near coffee pulping and washing stations (Belay, 2017).

2.1.9.4 Coffee Marketing and Constraints

In Ethiopia coffee marketing is between producers who sell to their cooperatives or to private traders. All traders involved are licensed by the State to undertake certain functions. As such, the buyers may only buy directly from the farmers and may only sell on the coffee to the wholesalers. The wholesalers for their part may only buy from the collectors and then deliver the coffee for auction. They may not, however, export directly. Export is the privilege of a few special exporters with the corresponding license. The cooperatives have become less relevant

since the coffee crisis, as some of them are bankrupt and others do not possess sufficient capital to buy up larger quantities of coffee (Belay, 2017).

After the breakdown of the coffee agreement they initially played an important role in fixing a minimum price. The private traders had to offer more than this price in order to buy the coffee. Today, since the cooperatives can no longer guarantee that they will buy up the harvest; private traders are in a position to demand lower prices. Where possible, the farmers in Ethiopia prefer to sell the cherries for wet-processing as higher prices may be obtained. The sale of "fresh" cherries is, however, only possible during a short period during the harvest, when prices are low across the board. Dry cherries on the other hand may be sold all year round. Many farmers are, however, forced to sell their coffee directly after harvest, to get cash. Financial pressure and a lack of information on market prices often allow the buyers to get the produce at low prices. Foreigners may neither bid at auction nor act directly as exporters. The exporters clean, sort and blend the coffee and prepare it for export (Belay, 2017).

2.1.10. The Coffee Value Chain

ICO (2015) stated that, the first stage of the coffee value chain includes process from growing to production of coffee beans involving the construction of nurseries, planting, maintenance and harvesting of mature beans (primary phase in the value chain). The second stage encompasses primary post-harvest processing of mature beans. This stage can create important added value depending on whether the red cherries undergo wet or dry processing. The third stage involves marketing and packaging. The last phase encompasses all activities included in roasting and distribution for final consumption. This last stage of value chain existence only in a limited number of coffee exporting countries and seldom occurs in Africa.

2.1. 10.1. Global Coffee Value Chain

Coffee is one of the top cash crops produced in both developed and developing countries. Coffee production is believed to be one of best cash crop for a global value chain, which indicates that by the time a coffee bean has been picked, roasted and sold it has pass through to more than one country although coffee production can be regional and sub national value chain. According to

(Bart, 2006) these, regional and sub national value chains obtain the left-over coffee which is not of high quality (i.e. producing countries receive the lowest grade coffee and export the best).

The world coffee market has experienced spectacular change over the past couple of decades because of the transformations in global policies and new obligations on the supply and demand sides (Petit, 2007). He has also stated that, these issues, jointly through technological innovations, have intensified the power irregularities among the different actors in the global value chain and created it harder for the poor growing countries to split the advantage of coffee trade.

Coffee is one of the traded commodities in both national and international market. It is considered with the organization of economic activity among market and actors. According to (Gibbon and Ponte, 2005) value chain analysis does not combine the international arrangement of production, trade and consumption of products and permits for identification of actors and geographical division. The value chain approach has been expanded by the world systems theorists and has been employed as key logical tool in studies of the coffee market. The coffee value chain can be improved through product development and positional consumption (Kaplinsky, 2006).

GIZ, 2011 explained universal value chain for the coffee industry as: first, farmers pick and dry or wet process the coffee cherries. They receive a farm-gate price for the coffee beans; the coffee cherries are continuously processed, with a factory gate price paid for both the dry and wet processed coffee cherries; they are passed to an intermediary for exportation, at the FOB price. The beans are sent to the importing countries, where they arrive at the Cost, Insurance and Freight‟ (CIF) price; They are then sold at wholesale prices; The beans are then roasted and sold at factory gate prices; Finally, retailers sell the s at retail prices to the public for domestic consumption, or for out of home consumption by restaurants, caterers and coffee bars (GIZ, 2011).

2.1.11 Coffee Production and Export in East Africa

Coffee plant is native to African countries and it was in Ethiopia that the custom of drinking coffee primary expanded. Robusta and Arabica are the two botanical varieties, originate from Africa. Robusta coffee is grown at lower altitudes whilst Arabica coffee is grown at higher altitudes and often on volcanic soils. Robusta coffee is easy and less costly to cultivate than Arabica (Moleketi, 2016). Coffee is one of cash crop for the economy of developed and developing country. It is the main source of income for more than10 million 8 households in 25 African coffee-growing countries (ICO, 2015).

According to Moleketi (2016) coffee is a fundamental source of export earning of the country besides to contributing a major share of tax income and Gross Domestic Product. Africa is the region with the largest number of coffees producing countries: 25 as opposed to 11 in Asia & Oceania, 12 in Mexico & Central America and 8 in South America (International Coffee Organization, 2015). In Africa production of coffee showed negative increase over the last 49 years. During the period between 1965/66 and 1988/89 average production were 19.4 million bags per crop year when the coffee market was regulated under the export quota system (ICO, 2015). As International Coffee Organization (2015) the four African countries in question, which account for only 9.9% of world production, are Ethiopia (3.9%), Uganda (2.6%), Côte d‟Ivoire (2.5%) and Kenya (0.9%).The most dynamic growth in African production was viewed in Ethiopia, which has recorded an average annual growth rate of 2.2% over the past 50 years, increasing to 2.7% since crop year 1989/90 (ICO, 2013).

2.1.12. Coffee Production in Ethiopia

Cultivation of coffee in Ethiopia is primarily performed by smallholders, either running garden farms or picking wild and semi-wild coffee. Approximately two thirds of the land cropped with coffee is under smallholder cultivation, whereas just under a third produces wild or semi-wild coffee. Large plantations account for a very small proportion of coffee producing land. As most of Ethiopia's coffee is either cultivated by smallholders or grows wild, it is a labor-intensive

2.1.13. The Key Actors and Institutions of Coffee value chain In Ethiopia.

A market chain is used to describe the numerous links that connect all the actors and transactions involved in the movement of agricultural goods from the farm to the final consumer. Supporting these activities are services that enable the chain to operate efficiently. Agricultural goods and products flow up the chain and money flows down the chain. The efficiency of the market chain is dependent upon how well information flows between chain actors, their level of business linkage, and the ability of services to overcome problems as they arise (USAID, 2010).

The producers under this stage in the coffee value chain of Ethiopia include small-scale farmers, private owned farmers and state firms. The major portion inters of volume of products mobilized value adding functions, market share and capital owned in coffee value chain of the country is under the hands of producers especially the large-scale private coffee plantations and state farms of coffee plantations. After the coffee is grown and matured, the following value adding activities in the value chain performed by those producers are collecting coffee chary and transporting to processing areas (USAID, 2016)

2.2.13.1 Coffee Collectors.

The most important participants in coffee value chain and they directly bought the coffee with its pulp (Jenfel coffee) and/or without pulp and sold it to suppliers or private traders for further processing activities and preparation for marketing. Coffee collectors (sebsabies‘) play an essential role of bringing coffee from very remote areas to the market by adding value augmenting the volume of coffee (USAID, 2016).

2.2.13.2 Traders (Suppliers).

Suppliers in coffee value chain of Ethiopia are those who buy coffee from collectors (both legal and illegal collectors) and sell it to either to exporters in Addis Ababa auction market or international importers. Suppliers acquire red coffee cherries from collectors or producers and process their coffee before bringing it to auction. They have hulling, washing and other sophisticated machines for processing purposes. There are wet and dry processing types performed by the processors (USAID, 2016).

2.2.13.3 Primary Cooperatives and Unions.

The primary cooperatives in Ethiopia are important participants in the coffee value chain of the country. They produce and harvest the coffee and some of them even perform some processing activities like washing pulping, sorting and finally sell it to their respective unions. The unions process the coffee or further processing. Finally further processed were packed, transported to their warehouse and make ready for export market. Here the unions have different alternatives to sell their products. They can sell directly to the international importer or to the domestic exporter through ECX. The coffee unions contact to ECX for grading systems and to follow the rules and regulation of the government of Ethiopia (USAID, 2016).

2.2.13.4 Exporters.

After the all the coffee production and processing activities are finished, it exported to the international market by exporters. Exporters found in Addis Ababa central market who received coffee from private producers, private traders and cooperative unions to sell it to the international market. These exporters bought the coffee from the central auction market through ECX. They play a significant role by searching foreign market through the linkage they have with the importers outside the country. They add a place utility to the commodity coffee. Here, the unions, the private traders and the state owned producers could also act as exporters of coffee, since they can directly sell it to the foreign importers (MOT, 2016).

2.2.13.7 Consumers.

Consumers are the ultimate users of the commodity coffee. In the coffee value chain in Ethiopia, there are varieties of consumers of coffee. These are domestic consumers and foreign consumers. The consumers present in domestic country consume directly from small-scale farmers and coffee collectors retailers throughout the country (MOT, 2016).

2.2.13.8 Service Providers at Each Value Chain.

The service provider in coffee value chain actors in the country are like Ethiopian commodity exchange main and its branch, input supplying government organizations, Woreda level administration bodies, development agents, transporters, credit and other financial service providers (commercial bank of Ethiopia, saving and credit association and other nongovernmental organizations (Belay, 2016)

2.2.14. Value Chain performance measurement

2.2.14.1. How value itself is conceptualized and measured?

Successful value chains add value to and deepen their operations while responding to market conditions in order to achieve growth and increase profitability (UNIDO, 2011).

There are three main sets of reasons in the book of (Kaplinsky& Morris, 2000): why value chain analysis is important in this era of rapid globalization. First it is very increasing importance of systemic competitiveness. Secondly, efficiency in production is only a necessary condition for successfully penetrating global markets: it helps in understanding the advantages and disadvantages of firms and countries specializing in production rather than services, and why the way in which producers are connected to final markets may influence their ability to gain from participating in global markets. Trade policies in final markets have played a role here. But, participation in global markets is not just governed by trade policies in final market countries. It also reflects the strategic decision of the lead firms in the value chains. They may have made a strategic decision to locate their activities in a particular country or region, perhaps to balance out the consequences of exchange rate movements or ethnic and nationality ties.

Thirdly, entry into global markets which allows for sustained income growth that is, making the best of globalization requires an understanding of dynamic factors within the whole value chain. It helps to explain the distribution of benefits, particularly income, to those participating in the global economy. This makes it easier to identify the policies which can be implemented to enable individual producers and countries to increase their share of these gains (Kaplinsky& Morris, 2000).

There are many ways to analyze or evaluate a value chain. Analysis can stem from research of secondary information, such as government or industry data, to interviews with industry participants Martin (2008). It can also be derived from participatory market assessments and market observations. Once the information is gathered, numerous tools and processes help interpret and inform the resulting analysis.

2.2 Empirical Review of Related Literatures

Various empirical studies were conducted on value chain analysis of coffee at different localities. The following section, due to limited space will tackle only selected previous researches:

Analysis of determinants of coffee value chain performance in case of Ethiopia by Girma (2017) indicated that coffee value chain performance determined by role of Agronomic practices of coffee, the role of government policy and regulation and the role of financial institutions are among the determinant factors of coffee value chain in Ethiopia that affect its performance in terms of improvements in contributing to Gross Domestic Production, Foreign exchange earnings and coffee sales volume improvement. They positively affect coffee value chain performance in terms of improvements in GDP, Forex earning and employment opportunity and make a positive and statistically significant but weak contribution to the economy. Availability of coffee production input supplies, mechanization or use of technologies for land preparation and irrigation and availability of highly demanded coffee seedling varieties improves coffee value chain performance in Ethiopia on average rate. Finally, the study recommended the role of each actor along the value chain is essential for effective achievements and large potential for improvement in agronomic practices of coffee production, government policy and regulation, support by financial institutions, market institutions and nongovernment organizations helps to achieve the desired objective of Coffee value chain actors.

Analysis of market chains of forest coffee for the case of Belete-Gera forest in south western Ethiopia by Zekarias *et al*., (2012) indicated that producers, assemblers and wholesalers are the major actors involved in the market chain of coffee. The result of the assessment of the market conduct revealed that price setting mechanism in the producer's market is largely determined by the benevolence of buyer whereas the existing marketing demand and supply are the major determinants in other market actors market and in evaluating market performance. The study recommended the following interventions are necessary to improve the efficiency and

performance of the existing marketing system: establishment of an improved transportation system, establishment of producers‟ cooperative, establishing of price premium system for quality product, a strong and participatory forest management strategy.

