



**Analyzing Coffee Supply Chain: a study on
Harrar Coffee, Ethiopia**

By

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the Partial Fulfillment of Masters of Art Degree in Logistics and Supply
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Statement of Declaration

I, Metasebiya Tsige, declare that this thesis entitled **Analyzing Coffee Supply Chain: a study on Harrar Coffee, Ethiopia** is submitted for the partial fulfillment of masters of art degree in Logistics and Supply Chain Management at the School of Commerce, Addis Ababa University. This project contains no material that has been submitted previously, in complete or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this project is my own work.

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Acronyms and Abbreviations

CSA: Central Statistics Agency

ECEA: Ethiopian Commodity Exchange Authority

ECX: Ethiopian Commodity Exchange

ICO: International Coffee Organization

IFPRI: International Food policy Research Institute

MOT: Ministry of Trade

NBE: National Bank of Ethiopia

ODI: Overseas Development Institute

Q1: specialty coffee level 1 (a coffee type with special test & higher value)

Q2: specialty coffee level 2 (a coffee type with special test & higher value)

UG: under grade (low grade level coffee type)

UNIDO: United Nations Industrial Development Organizations

USA: United States of America

Abstract

This study examines coffee supply chain in Darolebu, West Harrerger, where plenty of supply of Harrar coffee type comes from. The study was principally designed for identifying and categorizing the Harrar coffee supply chain actors, their roles and relationships and measure internal efficiency level in the chain. This descriptive mixed survey study uses multi-stage sampling method to select 125 farmers, 13 collectors including primary collectors and cooperatives and 28 exporters. And both primary and secondary data collected using data collection instruments: questionnaire and interview analyzed using both quantitative and qualitative data analysis methods. The supply chain analysis of Harrar coffee is done by employing internal efficiency measures of inventory value, inventory turns, return on sales and cash to cash cycle time. Findings show that there is excess coffee left over in the supply chain 20%, which prove deficiency in efficiency; all the three Harrar coffee supply chain actors mention that it is the most quickly converted to cash commodity; the chain lacks efficiency 88% in return on sales and by cash- to- cash cycle time measurement, the chain actors waits a maximum of three month to collect their revenue from their final customers. Generally by the four internal efficiency measurements of supply chain performance, Harrar coffee supply chain signifies that there is insufficiency in efficiency. Challenges that are disturbing the chain while doing its business include lack of improved seed supply and lack of knowledge on modern coffee production in the production spot, poor quality coffee followed by low price offer for the suppliers and lack of well developed logistic providers, high logistics cost and low government concern to the sector at the export side; although being the country's pride make coffee respected commodity. Generally findings suggest that government must give appropriate attention to the sector and all participant actors should work jointly for the betterment of the overall supply chain gain.

Key phrases: *Supply Chain, Harrar Coffee, Internal Efficiency*

CHAPTER ONE

INTRODUCTION

In this chapter the background for the study and the statement of the problem presented explicitly. Moreover objective of doing the study, its scope and its significance for Harrar supply chain actors and other stake holders stated visibly.

1.1 Background of the Study

Studies confirmed that most developing countries like Ethiopia economy is mainly depend on agriculture. Ethiopian investment commission (2015) mentioned that Ethiopia's economy is based on agriculture which accounts in 2013/14 for about 39.9% of the gross domestic product (GDP), 90% of foreign currency earnings and 85% of employment. Ministry of Trade ten years export trade trend on the other hand depicts, from Ethiopia's most common export items: coffee, oil seeds and pulses, livestock and its products, vegetables and flowers, spices, chat and cotton; coffee is the lead export item on the amount of foreign exchange it captures to the country: on average it collects 611,432.72\$ of income yearly from an average amount of 198,332.00 ton coffee exported. And again as reported by IFPRI (2017), it accounts 35% of the country's total export revenues between 2000 and 2014 and more than 4.2 million smallholder farmers produce it: making the crop equally important to poverty alleviation efforts. UNIDO(2009) on the other hand on its prioritization process for several commodities to identify those offering the highest prospects for growth using criteria such as commodities of importance to the economy, competitive advantage, attractiveness of industry to investors, and potential for short-term impact, it grouped coffee in the group of commodities that are highly important to the economy due to the large population involved in their production and to their contribution to national food security, important as a source of foreign exchange and have good potential for short-term impact with relatively low investments. Moreover, "Ethiopia is considered the birthplace of coffee: *Coffea arabica*, the aromatic and mild species of coffee used to produce the highest quality and priciest blends originated in the highland rainforests of south-western Ethiopia."(Maria Julia Oliva, 2008)

Although the export trade trend both in amount sold and dollar return produces something like zigzag curve with many ups and downs with respect to time, it shows that the income doesn't

depend on the quantity sold but rather other reason beyond quantity and most probably on the quality of the coffee exported. Maria Julia Oliva (2008) argues that even though Ethiopia is still earning an income from it, as long as the country's coffee is undifferentiated in the market higher incomes will do little to help counter the trend to maximize profits. Moreover, "the Ethiopian coffee sector continues to face some inherent challenges that are not affected by the ECX: namely, weak infrastructure and low productivity; and that also play an important role in the price relationships between markets" (Gustafson and Hernandez, 2017). Kotler et al (2005) on the other hand defines customer value as customers judgment on a product's ability to satisfy a need or to be satisfied customers must get a product which meet or exceed their expectation on its performance. So since customers have plenty of choice of coffee commodity on the global market if our coffee is not as per their expected quality level they will avoid buying it and we will lose the sale. However, it is well aware that coffee item is the backbone to our economy above all when we consider the source of foreign exchange we have in export trade. Therefore studying this commodity's supply chain will be mandatory so as to answer many questions that may raise, solve any difficulties that may face due process and to make it more productive both in quantity and quality.

As noted by Chopra and Meindl (2007) a supply chain consists of all participants that take part in receiving and filling customers request starting from suppliers of a product to the final consumer. These parties may differ in their type and intensity as we see different supply chains but according to Chopra and Meindl (2007) a typical supply chain involves suppliers, manufacturers, distributors, retailers and customers and these parties with the aid of logistic providers such as transporters, work together to maximize the objective of their collaboration; maximizing profit. Profit maximization on the other hand is gained either by creating better value to customers and get premium return or through minimizing the cost that the chain incurs in the process of generating value. Chopra and Meindl (2007) also argue that supply chain profitability is measured by the overall supply chain gain rather than the profit that individual players achieve and even the profit individual participants achieve can reduce the profitability of the overall supply chain. Therefore to maximize the income generated from the coffee Ethiopia exports and avoid or solve problems that may hinder from achieving this goal, understanding the supply chain itself is a basic and primary duty before looking to do any other further studies on this matter.

This descriptive study will help to figure out Ethiopia's coffee supply chain by studying Harrar's coffee supply chain: participant parties, the direction of commodity, financial and information flow, the involvement of logistics providers and others in depth.

1.2 Statement of the Problem

Ethiopia produces coffee and export it to USA, Middle and Far East of Asia, Europe and some countries of Africa and by that earns better amount of foreign exchange compared to other items it exports; as ministry of trade ten years coffee export data base conveys that the country gets 611,432.72\$ on average yearly, and again as reported by IFPRI (2017), it accounts 35% of the country's total export revenues between 2000 and 2014 and more than 4.2 million smallholder farmers produce it: making the crop equally important to poverty alleviation efforts.

ODI (2009) argues that despite the high demand for Ethiopia's Arabica coffees in these beverage markets, producers of high quality Ethiopian coffee have generally not received a premium price for their coffee beans. ICO (2012) on the other hand concludes that the country still not using this resource in the best way it could so as to get the best out of it. Furthermore IFPRI (2017) has also argued that despite the fact that the government of Ethiopia incorporated an ECX, the only functioning commodity exchange in the Least Developed Countries (LDCs), with the aim to modernize the country's economy, link smallholder farmers to markets and enhance food security, the Ethiopian coffee sector continues to face some inherent challenges such as weak infrastructure and low productivity which in return play an important role in the price relationships between markets.