Teshale (2017) conducted a research on value chain analysis of Ethiopian Coffee (Coffee Arabica) and the research have identified the main problem that the country encountered is low-quality coffee production. The study has made out the problem is due to several causes, that can be both man-made and naturally happened due to numerous factors that affect the quality of the coffee subsector. Some of the factors are: lack of integration and commitments of the chain actors, stakeholders, institutions are the identified constraints along the coffee value chain. The study has also recommended that improvement of the government and the stakeholders capacity to create access to inputs for the producers from research institutes and extension service, Creating access to producers they get production technologies packages, Promotion of producers through cooperatives organization to benefit from direct export opportunity from the market, clear policy to support the sustainable coffee quality production through sustainable climate-smart farming and facilitate to meet with buyers' interest.

Beyench (2017) conducted a research on value chain analysis of coffee, the Case of Yirgacheffe Coffee Farmers Cooperatives Union (YCFCU) and the study specified on the relationship between actors in the chain. The result of the findings indicated that, the different actors within the chain positively affect the coffee value chain of the union. Besides, the study revealed that roles of actors, marketing relation, competition issues, Government Issue and market issue have a positive and significant effect on performance of value chain analysis of coffee. The relative importance of marketing relation is higher than other independent variables. Therefore, the implication is that actors should take an active role in managing all aspects of their performance of value chain analysis of coffee. Finally, the study recommended the role of each actor along the value chain is essential for effective achievements of the chain activities. The cooperatives have to hire experts in order to increase the quality of coffee beginning from production, the fast flow of information and knowledge between actors in the chain facilitates the day to day value adding activities therefore all actors have to usually exchange information and knowledge.

Belay (2017) conducted a research study on constraints and opportunities in the coffee supply chain analysis from Coffee Farmers to Exporters in the case of some selected districts of Ilu Aba Bor Administrative Zone, Oromia, Ethiopia. The study revealed that there is an increasing coffee production supply in the country and many actors in involved in the supply chain. But Ethiopia is very slow in expanding and diversifying (in quality and form) its coffee exports which is affected by world coffee price movements. The study also mentioned that, there are less transparent and efficient operations in coffee marketing and it sated coffee quality problems are due to handling from harvest to the final point of sale. The study recommended trainings in low productivity areas will help farmers collect sufficient coffees to have leveraging negotiation power with collectors and traders, thereby capturing better prices along the value chain.

Alemayehu (2014) conducted a research on coffee production and marketing in Ethiopia. He stated that, value chain development in forest, semi-forest and garden coffee is very important in Ethiopia. Because most of the Ethiopian agriculture exports more share depends on the outcome of forest, semi forest, garden and plantation coffee produce. The study recommends that value chain tools from production to final consumption in domestic and international market must analyze coffee production and marketing efficiency in Ethiopia. He also stated production and productivity at each level are enhanced by interlinking producers and supporters to develop novel value chain in coffee sector.

In addition, an analysis of coffee quality along the coffee value chain in Jimma zone, Ethiopia has been conducted by Kassaye*et al.,* (2018). His study results indicated that, coffee beans managed by cooperatives had better quality scores than beans managed by private traders. Coffee certification, on the other hand, did not result in any quality improvement. Coffee beans from farmers, non-members of cooperatives had better quality than coffee beans of private traders. In addition, the study revealed that dry processing method improved coffee bean quality at high percentage.

Stephen Mc Carthy (2007) made a case study on Ethiopia's coffee cooperatives and he has concluded some of the main constraints facing smallholder coffee producers like: poverty, illiteracy, lack of understanding on the parts of government of policy environment needed for successful integration of rural producers, business environment and provision of service favors

upper end of the value chain, globalization(rapidly changing market environment), poor vertical and horizontal linkages in industry, economies of scale poor infrastructure and lack of trained personnel are major constraints in coffee marketing cooperatives in Ethiopia.

Admasu (1998) conducted a study on Performance evaluation of coffee marketing in Sidamo zone and the study analyzed the performance of coffee marketing system with the aim of evaluating the overall performance of coffee marketing and concluded that there was marketing inefficiencies dominant in the system. He has also potted that the pricing inefficiencies, lack of standardizations at rural market centers, lack of appropriate price information system, abnormal profit in marketing, lack of short run integration between central and local prices.

2.3. Conceptual Framework

The study was introducing a conceptual framework that investigates the Factors Affecting value chain analysis of coffee in Sheka zone. Based on theoretical concepts and empirical studies in coffee sectors, a framework is presented in figure 2.3. The conceptual framework considered multi- dimensional factors. As shown in the framework, the performance of value analysis of coffee is influenced by various factors like Government policy, finance, supply, and access to market, access to information, agronomic practice and length of market chain and physical factors like land, labor and capital. The framework incorporated all the actions involved from the stage of coffee harvesting until it reaches the point of consumption. This involves various actors either in the local districts and national level.

2.3.1. Definition of Variables

2.3.1.1. Finance

The biggest problem of the coffee value chain actors is the shortage of funds with which to done the task related with coffee. They finance their transactions using credit from banks. In cases in which they are unable to repay the credit, they are not granted new credit. Some past purchase records of value chain actor's show some years without any purchases because of their failure to repay the banks. Financial constraints limit the amount of coffee purchased. The coffee cooperatives overall require sufficient funds to correctly do their activities. The assets of the cooperatives might come from their members in the form of saving from financial institutions through credit and if the financial position of the coffee cooperatives is weak their business activities will be affected negatively (Beyench, 2016).

2.3.1.2. Access to market

Play great role for the traded of different commodities. The nearest end markets are the critical point of the value chain analysis. In the coffee sector end market are both local and export market. End markets determine the characteristics including price, quality, quantity and timing of product or service delivery of the other actors. In addition, end markets are the source of power for the performance of actors of the downstream chain. In the coffee value chain both local and

export market influenced the chain activities. For instance, if the demand for coffee in international market is increased the export amount of coffee will be increased this also impact the amount of coffee provided for local market. Moreover, if the coffee value chain actors had no market place in its nearer, costs related to transportation and storage will be increased and the does not achieved their desired objective (Beyench, 2016).

2.3.1.3. Access to information

Access to extension information and new agricultural technologies is critical for economic viability and market competitiveness of smallholder production. Many producer organizations therefore seek to improve members' access to agricultural technologies (e.g. improved varieties) and know-how on productivity-enhancing and/or risk-reducing management practices, including post-harvest grain handling and storage. In addition to agricultural extension, opportunities also exist for producer organizations to ensure improved access to inputs such as seed, fertilizer and credit. Such access to extension and technologies plays an important role in increasing productivity and enhancing coffee security. Evidence from Latin America suggests that in the case of low value commodities such as grains, collective action makes more sense when it comes to accessing inputs, such as improved seed, rather than marketing grain in output chains (Hellin *et al* 2009).

2.3.1.4. Government Policy

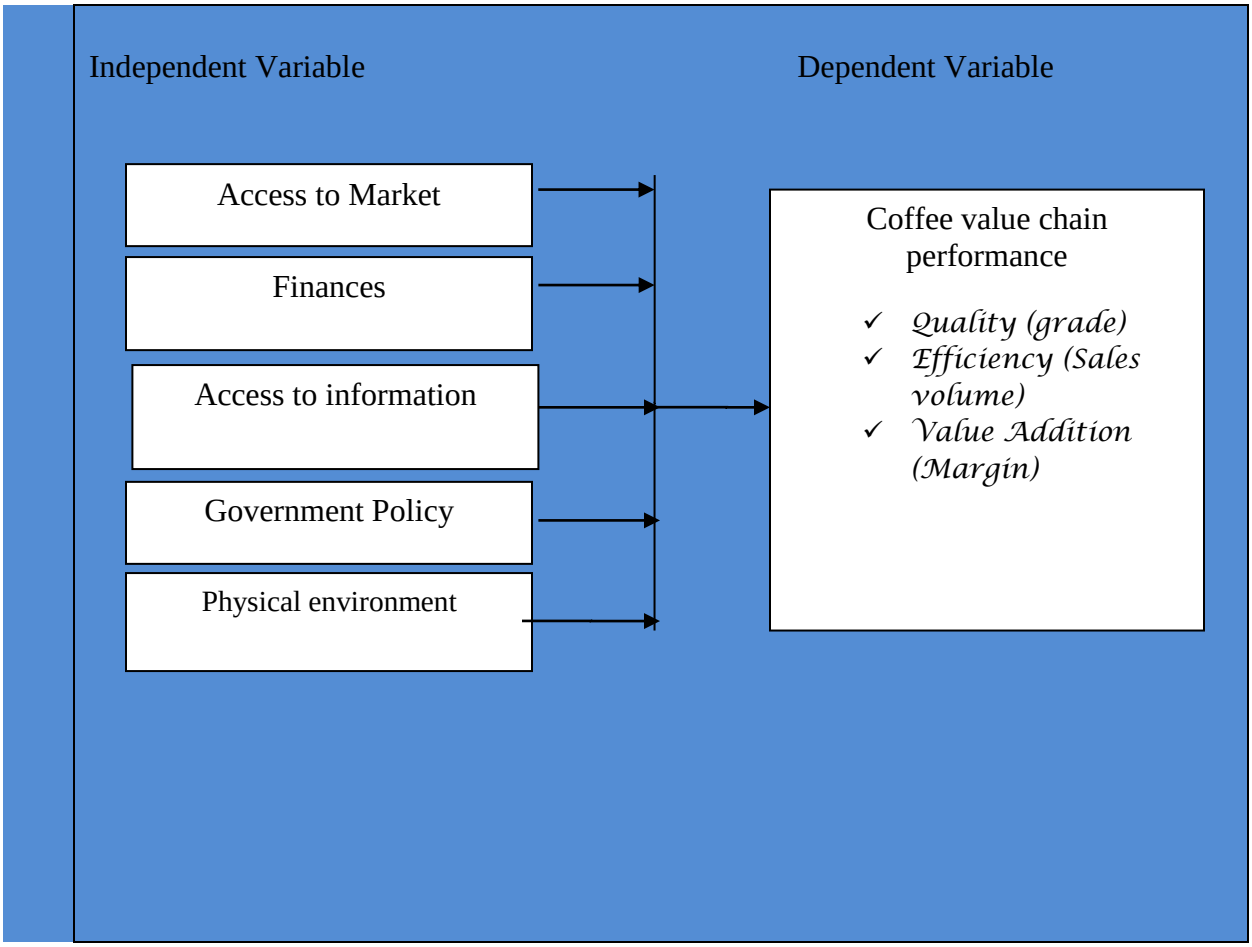
On agriculture in general and specifically in the coffee value chain actors sector in particular affect the coffee value chain activities. For instance, with the aim of securing better price in coffee market and entering into export marketing, Ethiopian government promulgated proclamation no 147/1998. The proclamation outlines the layered organizational structure of the value chain actors, which was not permitted by the previous regime (Beyench, 2016).

2.3.1.5. Physical environment

Coffee production is labor intensive with minimal use of capital. This makes labor the most important input. Human resource is the most essential factor for the achievements of activities. The availability of skilled man power in the day to day operation of the task related with Coffee would strength the internal as well as the external work motive of the staffs. In today's

competitive environment if organizations need to survive in the business they have to focus on their human power. Moreover, the physical resources like infrastructural facilities also influence the value chain actors. If the study area has no infrastructural facilities, the achievement of their desired objective will be influenced.

Figure.2.3: Conceptual Framework of Factors Affecting Coffee value chain



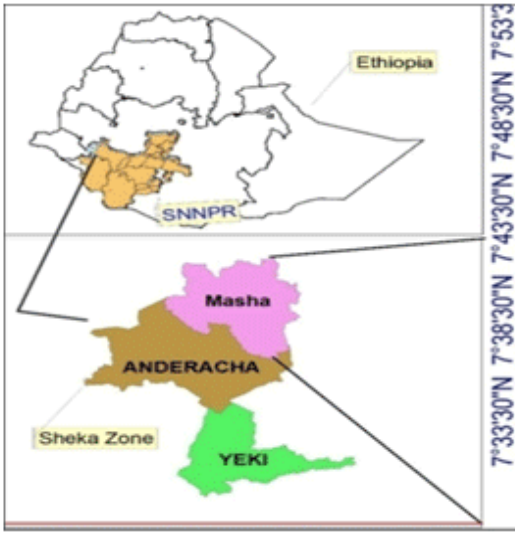
Source: own conceptualization

CHAPTER THREE: METHODOLOGY OF STUDY

3.1. Description of the Study Area

The study will be conducted in southwest Ethiopia, Yeki Woreda, Masha woreda and Andracha woreda of Sheka Zone. Yeki Woreda, Masha and Andracha woreda are the three woreda of sheka zone of Southern Nation Nationalities and Peoples Region (SNNPR), which is located at 677 km to southwest of Addis Ababa. Sheka Zone is known by its dense forest coverage and the agro ecology is 70% mid altitude, 20% high altitude and 10% low altitudes. The zone composes of three districts, viz., Yeki, Andracha and Masha. Its altitude ranges from 950 to 3300 m above sea level. Mean rainfall level is more than 2000 mm. Major crops grown in the area are enset, sorghum, maize, coffee, potato, field pea, fava bean, wheat, barley, haricot bean and teff. Total land coverage of the area is 217,527.15 hectare and from this 26% is for cultivation, 41.3% plantations, 2.24% pasture, 8.96% cultivable and 3.5% uncultivable land. The districts selected for this study are based on its potential for coffee production in the southwestern part of Ethiopia. Yeki, Masha and Andracha district are composed of 22, 19 and 16 rural kebeles respectively. Among these, the study will be conducted in two kebele, viz,Kubuto and Erimich from Yekiworeda, keja and uwakebele, from Masha woreda and Gamadro and Geyikebele, from Andrachaworeda as indicated in Fig. 3.1. The districts are purposively selected for the following reasons: First, the districts did not receive enough attentions and supports from other development projects to enhance coffee production and productivity. Second, the districts have a high potential of coffee production and productivity (Sheka Zone Agriculture Office, 2018).

Figure.3. 1: Location of study area



3.2. Research Approach

To realize the target and provide a conclusive answer for the research questions outlined in chapter one, the study employed a mixed approach, by which both qualitative and quantitative methods were used. The reason behind is to better understand the reality in both objective and subjective dimensions and to benefit from the different advantages of the two methods like; better explaining and generalizing. Though, it used mixed approach, most of the data were gathered using quantitative approach and the qualitative approach was used to cover subjective issues, to better explain realities, and to triangulate findings of the quantitative data. Hence, it was sequential explanatory design to help examine, explain, and contextualize quantitative findings.

3.3. Research Design

Research design is a blueprint for empirical research aimed at answering specific research questions or testing specific hypotheses through specifying the methods and procedures for collecting and analyzing the needed information (Bhattacherjee, 2012). Descriptive and explanatory research designs were also used. The Descriptive research design was used to understand and systematically describe the factors affecting value chain performance of Coffee.

According to Mugenda (2003) a descriptive research is a process of collecting data in order to answer questions concerning the current status of the subjects in the study. The purpose of a descriptive research is to determine and report the way things are done. Descriptive research was used to obtain information concerning the current status of the phenomena to describe what exists with respect to variables or conditions in a situation. The methods involved a range of activities: from the survey which describes the status quo to the regression study which investigates the relationship between variables. The primary use of descriptive statistics is to describe information or data through the use of numbers (create number of pictures of the information). The explanatory research designs are concerned with determining the impact and cause and effect relationships among variables. Therefore, this research employed descriptive and explanatory research approaches in order to give an adequate depiction of the association between the factors affecting value chain performance of coffee in case of Sheka Zone, South West Ethiopia.

3.4. Population and Sample

Preliminary information concerning study area was obtained from District agricultural office to get important information to select study kebeles. In this study, three-stage sampling technique was followed. In the first stage potential districts for coffee production and marketing were purposively selected. At the second stage, among the 57Kebeles of three woredas, 6 Kebeles were again purposively selected based on the intensity of production and marketing of coffee and for this reason, I was selected purposive sampling to gather key data from key informant from three districts. In the third stage, coffee value chain actors' respondents were selected randomly for the interview from six kebeles. Thus, using the respondents list, 197 respondents were selected randomly (Table3.1). In addition, Key informant interview were conducted with the officials of cooperatives and executes of union, ECX officials and Exporters. On the other hand, the study also employed information from secondary sources such as district coffee marketing cooperatives, Federal Cooperatives Agency, Ethiopia Coffee and Tea Authority and Sheka Zones Coffee Farmers Cooperatives Union. The next step was determining the actual sample size. The sample size was determined based on the following simplified formula (Yemane, 1967).

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

Where, **n** is number of respondent farmers,

N is the total number of coffee value chain actors,

e is the precision level. A 95% confidence level was taken and e= 0.05

Table.3.1: Sample size distribution in the sample rural kebeles

Kebeles	Total number of respondents	Sample size	Percent
Keja	**57**	**29**	**14.72**
Uwaa	**81**	**40**	**20.3**
Gemadro	**86**	**42**	**21.32**
Geyi	**76**	**38**	**19.29**
Kubuto	**50**	**25**	**12.7**
Ermichi	**40**	**20**	**10.15**
Total	**390**	**197**	**100**

3.5. Data Source and Type

The study used both primary and secondary sources of data. Primary sources was extracted in order to realize its objective and to describe the relationship between the independent and dependent variables and to see value chain actors perception, the study collected most of the data using survey questionnaire. The data was collected from Coffee value chain actors of Sheka Zone, South West Ethiopia. Semi structured and unstructured interview with cooperative union expert, ECX officials and Exporters was also conducted. Secondary data was collected from reports, books, and published and unpublished documents to make the study comprehensive. To support the findings from the questionnaire, review of related literature was conducted to compare the alignment of the research findings with previous studies and enrich the findings.

3.6. Data Collection Procedures

Information used in the study was collected through questionnaire and interview. The questionnaire prepared to be self-explanatory, and it allowed categorizing factors affecting value chain performance and was expected to answer the research questions, based on different literatures on value chain. It has three major parts (in addition to the one which introduces the purpose, ethical considerations, and over all guide). The first part was about the respondents‟ background information like gender, age, education, experiences .The second part contained a 5-point "Likert" scale with 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree questions related to factors affecting value chain performance in Sheka Zone, South West Ethiopia. The third part contains open-ended question to get opinion and suggestions of respondents to improve the value chain performance.

3.7. Data Analysis

Data obtained through questionnaire was cleaned, categorized, analyzed and then presented using both descriptive and inferential statistical methods. Descriptive statistics allowed the researcher to describe the data and examine relationships between variables, while inferential statistics will allow the researcher to examine causal relationships‟ (Geoffrey, David, and David, 2005: 209). The data gathered from questionnaires were examined and validated by checking the answers and numbering them. Descriptive statistics including percentage analysis, mean, standard deviation, tables and graphs, was used to describe and summarize responses. Inferential statistics was used to draw conclusions about the reliability and generalizability of the findings. Accordingly, Pearson Product-Moment Correlation Coefficient was used to understand the relationship between the dependent and independent variables; Linear Regression Analysis to understand the significance and effect of each factors affecting value chain of coffee on the value chain performance.

The regression equation was:

$Y=\beta0+\beta1X1+\beta2X2+\beta3X3+\beta4X4+\beta5X5+\alpha$

Where: Y is the dependent variable (value chain performance)

$\beta0$: is the regression coefficient.

$\beta1$, $\beta2$, $\beta3$, $\beta4$ and$\beta5$: are the slopes of the regression equation.

X1: Finance

X2: Access to market

X3: Access to information

X4: Government policy

X5: Physical environment

Analysis of Variance (ANOVA) was used to clearly spot the difference on factors affecting and value chain performance. To process data, Statistical Package for Social Science (SPSS) version 20 was used. Data obtained from key informant interview was summarized, and triangulated to get an over rounded understanding on the study's subject matter and to better generalize findings of qualitative data. Data for the objective evidence of implications in Efficiency and Quality was examined in order to evaluate the subsector's performance in chronological order. In order to compare coffee value chain performance in time series basis, average export rate of Coffee 3 years before and 7 years after the establishment of Sheka Zone Cooperative unions is considered as a measuring parameter by the researcher as coffee was used to be exported in a different manner before Sheka Zone Cooperative unions was established.

3.8. ETHICAL CONSIDERATION

Confidentiality was ensured for the information by not recording the name of the respondent or other identifiers. While conducting the research, respondents was informed that the data collection process was carried out whenever they were willing to cooperate. In addition to this, any information collected via the instrument would never be used for any other purpose other than its academic intent i.e. the data would be kept confidential.

3.9. VALIDITY AND RELIABILITY TEST

The content validity was assured by using multiple sources of data (literature such as previous studies, expert interviews) to develop and refine the model and measures. The construct validity which deals with the consistency of the questions was assured by structuring the questionnaire according to the specific objectives. To ensure internal validity, the research builds on explanations drawn from supply chain management theory and existent literature, and addresses rival explanations for the results. The study concludes on the value of findings for practitioners and researchers and confirms that the findings were generalizable for external validity.

3.10. Reliability Test

Internal consistency of the items constituting the dimensions of the independent and dependent variables was checked by using Cronbach‟s alpha. Accordingly, the reliability of the study instrument has been determined by evaluating the average correlation among items in the scales of the respective dimensions representing the independent and dependent variables as suggested by Chen et al. (2004). The resulting Cronbach‟s alpha values of the dimensions are presented in the following table

Table.3.2. Reliability of questioner Dimension

Category	Cronbach‟s Alpha (α)	No. of Items
Finance	.824	5
Access to market	.838	6
Access to information	.834	7
Government policy	.775	6
Physical environment	.788	6
Value chain performance	.796	11
Over all reliability	0.881	41

Source: Survey result, 2019 respondents‟ opinion analyzed using SPSS version 20

Looking at a glance at the above table implies that all alpha values for the respective dimensions were well above the suggested cut-off value of 0.7 (Cronbach, 1951), hence implying the reliability of the instrument that measures the study constructs, i.e. the items under the respective scales could properly measure the dimension/variables of concern. The overall alpha value was 0.881.

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1. Introduction

This part is dedicated to the analysis of the study data, presentation and discussion of the research. Accordingly, for the interest of keeping logical flow of the presentation, subsequent to instrument normality test the demographic information of respondents is highlighted, followed by the presentation of descriptive statistics, correlation analysis and linear regression analysis in that order. Out of the total of 197 questionnaires that were distributed to all coffee value chain actors, 178 (90.35%) properly filled questionnaires were collected and used for the analysis. The data collected from the target population was analyzed using SPSS version 20.

Table.4.1: Missing data on variables basis

Model	N	Missing	
		Count	Count
Finance	178	0	.0
Access to market	178	0	.0
Access to information	178	0	.0
Government policy	178	0	.0
Physical environments	178	0	.0

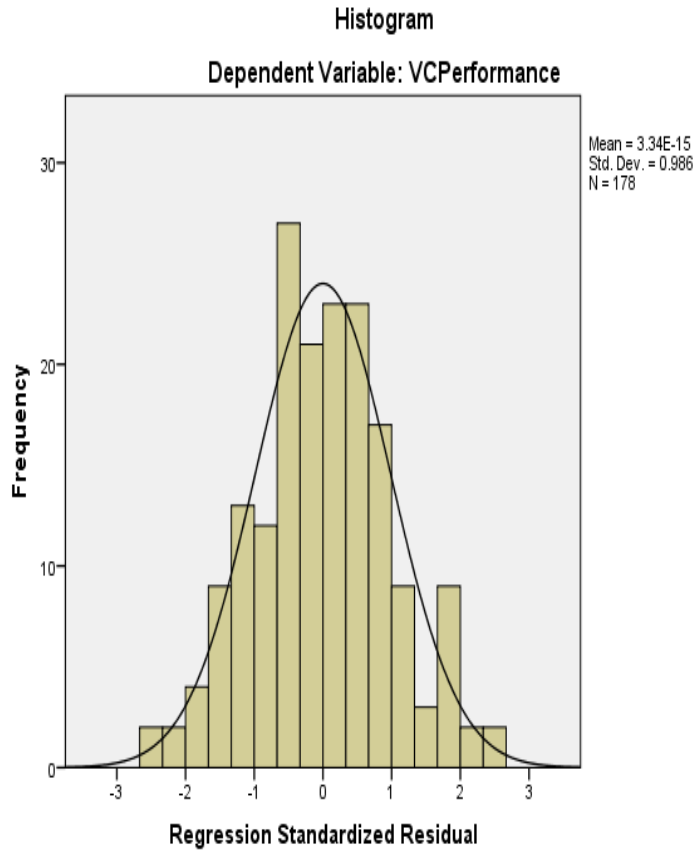
a. Number of cases outside the range (Q1 - 1.5*IQR, Q3 + 1.5*IQR).