Therefore the sector has been or is facing problems such as lack of productivity, powerlessness to enlarge market coverage and decline in its monetary value in world's market generally for all Ethiopia's coffee types and specifically for Harrar coffee. Ethiopian Commodity Exchange Authority (2011) also mentions obstacles in the sector such as infrastructure problems, logistics problems, limited participation of different supply chain actors and the sector still not free from illegal aspects.

Government of Ethiopia also admit in its broadcasts the fact that there is some problem in the supply chain of this commodity that hinder the commodity's productivity time to time and minimize the return the country used to get. Basing on this fact, at the middle of 2009E.C

government configures a group composed of participants from different governmental organizations that has a stake on coffee commodity: organizations such as Ethiopian Commodity Exchange, Ethiopian Commodity Exchange Authority, Coffee and Tea Development Authority; and tried to look the coffee market value chain and its challenges and figure out solutions for it. So basing on this study and other organizational work place investigations, government made its own adjustments on the existing situations although the stated study is still disclosed to the general public.

Therefore understanding the supply chain of Ethiopia's coffee will be the primary job to deal with these all problems, since supply chain encompass all parties and processes that play significant role so as customer satisfaction and profit generation by that commodity to happen. Chopra and Meindl (2007) discuss a supply chain as a chain that consists of all participants that take part in receiving and filling customers request starting from suppliers of a product to the final consumer. Moreover, they also argue that profit maximization is gained either by creating better value to customers and get premium return or through minimizing the cost that the chain incurs in the process of generating value. And this will be achieved only by the joint supply chain participants effort to profitability and not by individual players success and even the profit individual participants achieve can reduce the profitability of the overall supply chain.

Although there are few studies on Ethiopia's coffee concerning its supply chain, some are not disclosed to the public and can't be used to build up knowledge and others such as Alebachew (2015) and Ethiopian Commodity Exchange Authority (2011) are more of border in scope and fail to look the supply chain in detail in narrower scale. And some other studies such as ODI (2009), Ethiopian Commodity Exchange Authority (2011), and Ethiopian Commodity Exchange Authority (2015) focuses only on legal and illegal market, economic benefit and opportunities and threats of coffee commodity.

Therefore this descriptive study by showing Harrar's coffee supply chain: participant parties, their role, the relationship between them and others who involved to serve the chain; will add knowledge on coffee commodity supply chain, will fill the gap on Harrar coffee's supply chain, will be the stepping stone for other studies to take place, useful for government reforms concerning any aspects with regard to Harrar coffee or coffee in general and will be a useful reference for scholars from this or other field of study.

1.3 Research Questions

Questions to be answered by this study will be:

1. What are the roles of supply chain actors in marketing of Harrar coffee?
2. How should be the supply chain map of Harrar coffee?
3. What are the major opportunities for Harrar coffee supply chain actors?
4. What are the major challenges that Harrar coffee supply chain actors are facing?

1.4 Objective of the study

1.4.1 General Objective of the Study

The main purpose of the study is to analyze Harrar coffee supply chain.

1.4.2 Specific Objectives of the Study

1. To determine the roles of supply chain actors in marketing of Harrar coffee.
2. To map the Harrar coffee supply chain.
3. To identify the major opportunities for Harrar coffee supply chain actors.
4. To identify the major challenges in Harrar coffee supply chain.

1.5 Significance of the Study

Based on ECX's nine years coffee market data since Harrar coffee is among the better revenue earner coffee type, studying its supply chain can help policy makers to develop rules and regulations so as to change the opportunities available in to benefits, break challenges hindering from getting the best from the commodity marketing and help to spot the illegal market and come up with solutions to minimize or eliminate it. Moreover understanding Harrar's coffee supply chain like any other basic studies can open the door for further studies to take place which in return help to find out further problems throughout the chain and figure out alternative solutions which help policy makers to made necessary adjustments in the available policies and procedures for the betterment of the sector.

By clarifying Harrar coffee supply chain map and the link between the actors, can give the actors idea on how their relation should be guided and how they should collaboratively work for better achievement of the chain goals. And again by identifying the opportunities and challenges, the actors be able to use the opportunities to make more profit and also prepare to change challenges in to opportunities.

By giving light on Harrar coffee supply chain, the study can be a stepping stone for researchers who have interest on the subject to see more questions and perform further studies. And it also can be used as reference for academicians from business or other field of study.

1.6 Scope of the Study

This study beyond other things mainly focuses on the flow of Harrar export coffee starting from the producers (farmers) until the exporters (the final customers of it inside the territory of Ethiopia). So in this study among Harrar coffee producer sub-regions of Oromiya, woreda's with plenty of supply is considered and the farmers (producers), collectors, exporters and others if any also included under investigation. Moreover the role of each actors and the link between them is seen.

1.7 Limitation of the study

In this study the researcher tried to measure Harrar coffee supply chain performance by taking only one of performance characteristics of a supply chain: efficiency. From efficiency measurements again only internal efficiency measurement category is addressed. So other efficiency and responsiveness measurements are untouched. Moreover because of scarcity of time and budget, Harrar coffee supply chain is studied only by taking a narrow part of Harrarge as a study area. Therefore making a research on Harrar coffee or Ethiopia's coffee with more sample area can bring more positive results that this study couldn't achieve.

1.8 Definition of Terms

Unwashed coffee is a type of coffee that dries with sunlight naturally.

According to Ethiopian Commodity Exchange Authority (2007) yearly awareness creation book, **Harrar Coffee** is among the trade names used to classify coffee commodity and given to a coffee type which is unwashed, that can be grouped in specialty or normal coffee type and can take grades starting from Q1 and Q2 up to UG and which grows in West and East Harrerge and some parts of Arsi and Bale (currently Bale's coffee excluded from Harrar coffee type and added to Bale coffee type).

“A **Supply Chain** is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished

products, and the distribution of these finished products to customers” (Ganeshan and Harrison, 1995).

1.9 Organization of the Study

The study report is organized by five chapters. Chapter one addresses the introduction section which include background of the study, statement of the problem, research question, research objectives, significance of the study, scope of the study, definition of terms and structure of the paper. Chapter two focuses on reviewing related literatures, presenting identified literature gaps and build up the conceptual framework. Chapter three on the other hand discuss in detail the components of design and methodology that is used in the study. Chapter four encompasses analysis of data obtained from the survey, findings and discussion of the findings. Finally, in chapter five the researcher summarizes the research findings and put conclusion, recommendations and limitations of the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

In this chapter related theoretical and empirical literature reviews discussed in detail and gaps that previous related research works have compared to this study's objective is addressed. Further conceptual framework of the study made known.

2.1 Theoretical Reviews

Unlike previous decades today's business(competitive) environment is not satisfying by quality products with good reputation and big brands; rather it is becoming more complex and continually changing which brings business organization's management a challenge and a question for survival in the market. As per Christopher (2011) statements, today's market environment is characterized by the new rules of competition; where companies standalone competition power becomes to its end and 'the era of supply chain competition' begins. This era pushes Companies to come close to each other and cooperate so as to confront the continually changing markets' need for responsive value creating and delivery. The second competitive market treat that is a challenge for current business managers is globalization of industry; today resources sourced worldwide, products produced at any spot in the world and the market for these products can be anywhere in the world. This situation tells that only strong multinational companies can win the competition and survive as the world market participant; the rest companies will be left with their local market only. Hence, working as a team and being strong is the only choice to win today's competition. The third treat is the downward pressure on price, now there is intense price competition globally which makes price to fall unlike seen before and this brings for today's companies a huge challenge to minimize costs so as to sustain their profitability. And finally, the source of income for a supply chain as per Chopra and Meindl (2007), the customers taking control the market. Christopher (2011) says, the customer in today's marketplace is more demanding, not just of product quality, but also of service. Moreover, the ability to become a market leader depends as much upon the effectiveness of one's operating systems as it does upon the presentation of the product, the creation of images and the influencing of consumer perceptions. Therefore today's customers seek additional service beyond the core product: either the core product is differentiated or it is backed by after sale service provisions.

So to face today's competitive market environment and keep going as an actor, companies must compete in the market collaboratively (in a supply chain form); and for this to happen, being

aware of the participants in one's supply chain and understanding the role they play, their capability and efficiency level will be mandatory.