Source: Survey result, 2019 respondents‟ opinion analyzed using SPSS version 20

4.2. Outliers and normality

Test of Normality Assumption: Normal distribution of the variables is one of the linear regression model requirement or assumptions that have to be met up. This means that errors terms are normally distributed, and that a plot of the values of the residuals will approximate a normal distribution curve. And, if the error terms not normally distributed, the linear relationships and significance test can be distorted (Osborne & Waters, 2002). Therefore, this was no normality assumption problem for this study.

Figure.4.1. Test of Normality Assumption



Source: Survey result, 2019 respondents‟ opinion analyzed using SPSS version 20

Table.4.2. Normality distribution

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Finance	178	.587	.182	-.173	.362
Access to market	178	.793	.182	1.314	.362
Access to information	178	1.416	.182	0.942	.362
Government policy	178	1.015	.182	.801	.362
Physical environments	178	1.067	.182	.372	.362

Source: Survey result, 2019 respondents‟ opinion analyzed using SPSS version 20

To determine the seriousness of Skewness and Kurtosis of the distribution. Fisher skewness and kurtosis coefficient can be used (kellar and kelivan, 2012). If the result has fails between -1.96 and 1.96. It suggests that the distribution is not significantly different from normal distribution (kellar and kelivan 2012). Table 13 and figure 4.1showed that, the Fishers skewness and kurtosis coefficient of the study where lies between -1.96 and 1.96 and therefore the data where free from any skweenes and kurtosis issue. A variable with an absolute value of kurtosis index greater than10.0 indicates there is a problem with normality and value greater than 20.0 indicates a more serious normality problem (kilne, 2005,). Therefore, the acceptable absolute value of skewness and kurtosis should not exceed three and ten respectively.

Table.4.4. Respondents' demography information

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	**Male**	**128**	**71.9**	**71.9**	**71.9**
	Female	**50**	**28.1**	**28.1**	**100.0**
	Total	**178**	**100.0**	**100.0**	
Age	**less than 20 years**	**18**	**10.1**	**10.1**	**10.1**
	20 to 29 years	**54**	**30.3**	**30.3**	**40.4**
	30 to 39 years	**71**	**39.9**	**39.9**	**80.3**
	40 to 49 years	**29**	**16.3**	**16.3**	**96.6**
	Above 50 years	**6**	**3.4**	**3.4**	**100.0**
	Total	**178**	**100.0**	**100.0**	
Marital status	**Single**	**54**	**30.3**	**30.3**	**30.3**
	Married	**97**	**54.5**	**54.5**	**84.8**
	Divorced	**16**	**9.0**	**9.0**	**93.8**
	Widowed	**11**	**6.2**	**6.2**	**100.0**
	Total	**178**	**100.0**	**100.0**	
Education	**Illiterate**	**38**	**21.3**	**21.3**	**21.3**
	1 to 4 Grade	**60**	**33.7**	**33.7**	**55.1**
	5 to 8 Grade	**46**	**25.8**	**25.8**	**80.9**
	9 to 12 Grade	**24**	**13.5**	**13.5**	**94.4**
	Above grade 12	**10**	**5.6**	**5.6**	**100.0**
	Total	**178**	**100.0**	**100.0**	
Experience	**Less than 5 years**	**30**	**16.9**	**16.9**	**16.9**
	5 to 10 years	**67**	**37.6**	**37.6**	**54.5**
	11 to 15 years	**60**	**33.7**	**33.7**	**88.2**
	Above 15 years	**21**	**11.8**	**11.8**	**100.0**
	Total	**178**	**100.0**	**100.0**	

Source: Survey result, 2019 respondents‟ opinion analyzed using SPSS version 20

As depicted on the table, males dominate the respondents‟ list registering about 71.9% of the total respondent with females taking the remaining 28.1% of the respondents. As far as respondents‟ age is concerned, the majority of the respondents (57.69%) were aged between 31-40 years followed by the age categories of 20-30 years, 41 to 50 and above 50 years respectively with percentage scores of 26.92%, 11.54% and 3.85% in that order.

Regarding the age group of the respondents, the larger portion of the respondents that is 79(39.9%) falls within the age group of 30-39 and 54(30.3%) respondents' falls within the age group from 20 to 29 and 29(16.3%)respondents' falls within the age group from 40-49 years and less than 20 years and above 50 years hold 18 (10.1%) and 6 (3.4%) number of respondent respectively. From this the researcher can say that 172 (96.6%) coffee value chain actors is filled with most actively working age group that can be able to transform the mission and vision of the coffee value chain into reality.

As depicted from the above table concerning marital status, 54.5% were married. While, 30.3%,9%and 6.2% of the respondents were, single, divorce and widowed respectively. Therefore majority of members were married. From this one can conclude that they carry out different activates responsibly.

As showed from the above table, out of 178 of respondents', 60 (33.7%) attended 1 to 4grades, 46(25.8%) attended 5 to 8 grades, 24(13.5) attended 9 to 12 grade and 10(5.6%) attended above grade 12 but therest38 (21.3%) were illiterate or had not received any type of education.

On the other hand, an essential descriptor of the profile of the respondents - years of experience under the coffee value chain was also assessed and it has been revealed that those who have experienced 5 to 10 years and 11 to 15 years dominate the list by taking 37.6% and 33.7% of the entire respondents respectively. Those who have experienced less than 5 years, on the coffee value chain of concern came third on the ladder followed by the category of respondents who have experienced above 16 years.

4.3. Descriptive Analysis

Descriptive statistics was assessed in an effort to examine the mean scores and the corresponding standard deviations under the respective scales of both the dimensions of the independent variable, namely finance, access to market, access to information, government policy and physical environments and the dependent variable, namely coffee value chain performance of Sheka Zone South West Ethiopia). Hence, this particular endeavor has the merit of answering some of the research questions on the basis of the perceptions of the respondents on the level of factors affecting value chain performance in the value chain actors.

NB. Mean value>2.5 high, Mean=2.5 moderate, Mean<2.5 low

The resulting composite scores of mean and standard deviation are presented on Table below as follows.

4.3.1. Finance

The descriptive statistics of the variables of the study is presented in the following section. The mean score of items that finance cover is presented in the following table.

Table4.5. Mean score of finance

S.NO.	Finance	N	mean	Std. Deviation
1	Financial institutions like Banks and Credit & Saving Institutions are available and accessible in proximity to Coffee farmers, suppliers, exporters and other market actor	178	1.67	.741
2	Financial institutions like Banks and Credit and Saving Institutions provide support for value chain actors in promoting market linkage and logistics of coffee trade	178	1.58	.617
3	Coffee trade actors: farmers, suppliers, exporters, processors can get access to finance to run Coffee related tasks like production, transportation and marketing	178	1.52	.613
4	Financial institutions in Sheka Zone (Banks both private and Government; Credit & Saving Institutions) encourage modern farming of Coffee by providing the necessary loan and subsidy	178	1.45	.620
5	The credit you get enough for production, processing and other tasks	178	1.46	.639

Source: Survey result, 2019 respondents‟ opinion analyzed using SPSS version 20

In table 4.5 findings of this study showed that all the mean score of items under the finance scored merely below moderate agreement value. Respondents complained that the coffee trade processors cannot get access to finance to run Coffee related tasks like production, transportation and marketing, Financial institutions like Banks and Credit & Saving Institutions are unavailable and not accessible financial institutions in Sheka Zone (Banks both private and Government; Credit & Saving Institutions) did not encourage modern farming of Coffee by providing the necessary loan and subsidy nearly modest stage in the areas enhancing quality and adequate supply of coffee, promoting availability of supply of production inputs, promoting market linkage and access to market information, financial supports in coffee trade related investments, Findings are in line with other research that investigated finance, with respect to value chain performance (Beyench, 2016) and also the key informant interview result support the above responses. This research reinforces the significant influence of finance market on value chain performance in Sheka Zones.

4.3.2. Access to market

The descriptive statistics of the variables of the study is presented in the following section. The mean score of items that access to market cover is presented in the following table.

Table.4.6. Mean score of Access to market

S.NO.	Access to market	N	mean	Std. Deviation
1	Coffee value chain actors have a nearby market to sell coffee	178	1.67	.741
2	Coffee value chain actors have access to international market to sell coffee	178	1.58	.617
3	Coffee types/varieties that meet customer demand are available in a nearby market	178	1.52	.613
4	Coffee value chain actors have a nearby market to buy Coffee production and processing equipment supply	178	1.45	.620
5	Farmers, traders and exporters can fully reach out Coffee market destinations	178	1.46	.639
6	Availability of all-weather alternative roads for use to access nearby market when main roads are damaged or blocked	178	1.62	.712

Source: Survey result, 2019 respondents‟ opinion analyzed using SPSS version 20

All items under the access to market scored lower than the moderate agreement value. The findings showed that there is problem related with a nearby market to sell coffee, access to international market to sell coffee, insufficient availability Coffee types/varieties does not meet

customer demand in a nearby market, actors did not fully reach out Coffee market destinations and insufficient availability of all-weather alternative roads for use to access nearby market when main roads are damaged or blocked. This indicates that coffee value chain obstacles in relation to marketing did not perform well. Findings are in line with other research that investigated access to market by Margaret NjeriGathura, (2013) in GithunguriDistrict,Kenya, (Beyenech.2016) and (Girma, 2017) in Ethiopia suggested that marketing is one factor that affects the coffee value chain and also the key informant interview result support the above responses. Therefore based on this finding one can conclude that access to market is one of the problem that prohibit the effective achievement of the actors roles in the coffee value chain. This research reinforces the significant influence of access to market on value chain performance inSheka Zones.

4.3.3. Access to information

The descriptive statistics of the variables of the study is presented in the following section. The mean score of items that access to information cover is presented in the following table.

Table.4.7. Mean score of access to information

S.NO.	Access to information	N	Mean	Std. Deviation
1	Coffee value chain actors have access to quality information	178	1.55	.592
2	Adequate information can flows to and from supplier in value chain activities	178	1.44	.629
3	Actors share information in the value chain to enables accurate and faster business decision making and enhances the adoption of value chain performance	178	1.60	.701
4	Actors disseminate information through use of effective ICT resources in proper functioning of strong value chain performance	178	1.57	.772
5	Information about market requirements and developments, equipment and input factors for production, loans and technical assistance and training are kind of information do you get from each other	178	1.48	.640
6	Members have access to mass media (TV, Radio, Internet)	178	1.37	.636
7	Actors regularly update the information on value chain of coffee	178	1.61	.782

Source: Survey result, 2019 respondents‟ opinion analyzed using SPSS version 20

In table 4.8 findings of this study showed that all the mean score of items under access to market scored merely below moderate agreement value. The finding implying that access to information is the major factor for coffee value chain performance. Findings are in line with other research that investigated access to information, with respect to value chain performance (Belay, 2016)

and also the key informant interview result support the above responses. This research reinforces the significant influence of finance market on supply chain performance in Sheka Zones

4.3.4. Government policy

The descriptive statistics of the variables of the study is presented in the following section. The mean score of items that government policy covers is presented in the following table.

Table4.8. Mean score of government policy

S.NO.	Government policy	N	Mean	Std. Deviation
1	There is proper government regulation in place that contributes to adequate supply of inputs	178	1.65	.776
2	There is favorable regulation in place that improves market efficiency at the output side	178	1.63	.787
3	Coffee growing areas have full attention and support from concerned Government body	178	1.66	.788
4	Famers, traders, processors, and exporters can get Coffee that reflects their needs	178	1.83	.971
5	There is a supportive policy in place to improve the volume and quality of Coffee in Sheka zone	178	1.95	.964
6	The current policy of government is Favorable for farmers and cooperative expansion	178	1.88	.964

Source: Survey result, 2019 respondents" opinion analyzed using SPSS versn

In table 4.8 all items under the government policy scored lower than the moderate agreement value. The findings showed that there is problem related with government policy'. That promotes and enhances the adequate supply of inputs, favorable regulation in place that improves market efficiency at the output side, supportive policy in place to improve the volume and quality of Coffee in Sheka Zone.