2.1.1 Meaning of Supply Chain

“A Supply Chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers” (Ganeshan and Harrison, 1995). It consists of all parties involved, directly or indirectly, in fulfilling a customer request: manufacturers, suppliers, transporters, warehouses, retailers, and even customers themselves. And the primary purpose of any supply chain is to satisfy customer needs in the process of generating profit for itself. So customers are an integral part of the supply chain. (Chopra and Meindl, 2007)

2.1.2 Participants in the Supply Chain

One supply chain may differ from the other in the intensity of participants in each node of the supply chain, however a typical supply chain at least consists of suppliers, manufacturers, distributors, retailers, customers and service providers such as warehouse and transportation service providers. (Chopra and Meindl, 2007)

Suppliers are organizations who supply raw materials to producers so that transformation can take place and value can be created. In a wider supply chain a supplier may have its own suppliers and the chain may have suppliers' suppliers as additional participants.

Producers or manufacturers are organizations that produce finished products by adding value to raw materials or semi-finished assemblies taken from their suppliers. Their output (Products) can be tangible; such as a dining table made from timber or wood or a television assembled from its component parts; intangible, such as entertainment products or different kinds of designs; and it can also be a service product such as a cleaning service.

Distributors or wholesalers are organizations that take ownership of significant inventories of products that they buy from producers and sell to consumers. They typically sell to other businesses and sell products in larger quantities than an individual consumer would usually buy. Distributors buffer the producers from fluctuations in product demand by stocking inventory and doing much of the sales work to find and service customers, fulfill the “Time and Place” function: they deliver products when and where the customer wants them, perform product

promotion and sales work and manage inventory, warehouse operations, product transportation as well as customer support and post-sales services. A distributor can also be an organization that only brokers a product between the producer and the customer and never takes ownership of that product. This kind of distributor performs mainly the functions of product promotion and sales. In both types of wholesalers, as the needs of customers evolve and the range of available products changes, the distributor is the agent that continually tracks customer needs and matches them with products available.

Retailers on the other hand take a role to stock inventory and sell in smaller quantities to the general public. This organization also closely tracks the preferences and demands of the customers that it sells to. They advertise to their customers and often use some combination of price, product selection, service, and convenience as the primary draw to attract customers for the products they sell. Discount department stores attract customers using price and wide product selection. Upscale specialty stores offer a unique line of products and high levels of service.

Customers or consumers are any organization that purchases and uses a product. A customer organization may purchase a product in order to incorporate it into another product that they in turn sell to other customers. Or, a customer may be the final end user of a product who buys the product in order to consume it.

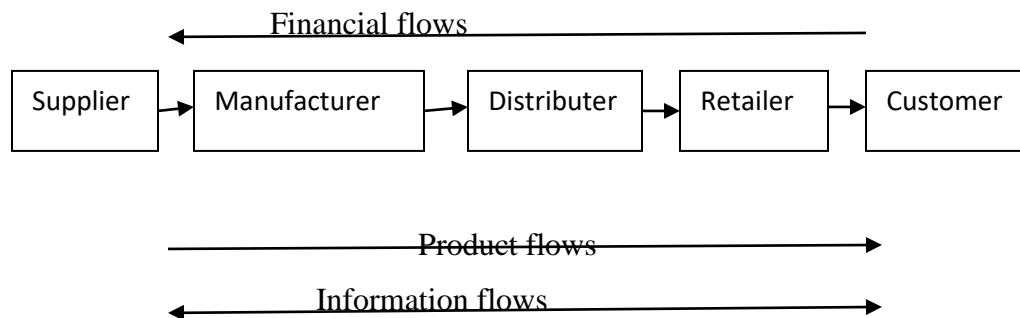
Service providers are organizations that provide services to producers, distributors, retailers, and customers. Service providers have developed special expertise and skills that focus on a particular activity needed by a supply chain. Because of this, they are able to perform these services more effectively and at a better price than producers, distributors, retailers, or consumers could do on their own. Some common service providers in any supply chain are providers of transportation services and warehousing services. These are trucking companies and public warehouse companies which collectively called logistics providers. Financial service providers deliver services such as making loans, doing credit analysis, and collecting on past due invoices. These are banks, credit rating companies, and collection agencies. Some service providers deliver market research and advertising, while others provide product design, engineering services, legal services, and management advice. Still other service providers offer information technology and data collection services. All these service providers are integrated to a greater or

lesser degree into the ongoing operations of the producers, distributors, retailers, and consumers in the supply chain.