Findings are in line with other research that investigated government design different proclamations that facilitate the development of cooperatives in the country. In addition to all these values, was found from the document that there had been government support for different coffee value chain actors established in the country. This finding in line with agreement with the paper presented by Kifle, (2015) at the National Conference Organized by Mekelle University and Federal Cooperative Agency (FCA) pointed out that the existence of clear and accommodating governmental policy and all-inclusive structures and the government's commitment to transform the subsistence economy have created conducive environment for the

development of voluntary based cooperatives in the country**.** This research reinforces the significant influence of finance market on supply chain performance in Sheka Zones.

4.3.5. Physical environment

The descriptive statistics of the variables of the study is presented in the following section. The mean score of items that physical environment is presented in the following table.

Table.4.9. Mean score of physical environment

S.NO.	Physical environment	N	Mean	Std. Deviation
1	Coffee production and processing equipment supply is adequate	178	1.75	.849
2	The farmers have adequate capital for farming	178	1.70	.808
3	The farmers have adequate labor for farming	178	1.81	.905
4	The farmers have adequate land size for farming	178	2.06	1.024
5	Members have access to transportation, telephone and electric power	178	1.83	.930
6	The environment is favorable for farming	178	1.78	.878

Source: Survey result, 2019 respondents" opinion analyzed using SPSS version 20

In table 4.9 findings of this study showed that all the mean score of items under physical environment scored merely below moderate agreement value. This result also agreed with findings of earlier studies of Beyench (2016), and also the key informant interview result support the above responses. Lack of infrastructure, lack of adequate inputs for processing of coffee are the major factors in coffee value chain among actors. The results in this study are reliable with other similar studies. Therefore from this result one can conclude that the physical environments are one of the problems in the coffee value chain.

Table.4.10. Mean score of Coffee value chain performance

S.NO.	**Coffee value chain performance**	N	Mean	Std. Deviation
	Effects On Quality			
1	Actors have gets supporting from different organization to produce quality coffee	178	1.65	.776
2	Actors have adequate awareness about quality parameters used by ECX	178	1.74	.832
3	Actors have adequate awareness about the coffee quality controlling guideline or procedures used to in the ECX	178	1.62	.704
4	Actors deliver quality product and service to the customers whenever needed (On reasonable response time)	178	1.53	.674
	Effects on Efficiency			

5	The operational efficiency of all actors can be supported by NGO	178	1.44	.610
6	Actors deliver product and service to market quickly	178	1.63	.679
7	Actors deliver coffee to the customers whenever needed (On reasonable response time)	178	1.67	.741
8	Actors have frequently interacted with customers to set reliability and responsiveness.	178	1.58	.617
	Effects on value addition			
9	Actors have adequate awareness about the coffee value addition guideline or procedures	178	1.52	.613
10	Actors have add value on coffee in each value chain step	178	1.45	.620
11	Extension service on value addition is adequate in improving functioning of value Chain activities	178	1.57	.695

Source: Survey result, 2019 respondents" opinion analyzed using SPSS version 20

In table 4.10 findings of this study showed that all the mean score of items under coffee value chain performance scored merely below moderate agreement value. The coffee value chain respondents believe that only minimal efforts have been made to promote coffee value chain performance in terms of quality, efficiency and value addition. These imply the fact that the job engagement attempts made by respective performers are not as such significant pertaining to coffee value chain in order to provide quality coffee with efficient way by adding values on coffee in each value chain step.

Table4.11. Composite scores of mean and standard deviation

S.NO.	**Dimensions/Scale**	N	Mean	Std. Deviation
1	Finance	178	1.6135	.36613
2	Access to market	178	1.5515	.30991
3	Access to information	178	1.5177	.31043
4	Government policy	178	1.7669	.56425
5	Physical environment	178	1.8212	.63434
6	Coffee value chain performance	178	1.5766	.27868

Source: Survey result, 2019 respondents" opinion analyzed using SPSS version 20

The mean values of each of the variables listed based on their mean value and intensity of factors. Such as access to information, access to market, finance, government policy and physical environments of the value chain actors were calculated between 1.51, 1.55, 1.61, 1.76, and 1.82 and with standard deviations 0.31, 0.30, 0.36, 0.56 and 0.63 respectively

The lowest mean values were registered in the case of all variables. The coffee value chain respondents believe that only minimal efforts have been made to promote coffee value chain performance these imply the fact that the job engagement attempts made by respective performers are not as such significant pertaining to coffee value chain. It also suggests that the existing platform for the timely performing of value chain activities with the prevailing information, access to market, finance and government policy are moderate in speeding up to coffee value chain actors. The same is true for coffee value chain performance their mean value scored below average job engagement attempts made by respective performers Quality, Efficiency and Value addition are not as such significant pertaining for value chain performance. Findings are in line with other research that investigated with respect to value chain performance (Belay, 2016) and (Girma, 2017).

Table4.12. Weighted means and Rank of variables

S.NO.	**Dimensions/Scale**	N	Weighted mean	Std. Deviation	Rank
1	Access to information	178	1.5177	.31043	1
2	Access to market	178	1.5515	.30991	2
3	Finance	178	1.6135	.36613	3
4	Government policy	178	1.7669	.56425	4
5	Physical environment	178	1.8212	.63434	5

Source: Survey result, 2019 respondents" opinion analyzed using SPSS version 20

As depicted from the above table access to information and access to market with mean value of 1.51, 1.55 strongly affects the value chain performance of coffee. Finance, Government policy Access to environment with mean value of 1.61, 1.76 and 1.82 took the third, fourth and fifth rank for the effect on performance of value chain analysis of coffee respectively. Therefore concerned stakeholders have to consider the rank of these variables to take measurements accordingly.

Findings are in line with other research that investigated with respect to value chain performance (Beyenech, 2016) and Girma, 2017) and also the key informant interview result support the above responses.

4.4. Correlation Analysis

Correlation analysis was conducted to determine whether a statistically significant relationship exists between the dimensions of value chain factors (i.e. finance, access to market, access to information, government policy and physical environments and the dependent variable, namely coffee value chain performance. Correlation analysis helps to determine the relationship among variables by giving insight on the strength and direction of relationship. The coefficient of correlation could take values ranging from -1 to +1, where the signs signifying the direction of relationship. A correlation value of 0 implies the absence of relationship among variables, a result between 0.1 and 0.3 indicates weak relationship, whereas a result between 0.4 and 0.6, and 0.7 and 0.9 imply respectively moderate and strong relationships among variables, while a correlation coefficient of 1 suggests a perfect relationship (Dancy and Reidy, 2004).

The result of the correlation analysis conducted to assess the association between the dimensions of finance, access to market, access to information, government policy and physical environments and the dependent variable, namely coffee value chain performance is presented on the subsequent table:

Table4.13. Correlations

		Finance	Access to market	Access to information	Government Policy	Physical Environment	Value chain performance
Finance	Pearson Correlation	1	.198**	.349**	.539**	.512**	.549**
	Sig. (2-tailed)		.008	.000	.000	.000	.000
Access to market	Pearson Correlation		1	.267**	.421**	.416**	.663**
	Sig. (2-tailed)			.000	.000	.000	.000
Access to information	Pearson Correlation			1	.434**	.460**	.513**
	Sig. (2-tailed)				.000	.000	.000
Government Policy	Pearson Correlation				1	.780**	.703**
	Sig. (2-tailed)					.000	.000
Physical Environment	Pearson Correlation					1	.681**
	Sig. (2-tailed)						.000
Value chain performance	Pearson Correlation						1
	Sig. (2-tailed)						

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Survey result, 2019 respondents" opinion analyzed using SPSS version 20

In table4.13 clearly indicated that weak positive relationships have been identified between finance and access to market (r=0.198, p=0.00) and access to information (r=0.349, p=0.00) but moderate positive relationship have been identified government policy (r=0.539, p=0.00), physical environment (r=0.512, p=0.00) and coffee value chain performance (r=0.549, p=0.00) in addition to this weak positive relationships have been identified between access to market and access to information between (r=0.267, p=0.00) but moderate positive relationships have been identified between government policy(r=0.412, p=0.00) physical environment(r=0.416, p=0.00) and coffee value chain performance (r= 0.583, p=0.00) and between government policy and coffee value chain performance(r= 0.663, p=0.00) Whereas, moderate positive relationships have been identified between access to information and government policy(r=0.434, p=0.00) physical environment(r=0.460, p=0.00) and coffee value chain performance (r = 0.513, p=0.00) whereas strong positive relationship have been identified between government policy and physical environments(r= 0.780, p=0.00) and coffee value chain performance (r= 0.703, p=0.00) and finally moderate positive relationship have been identified between physical environment and coffee value chain performance (r= 0.608, p=0.00).

Findings are in line with other research that investigated value chain performance of coffee by (Beyenech, 2016) and (Girma, 2017) in Ethiopia. To sum up the correlations of dimensions moderate positive association have been identified between finance, access to information, accesses to market and physical environments. Whereas, strong positive relationships have been identified between government policy and coffee value chain performance and the relationships are statistically significant at 99% confidence level. The results suggest that all the dimensions have positive relationship with coffee value chain performance of the Sheka Zone, though the strength of relationship is somehow different from the dimensions involved.

4.5. Testing Assumptions of Linear Regression Model

- ❖ Test of Multicollinearity Assumptions:

Multicollinearity refers to the situation in which the independent variables are highly correlated in a way that has undesirable implication on the outcome of regression analysis. According to Robert (2006), if collinearity is discovered then one can either remove one of the variables or create a new variable that combine the previous two that were highly intercorrelated because when the predictor variables are highly correlated, they share essentially the same information and together, they may explain a great deal of the dependent variable, but may not individually contribute significantly to the model. Thus, the impact of multicollinearity is to reduce any individual independent variables predictive power by the extent to which it is associated with the other independent variables (Beyan, 2014). Accordingly, Tolerance and Variance Inflation Factor (VIF) values were calculated to check multicollinearity and the result is presented on table 4.14 below. The Tolerance value is an indication of the percentage of variance in the predictor that cannot be accounted for by the other predictors implying the fact that very small values indicate overlap or sharing of predictive power (Robert, 2006).

Table4.14. MulticollinearityTest

	Model	Collinearity Statistics	
		Tolerance	VIF
1	Finance	.674	1.483
	Access to market	.795	1.259
	Access to information	.758	1.319
	Government policy	.350	2.858
	Physical environments	.357	2.798

Source: Survey result, 2019 respondents" opinion analyzed using SPSS version 20

Table 4.14 gives two important values, which are VIF (Variance Inflation Factor), and tolerance. VIF is the inverse value of tolerance and therefore a value more than 10 would indicate multicollinearity. Tolerance gives indications as to how much of the variability of the specified independent is not explained by the other independent variables in the model and if its value is less than 0.10 it indicates multicollinearity (Pallant and Julie, 2013). The above table shows tolerance and VIF values for finance, access to market, access to information, government policy and physical environments in relation to coffee value chain Performance. Tolerance values are 0.674, 0.795, 0.758, 0.350 and 0.357 respectively. They are all above 0.10 and less than 0.90, which aligns with the multicollinearity assumption. VIF values for the same variables are 1.483, 1.1259, 1.319, 2.858, and 2.798 respectively.

4.6. Regression analysis

In an effort to determine how the dimensions of the independent variable predict the dependent variable, linear regression analysis was conducted. Linear regression analysis is a method of estimating or predicting a value on some dependent variable given the values of one or more independent variables. Unlike correlations, the primary purpose of regression is prediction (Marczyk, DeMatteo, and Festinger, 2005). Hence, through the analysis of linear regressions, an attempt has been made to determine the magnitude of the predicting power of the dimensions of the independent variable (i.e. finance, access to market, access to information, government policy and physical environments) on the dependent variable (i.e. coffee value chain performance.). However, test of multicollinearity was conducted before the regression analysis

Table4.15. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.859[a]	.738	.730	.14477

a. Predictors: (Constant),Physical environment, Finance, Government policy, Access to information, Access to market

Source: Survey result, 2019 respondents" opinion analyzed using SPSS version 20

As shown in the table 4.15 model summary table, the adjusted R Square is 0.730, this suggest that about 73% of the variation in the model is explained by the variables already incorporated in to the model. Therefore, this further shows that 27% of the variation in the dependent variable is to be determined by the variables outside of this model.

Table4.16**. ANOVA**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	10.141	5	2.028	96.771	.000b
Residual	3.605	172	.021		
Total	13.746	177			

a. Dependent Variable: Coffee value chain performance

b. Predictors: (Constant), Physical environments, Finance, Government policy, Access to information, Access to market

Source: Survey result, 2019 respondents" opinion analyzed using SPSS version 20

The ANOVA table indicate that the overall model was in a good fit with statistical (F-value =96.771and P-value = .000 < 0.01. In a linear regression analysis of such sort, ANOVA test shows the acceptability of the model from statistical perspective. Accordingly, the regression row indicates the extent of variation explained by the model, whereas the residual row indicates information about the variation that is not accounted for the model, i.e. variation on the dependent variable explained by factors not included in the model.

Table4.17. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.194	.076		2.538	.012
	Finance	.161	.036	.212	4.454	.000
	Access to market	.379	.039	.422	9.628	.000
	Access to information	.144	.040	.161	3.587	.000
	Government policy	.112	.033	.226	3.430	.001
	Physical environments	.065	.029	.147	2.252	.026

a. Dependent Variable: Coffee value chain performance

Source: Survey result, 2019 respondents" opinion analyzed using SPSS version 20

Sheka Zone Coffee value chain performance therefore is

$Y = a + \beta1*X1 + \beta2*X2 + \beta3*X3 + \beta4*X4 + ...Xn$

Y= Coffee value chain performance

X1=Finance

X2=Access to market

X3=Access to information

X4=Government policy

X5=Physical environments

Y=0.194+0.161X1+0.379X2+0.144X3+0.112X4+0.065X5

The coefficients for each of the items show the amount of expected change in coffee value chain performance should the variable change in value for every one-unit change, assuming all other variables are constant.

The beta coefficients are obtained when the outcome and independent variables are transferred into standard scores prior to running the regression. This is to say that beta coefficients measure the relative strength of the different independent variables in the model. In this case, access to

market has the largest beta, of 0.379, and physical environment has the smallest beta coefficient, of 0.065. Therefore, an increase or a decrease of one standard deviation in access to market leads to an equivalent effect of 0.379 on coffee value chain performance with the other predictors in the model held constant.

4.6.1. Regression result between Finance and Value Chain Performance

Research findings indicate that linear regression tests measured finance interdependence with value chain performance. Upon testing the relative strength of the different independent variables in the regression model, finance has a beta coefficient of 0.161. This means that an increase or a decrease of one standard deviation in finance leads to an equivalent effect on Performance, with the other predictors in the model holding constant.

These findings are in line with the main literature regarding value chain performance that suggests that finance can play an important role in value chain management (Ueltschy and Fachinelli, 2007; Zhao et al., 2008) Therefore, this research reinforces the significance of finance in managing value chains that are operating in study area.

4.6.2. Regression result between Access to market and value chain Performance

Research findings indicate that linear regression tests measured access to market interdependence with value performance. The relative strength of independent variables in the regression model shows that access to market has a beta coefficient of 0.379. Therefore, any increase or a decrease of one standard deviation in access to market leads to an equivalent effect on value chain Performance. In addition, findings from semi-structured interviews confirmed the relationships between access to market and value chain performance support the above findings.
Findings are also in line with other research that investigated access to market, with respect to value chain performance (Vaaland and Heide, 2007; Archer, Wang and Kang, 2008). This research reinforces the significant influence of access to market on supply chain performance in study area.

4.6.3. Regression result between Access to Information and value chain Performance

Research results indicate that linear regression tests were performed to measure access to information interdependence with value chain performance. The relative strength of independent variables in the regression model shows that access to information has a beta coefficient of 0.144. Therefore, any increase or a decrease of one standard deviation in access to information leads to an equivalent effect on value chain Performance.

These results confirm findings from literature on value chain management, where it is suggested that problems in sharing information can play an important role in obstructing effective value chain management (Shiferaw *et al*, 2009). Hence, this research also shows the significance of sharing information in value chain management, in Sheka Zone. Whereas collected data revealed that access to information can slow or obstruct the flow of value chains. For example, not using information systems at one end of the supply chain, forces can cause delays in lead times. In addition, safeguarding confidentiality is another issue facing access to information.

4.6.4. Regression result between government policy and Value Chain Performance

Research findings indicate that linear regression tests measured government policy interdependence with value chain performance. Upon testing the relative strength of the different independent variables in the regression model, government policy has a beta coefficient of 0.112. This means that an increase or a decrease of one standard deviation in government policy leads to an equivalent effect on value chain performance, with the other predictors in the model holding constant. These findings are in line with the main literature regarding value chain management that suggests that government policy can play an important role in value chain performance (Markelova *et al*, 2009; Chirwa *et al*, 2005). Therefore, this research reinforces the significance of government policy in managing value chains that are operating in study area.

4.6.5. Regression result between physical environment and Value Chain Performance

Research findings indicate that linear regression tests measured physical environment interdependence with value chain performance. Physical environment has the smallest relative strength among included independent variables in the regression model with a beta coefficient of 0.026. This means that an increase or a decrease of one standard deviation in physical environment leads to an equivalent effect on Performance, with the other predictors in the model holding constant. These findings are in line with the main literature regarding value chain management that suggests that finance can play an important role in value chain management (Ueltschy and Fachinelli, 2007; Zhao *et al*, 2008) Therefore, this research reinforces the significance of finance in managing value chains that are operating in Sheka Zones.

In general, regressions statistics show significances in the results. This indicates that items in the analysis impose influence on coffee value chain performance. Generally, results from the model summary, ANOVA, coefficients and collinearity diagnostics confirm the dependency of coffee value chain performance on the predictors, which complies with the assumptions made by the research questions.

4.9. Result and Discussion of Quantitative Data

Under this section, findings from secondary data in relation to contribution of coffee value chain performance to improvements in sales volume of coffee, Coffee grade and Value addition is presented. Since coffee was used to be traded in different manner before the establishment of Sheka Zone Cooperative unions trading plat form, data for sales volume and grade of Coffee was computed back three years before Sheka Zone Cooperative unions (2009 – 2018). As per the secondary data, sales volume and grade of coffee with its parameters is summarized below.

Washed coffee value assessment parameters

Table.4.18. washed coffee value assessment

Raw value (40%)									
Defect 20%				Shape and make 5%		Color 5%		Odor 10%	
Primary (Count) 10%	Point	Secondary (weight)10 %	Point	Quality	Point	Quality	Point	Quality	Point
1	10	≤5	10	Very good	5	Bluish	5	Clean	10
2-5	8	≤8	8	Good	4	Grayish	4	Fairly clean	8
6-10	6	≤10	6	F. good	3	Greenish	3	Trace	6
11-15	4	≤12	4	Average	2	Coated	2	Light	4
15-20	2	≤14	2	Small	1	Faded	1	Moderate	2
>20	1	>14	1					Strong	1

CUP value (60%)							
Cup cleanness 15%		Acidity 5%		Body 15%		Flavor 15%	
Quality	Point	Quality	Point	Quality	Point	Quality	Point
Clean	15	Pointed	15	Full	15	Good	15
Fairly clean	12	M. pointed	12	M. full	12	Fairly good	12
1 cup defect	9	Medium	9	Medium	9	Average	9
2 cup defect	6	Light	6	Light	6	Fair	6
3 cup defect	3	Lacking/Dull	3	Thin	3	Commonish	3
>3 cup defect	1	Not detected	1	N.D	1	N.D	1

Source: survey result, 2019

Unwashed coffee value assessment parameters

Table.4.19. Unwashed coffee value assessment

Raw value 40%					
Defects 30%				Odor 10%	
Primary count 15%	Point	Secondary Wight 15%	Point	Quality	Point
<5	15	<5%	15	Clean	15
6-10	12	<10%	12	Fairly clean	12
11-15	9	<15%	9	Trace	9
16-20	6	<20%	6	Light	6
21-25	3	<25	3	Moderate	3
>25	1	≥25	1	Strong	1

Cup value 60%							
Cup cleanness 15%		Acidity 5%		Body 15%		Flavor 15%	
Quality	Point	Quality	Point	Quality	Point	Quality	Point
Clean	15	Pointed	15	Full	15	Good	15
Fairly clean	12	M. pointed	12	M. full	12	Fairly good	12
1 cup defect	9	Medium	9	Medium	9	Average	9
2 cup defect	6	Light	6	Light	6	Fair	6
3 cup defect	3	Lacking/Dull	3	Thin	3	Commonish	3
>3 cup defect	1	Not detected	1	N.D	1	N.D	1

Source: survey result, 2019

The quality of coffee can be increased by washing, i.e. processing red cherries immediately after harvest in wet mills, instead of sun-drying the cherries (Bart, et al, 2014). Washed coffee preserves the intrinsic quality of the bean better than unwashed beans, and the process leads to homogenous coffee with fewer defective beans. The washing process is carried out in washing stations where cherries are pulped immediately after harvesting, fermented in tanks, and washed in clean water to remove the mucilage. The wet parchment coffee is then dried in the sun. For unwashed coffee, cherries are dried on mats or concrete floors. On the other hand in Ethiopia, the overall standard

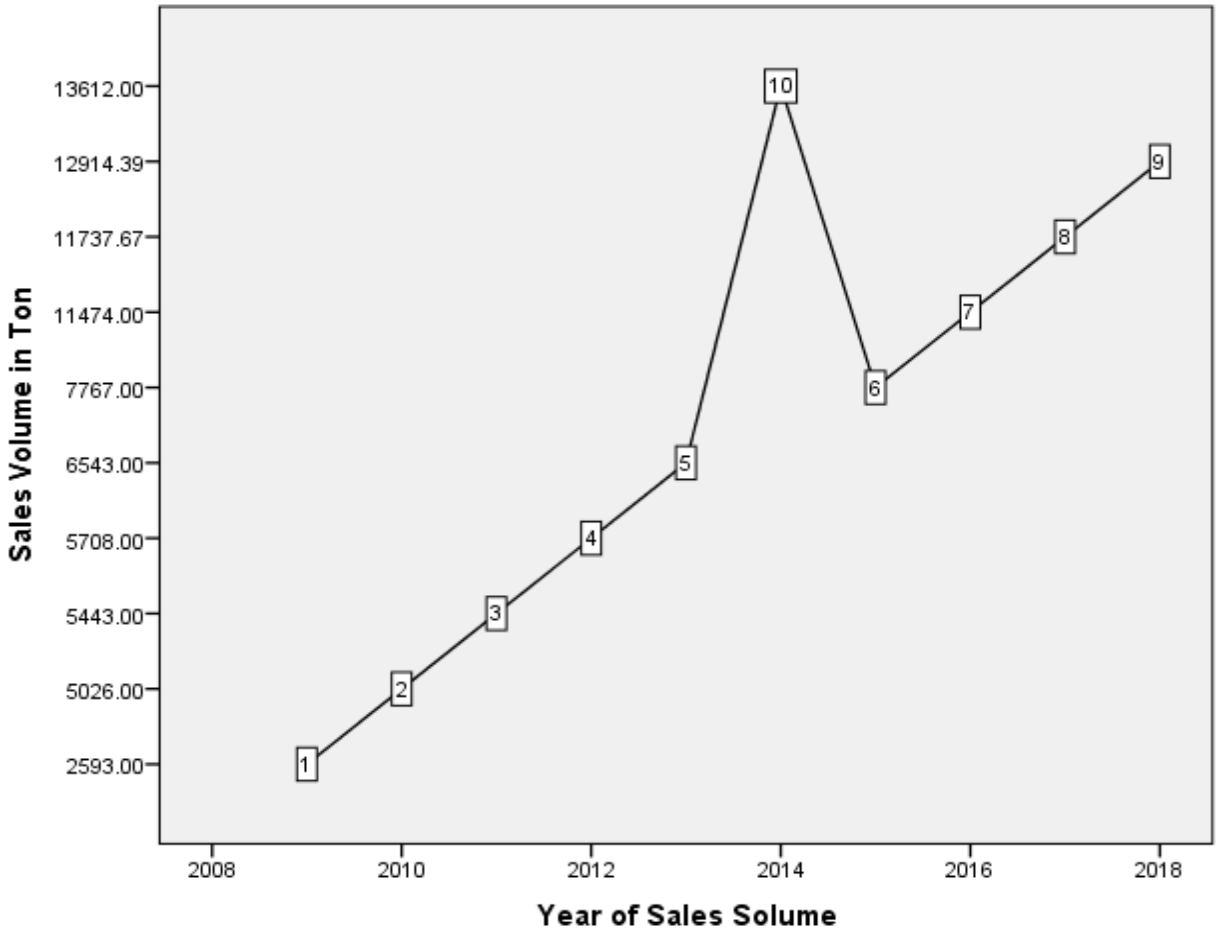
for raw and liquor quality grades of washed coffee ranges from 1 to 5, where grade 1 = 81-100%, grade 2 = 61-80%, grade 3 = 41-60%, grade 4 = 21-40% or 1-2 defective cups, grade 5 = 20% or more than 2 defective cups whereas, for unwashed coffee, the grades range from 1 to 5, where, grade 1 = 81- 100%, grade 2 = 63-80%, grade 3 = 50-62%, grade 4 = 31-49% or 2 cups defect, grade 5 = 15-30% or more than 2 cups defect (ECX, 2019). Whereas the overall standard for raw and liquor quality grades of unwashed coffee ranges from 1 to 9where grade 1 = 91-100%, grade 2 = 81-90%,grade 3 = 71-80%, grade 4 = 63-70%, grade 5 = 58-62%, grade 6 = 50-57%,grade 7 = 40-49%,grade 8 = 31-39%, grade 9 = 20-30%, (ECX, 2019).

Table.4.20. Sales volume of Coffee in Sheka Zone from 2009-2018

Year	**Net Mass in Ton**	**Grade of coffee**	
		Washed	**Unwashed**
2009	2593	3	6
2010	5026	3	5
2011	5443	2	5
2012	5708	2	6
2013	6543	1	4
2014	13612	1	4
2015	7767	3	6
2016	11474	2	5
2017	11737.67	1	6
2018	12914.39	1	5

Source: Sheka Zone Agricultural office, 2019

Figure4. 1.Sales volume of Sheka coffee from 2009-2018



Source: Survey result, 2019

Computations from the secondary data collected showed that the change in sales volume and grade of coffee was exhibited in both directions (in increment and in decrement).

As depicted in the figure above, in the year 2014, the sales volume coffee had increased by 52% but in the year 2015,the sales volume of coffee had reduced by 43% and the quality grade of coffee also reduced from grade 1 for washed and grade 4 unwashed to grade 3 for washed and grade 6 for unwashed due to the political instability in case areas. This political instability leads to lower productivity, non-availability of improved coffee varieties, limited production and marketing support, unorganized input delivery. From 2011 to 2018, the sales volume of coffee to market had increased by more than 50% and the grade of coffee also in good progress after establishment of Sheka Zone Cooperative Unions.

Value Addition

Value chain of coffee starts on the farms by producers/farmers. Farmers are the main actors in the coffee value chain. They are involved in transporting of their product to the purchaser's site or give information to collectors. The starting price for the red cherries is first announced by the washing stations owned by cooperatives or private individuals. Local collectors buy red cherries and send immediately to washing stations. Since cooperatives are the owners of washing plants/station, they determine the starting price for a kilogram of fresh red cherries and are followed by private washing stations. During the 2017/18 coffee season, they set a price that ranged between 8 and 12 Birr/kg. The income is mostly spent on food items for household consumption. They sell on average 3 to 10 kg of coffee daily to local collectors in the village. The value addition and operational benefits in each stage of the value chain are determined to identify possible intervention areas. This analysis is conducted only by considering dry coffee export value chain from the area of coffee origin from Sheka Zone.

The sum of value addition made throughout the chain is computed by the following equation (Birehanu *et al.,* 2013).

$\Sigma VA = NVAP + NVAPM + NVAT + NVAE + NVAPE$

Where NVAP = Net value added in production

NVAPM = Net value added in primary marketing

NVAT = Net value added in trading

NVAE = Net value added in export

NVAPE = Net value added in processing and export

The sum of operational benefits is:

$\Sigma OB = OBP + OBPM + OBT + OBE + OBPE$

Where OBP = Operational benefit in production

OBPM = Operational benefit in primary marketing

OBT = Operational benefit in trading

OBE = Operational benefit in export

OBPE = Operational benefit in processing & export

Percentage of value added/operational benefit in the particular stage is the ratio of vale added/operational benefit in a particular stage to the sum of value addition/operational benefit made throughout the chain (for example in production the percentage in value addition is equal

to NVAP/ ΣVA and the percentage of operational benefit in production is equal to OBP/ ΣOB). To calculate the value addition and expected benefits across the value chain the following assumptions are taken in to account. These are:

- 1 pouch unwashed coffee is equal to 85 kg,
- Transportation cost from Sheka Zone warehouse to Addis Ababa 180 Birr/quintal
- Transportation cost from the factory to Djibouti Port 95 Birr/quintal,
- Cost of Labor & Machinery 170 Birr/Quintal
- 1kg of roasted coffee = 1.25 kg of raw coffee.
- 1kg of roasted coffee at Germany market in average =99$
- 65 kg of roasted coffee at Germany market in average = 185,600 birr

Table.4.21. Comparison of percentage value added and operational benefits

	Farmers	Local collector's	Cooperative	Union/Exporter	Secondary processor
Sales per quintal	800	1,680	5,600	14,523	185,600
Cost of inputs	70	800	1,680	5,600	14,523
Material cost	40	100	200	2794	2700
Net value added	**690**	**780**	**3,720**	**6,129**	**168,377**
Percentage of value addition	**0.38**	**0.43**	**2.07**	**3.41**	**93.7**
Operational cost	100	100	250	600	10,450
Total cost	210	1,000	2,130	8,994	27,673
Operational benefit	**590**	**680**	**3,470**	**5,529**	**157,927**
Percentage of operational benefit	**0.35**	**0.4**	**2.06**	**3.29**	**93.89**

Based on the value addition formula and assumptions the value addition and operational benefits associated with it is shown in Table 4.21.The analysis clearly shows that more than 93% of the benefits obtained from the coffee value chain go to the secondary processer but the actors at the national level: farmers, traders and primary processors share little profits which is less than 7%, while the secondary processors receive the highest share. This result also agreed with findings of earlier studies of Birehanu *et al.*, 2013. In fact, the analysis clearly revealed that the value addition and the benefit obtained are proportional at every stage.

CHAPTER FIVE

SUMMARY OF MAJOR FINDINGS, CONCLSION AND RECOMMENDATION

5.1. Summary of Findings

To meet this objective, quantitative research strategy was adopted and quantitative data was collected from Sheka Zone value chain actors. Descriptive statistics like frequency, mean, and correlation analysis techniques were applied to analyze background information of respondents and respondents' perception on factors affecting value chain performance of coffee. Besides, regression analysis technique was used to investigate dimensions affecting value chain performance of coffee.

From the findings, Access to market, access to information, government policy, finance and physical environment are factors which are only minimal efforts have been made to promote value chain performance of coffee in Sheka Zone. The above value chain factors from the findings have below average mean of 1.51, 1.55, 1.61, 1.76, and 1.82 and with standard deviations 0.31, 0.30, 0.36, 0.56 and 0.63 respectively. The overall value chain performance of the actors as the findings depicted is being below average with a mean of 1.576which implies more need to be done to improve the value chain performance in Sheka Zone.

Correlation coefficient statistics shows that moderate positive association have been identified between finance, access to information, accesses to market and physical environments. Whereas, strong positive relationships have been identified between government policy and with coffee value chain performance and the relationships are statistically significant at 99% confidence level.

After testing the relationship of all independent and dependent variables, the existence of multi-collinearity among these variables was checked and there is no multi-collinearity problem among them. This leads to regression analysis.

Linear regression analysis was undertaken to investigate the impacts of each independent variables on dependent variable. All factors of value chain performance namely: finance, access to market, access to information, government policy and physical environment have significant impact on overall Coffee value chain performance of Sheka Zone with $p< 0.01$ even though their impact is different.

Access to market has the strongest impact on value chain performance with $\beta=0.379$ followed by finance with $\beta=0.161$.And access to information has the third strongest impact with $\beta=0.144$, followed by government policy and physical environment, which have the fourth and fifth level impact on value chain performance with $\beta= 0.112$ and 0.065 respectively. As adjusted R square value shows, overall value chain performance (dependent variable) is explained by the model which includes finance, access to market, and access to information, government policy and physical environment. The adjusted R square value is 0.73, which implies that the value chain performance variable is aggregately impacted or explained by all value chain factors by 73%andthe model fitness too, is confirmed as presented in all ANOVA table.

5.2. Conclusion

This research was conducted in an attempt to determine factors affecting value chain performance of coffee of Sheka Zone, South West Ethiopia. The following conclusions have been drawn on the bases of the findings of the data analysis endeavor.

The composite mean scores of the scales of the independent variable, i.e. finance, access to market, access to information, government policy and physical environment revealed that the respondents perceive that Sheka Zone Coffee value chain actors exerted relatively lower efforts with respect to the above parameters.

Regarding the finance, one can concluded that financial issues is one of the challenges value chain actors faced in the coffee value chain. Respondents complained that the coffee trade processors cannot get full access to finance to run coffee related tasks like production, transportation, marketing and financial supports in coffee trade related investments.

It can be concluded from the respondents' response that access to markets is a great pillar for the performance of coffee value chain. And timely and reliable market information is widely accepted service. Due to lack of such information coffee market efficiency and its performance has gradually reduced in Sheka Zone.

Regarding access to information, one can conclude that actors did not regularly update the information on value chain of coffee and they cannot fully disseminate information using effective ICT resources, which are vital for proper functioning of strong value chain performance. Value chain actor does not have better access to quality information.

Regarding Government policy, it can be concluded that it positively affects coffee value chain performance. But supportive government policy cannot fully contribute to adequate supply of production inputs, production of adequate coffee supply to the market, improvement of volume and quality of coffee, enhancement of market linkage, market information dissemination, establishment of favorable marketing structure..

Regarding physical environment, one can conclude that farmers have adequate land size for farming but there are constraints that are related to access to infrastructure, labor, capital and the environment is not favorable for farming due to the above constraints. Therefore, from this result one can conclude that the physical environment is one of the problems in the coffee value chain.

Regarding the factors affecting coffee quality, it can be concluded that, coffee quality has complex characteristic which depends on a series of factors such as the species or variety (genetic factors), environmental conditions (ecological factors), agronomical practices (cultivation factors), processing systems (post-harvest factors), storage conditions, industrial processing, preparation of the beverage and taste of the consumer. Coffee quality is of critical importance to the coffee industry.

Efficiency in production of coffee is still a drawback to Sheka Zone coffee value chain actors especially to farmers due to high production costs such as labor and investment costs that restrict Sheka's coffee production from reaching its maximum potential yield. Coffee production in Sheka Zone is currently rain fed and labor intensive (most weeding is usually done by manpower). There is a huge capacity to increase yield by increasing inputs and by replacing old coffee trees with new seedlings of improved coffee varieties.

Concerning value addition, value chain actor's particularly small holder farmers were not in a better position in adding value to coffee compared to the other actors indicating that giving due attention to providing access to credit and other extension facilities for small holder farmers is important.

The result of Pearson correlation analysis of this study indicated that finance, access to market, access to information, government policy and physical environment have a positive and significant effect on performance of value chain performance of coffee. Therefore, the implication is that actors should take an active role in managing all aspects of their performance of value chain of coffee.

The study revealed that all independent variables have scored Adjusted R square of 73.0%. As the value of R square shows, the dependent variable (value chain performance) is explained

(impacted) by all independent variables, but the independent variables have significant relationship with the dependent variable (value chain performance), which show the strongest relationship between the dependent and independent variables. Furthermore, the model's fitness was confirmed as presented in all ANOVA table.

5.3 Recommendation

In light of the findings of this study the following areas are identified for future improvement of coffee value chain performance in Sheka Zone.

- **Finance: -**Financial organizations should facilitate credit facilities for value chain actors, strengthening the financial capability of farmers. Providing credit services to small holder farmers is an important strategy to increase intensity of value chain performance. It is also important to support cooperative unions financially to solve severe financial problems of farmers. Modern value chain financial products (more importantly warehouse receipt finance) as an alternative for credit provision should be established.
- **Access to market: -**Coffee marketing requires promotion in different local and international coffee exhibitions. And timely and reliable market information is widely accepted service in order to achieve great performance for value chain actors.
- **Access to information: -**Actors need to regularly update the information on value chain of coffee and disseminate information through use of effective ICT resources for proper functioning of strong value chain performance.
- **Government policy: -** enables value chain actors to reach out to local and international markets destinations in time and to create a market structure favorable for coffee production increment.
- **Physical environment: -**The coffee production and processing equipment supply to the actors is inadequate. The concerned bodies should provide adequate modern processing machines that play great roles in the value adding process of coffee. Rather than this concerned bodies also need to exert efforts to solve problems related with infrastructure like road, electricity, and telecommunication. This decreases the cost of production. Due to this the value chain actors can minimize unnecessary costs which are incurred during the production time. This may improve the livelihood and welfare of the value chain actors.

- **Quality:** -Provision of credit facilities for purchase of washing stations equipment would address current shortages of wet processing facilities that force farmers to walk long distances which discourage wet processing.

  There is a need for coffee quality inspection and certification activities, by allowing and promoting private sector investors to participate in coffee plantations and processing. Promoting best agricultural practices in harvesting and post-harvesting will increase the availability, quality, and consistency of supply in Sheka Zone in the short term. In low productivity areas, trainings will help farmers collect sufficient coffees to have more power during negotiations with collectors and traders, thereby capturing better prices along the value chain.
- **Efficiency: -** Zonal production volumes and values can be increased through new plantings. And/or intensification and corrective measures in improving coffee quality could increase the proportion of coffee selling at significant premiums. Particularly, sales volume of coffee can be enhanced if washed/semi-washed coffee or certified coffee beans presented of coffee as the climatic conditions in the area is conducive.
- **Value addition:**-Building the capacity of rural farmers by organizing consecutive trainings and experience sharing sessions among smallholder farmers or creating other formal education opportunities should be designed to increase farm level coffee value addition. The provision of better extension services and ownership of drying facilities to farmers have also something to do with enhancing value addition. It is, therefore, important to serve farmers with appropriate extension service provisions and offering drying facilities for farmers so that they would be encouraged to add value to the coffee they produce. Assigning professional development agents and upgrading their knowledge and skills to provide adequate extension services is recommended.

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Appendices A

Addis Ababa University
Faculty of Business and Economics
School of commerce
Name of student: Nurilign Endashaw

Dear Participants,

I would like to extend my deep appreciation for your time in responding to the research questions provided below. I'm a postgraduate student at Addis Ababa university school of commerce under the department of logistics and supply chain management. The title of my thesis is**: FACTORS AFFECTING VALUE CHAIN PERFORMANCE OF COFFEEE IN THE CASE OF SHEKA ZONE, SOUTH WEST ETHIOPIA.** I ask your kindly cooperation in answering the questions as truthfully as possible and your response will be highly confidential. This questionnaire will only be used for a student thesis work purpose only. Your participation in this survey is completely voluntary.

Part one: Demographic Information

1. Sex of household head A. Male B. Female

2. Age A. Less than 20 B. 20-29 C.30-39 D. 40- 49 E. 50 and above

3. Marital status of household head A. Single B. Married C. Divorce D. Widowed

4. Educational level of household head A. Illiterate B. (1-4) grade C. (5-8) grade

D. (9-12) grade E. Above grade 12

5. Experience of respondents

A. Less than 5 years B. 6-10 years C.11-15 years D. Above 16 years

Part Two

The following questions is related to finance, access to market, Access to information, Government Issue, and physical environment in the sheka zone coffee value chain performance. Please read each statement carefully and show the extent of your agreement on the statements by putting a tick mark (√) in the boxes against each rating scale of choice. The rating represents your level of agreement as follows: 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree

If you have any questions, feel free to contact at 09-17-31-08-08/ noresheka85@gmail.com.

SN	Finance	1	2	3	4	5
1	Financial institutions like Banks and Credit & Saving Institutions are available and accessible in proximity to Coffee farmers, suppliers, exporters and other market actor					
2	Financial institutions like Banks and Credit and Saving Institutions provide support for value chain actors in promoting market linkage and logistics of coffee trade					
3	Coffee trade actors: farmers, suppliers, exporters, processors can get access to finance to run Coffee related tasks like production, transportation and marketing					
4	Financial institutions in Sheka Zone (Banks both private and Government; Credit & Saving Institutions) encourage modern farming of Coffee by providing the necessary loan and subsidy					
5	The credit you get enough for production, processing and other tasks					
	Access to market					
6	Coffee value chain actors have a nearby market to sell coffee					
7	Coffee value chain actors have access to international market to sell coffee					
8	Coffee types/varieties that meet customer demand are available in a nearby market					
9	Coffee value chain actors have a nearby market to buy Coffee production and processing equipment supply					
10	Availability of all-weather alternative roads for use to access nearby market when main roads are damaged or blocked					
11	Farmers, traders and exporters can fully reach out Coffee market					

	destinations					
	Access to information					
12	Coffee value chain actors have access to quality information					
13	Adequate information flows to and from suppliers affect value chain activities					
14	Actors share information in the value chain to enables accurate and faster business decision making and enhances the adoption of value chain performance					
15	Actors disseminate information through use of effective ICT resources in proper functioning of strong value chain performance					
16	Information about market requirements and developments, equipment and input factors for production, loans and technical assistance and training are kind of information do you get from each other					
17	Members have access to mass media (TV, Radio, Internet)					
18	Actors regularly update the information on value chain of coffee					
	Government policy					
19	There is proper government regulation in place that contributes to adequate supply of inputs					
20	There is favorable regulation in place that improves market efficiency at the output side					
21	Coffee growing areas have full attention and support from concerned Government body					
22	Famers, traders, processors, and exporters can get Coffee that reflects their needs					
23	There is a supportive policy in place to improve the volume and quality of Coffee in sheka zone					
24	The current policy of government is Favorable for farmers and cooperative expansion					
	Physical environment					
25	Coffee production and processing equipment supply is adequate					
26	The farmers have adequate capital for farming					
27	The farmers have adequate labor for farming					

28	The environment is favorable for farming					
29	Members have access to transportation, telephone and electric power					
30	The farmers have adequate land size for farming					
	Quality					
31	Actors have gets supporting from different organization to produce quality coffee					
32	Actors have adequate awareness about quality parameters used by ECX					
33	Actors have adequate awareness about the coffee quality controlling guideline or procedures used to in the ECX					
34	Actors deliver quality product and service to the customers whenever needed (On reasonable response time)					
	Efficiency					
35	The adoption of value chain financing is geared towards improving the operational efficiency of all actors					
36	Actors deliver product and service to market quickly					
37	Actors deliver coffee to the customers whenever needed (On reasonable response time)					
38	Actors have frequently interact with customers to set reliability, responsiveness.					
	Value Addition					
39	Actors have adequate awareness about the coffee value addition guideline or procedures					
40	Actors have add value on coffee in each value chain step					
41	Extension service on value addition is adequate in improving functioning of value Chain activities					

Appendix B

Interview Questions

I. Interview with Officials of ECX

1. What means, ECX and when it was found?
2. What problems coffee harvesters (traders) faced before the establishment of ECX?
3. Does ECX the market system brought change in the modern market?
4. What service ECX give for their customers?
5. Does the new system benefit coffee supplier?
6. Do you think ECX fully addressed the need of coffee suppliers?
7. What do you suggest as a solution to those problems?

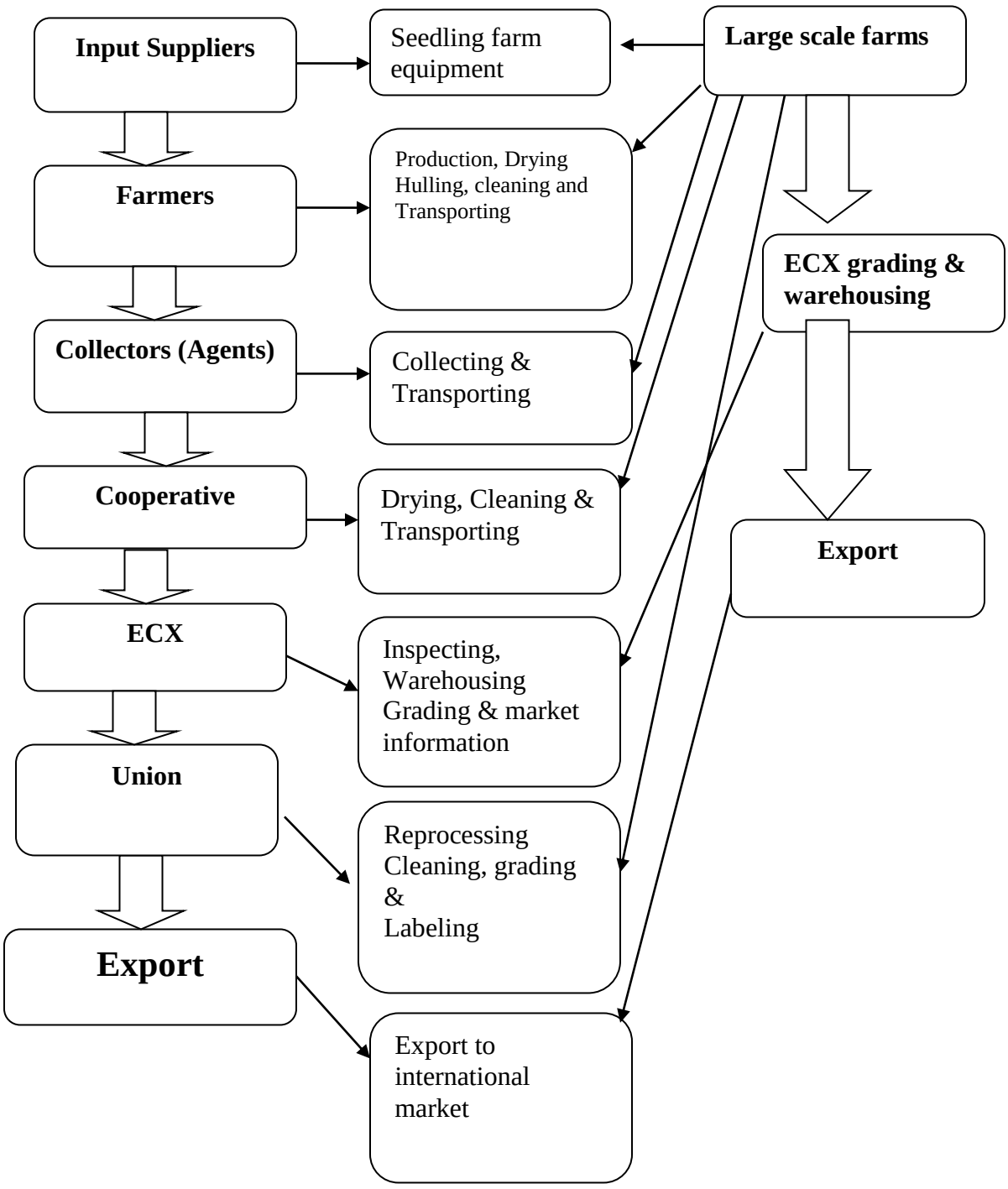
II Interview with Officials of district coffee cooperative expert

1. In your opinion, what factors affect coffee quality?
2. Please suggest methods for improving coffee marketing?
3. Does a value chain actor add value for providing coffee to market?
4. What do you suggest as a solution to those problems?

III Interview with coffee Exporters

1. What factors affect coffee exporting performance?
2. What do you suggest as a solution for to those factors?
3. Does value chain actors add value for providing coffee to market?

Appendix C: Map of Sheka Zone coffee value chain



Source, Authors Survey, 2019