2.1.3 How a Supply Chain Works?

Chopra and Meindl (2007) put it explicitly that the supply chain starts with a customer order for a product and goes until raw material for making this product is sourced and the final product reached the consumer. The process encompasses four separated but interlinked cycles filled with many activities. The cycles are customer order cycle, replenishment cycle, manufacturing cycle and procurement cycle. These activity cycles in a supply chain begins either in an anticipation of customer orders (push process) or initiated by a customer order (pull process). In the process of working to fulfill a customer need, three basic flows occur in every supply chain. They are financial flows, product flows & information flows.

Figure1. Supply chain network, processes and flows



Source: adapted from Chopra and Meindl, (2007).

2.1.4 Supply Chain Decision Making Areas

According to Christopher (2011), there are five areas where companies can make decisions that will define their supply chain capabilities. Companies in any supply chain must make decisions individually and collectively regarding their actions in five areas.

Production is one of these decision areas. What products does the market want? How much of which products should be produced and when? Are among the questions need to be answered. This activity includes the creation of master production schedules that take into account plant capacities, workload balancing, quality control, and equipment maintenance.

Inventory is the second area. What inventory should be stocked at each stage in a supply chain? How much inventory should be held as raw materials, semi-finished, or finished goods? Are some of the questions needs answer. The primary purpose of inventory is to act as a buffer against uncertainty in the supply chain. However, holding inventory can be expensive, so what are the optimal inventory levels and reorder points? This needs answer too.

Location is also a decision matter. Where should facilities for production and inventory storage be located? Where are the most cost efficient locations for production and for storage of inventory? Should existing facilities be used or new ones built? Once these decisions are made they determine the possible paths available for product to flow through for delivery to the final consumer.

Transportation is a core decision area especially when we talk about supply chain. How should inventory be moved from one supply chain location to another? Christopher (2011) mention that air freight and truck delivery are generally fast and reliable but they are expensive, whereas shipping by sea or rail is much less expensive but usually involves longer transit times and more uncertain. This uncertainty must be compensated for by stocking higher levels of inventory. When is it better to use which mode of transportation? Therefore these questions will get answer by decisions supply chain managers make.

Information is the one that link supply chain actors in spite of the fact that they locate dispersedly. How much data should be collected and how much information should be shared? Timely and accurate information holds the promise of better coordination and better decision making. With good information, people can make effective decisions about what to produce and how much, about where to locate inventory and how best to transport it.

Chopra and Meindl (2007) defined these areas of decision making as performance drivers that can be managed to produce the capabilities needed for a given supply chain. They further classified these supply chain performance drivers in to two. These are: Logistical drivers and cross functional drivers.

Logistical Drivers include facilities, inventory and transportation. Facilities are the actual physical locations in the supply chain network where product is stored, assembled or fabricated. Inventory on the other hand encompasses all raw materials, work in process and finished goods within a supply chain. So changing inventory policies can dramatically alter the supply chain's efficiency and responsiveness. Transportation entails moving inventory from point to point in the supply chain; which make it the core performance driver.

Cross Functional Drivers include information, sourcing and pricing. Information consists of data and analysis concerning facilities, inventory, transportation, costs, prices, and customers throughout the supply chain. Sourcing is the choice of who will perform a particular supply chain activity such as production, storage, transportation or the management of information. And by pricing managers determines how much a firm will charge for goods and services that it makes available in the supply chain.

In conclusion, effective supply chain management calls first for an understanding of each driver and how it operates since each driver has the ability to directly affect the supply chain and enable certain capabilities.

2.1.5 Supply Chain Management

Supply chain management is the management of upstream and downstream relationships with suppliers and customers in order to deliver superior customer value at less cost to the supply chain as a whole (Christopher,2011). His definition entails that supply chain management focuses on relationship management for the better outcome of the chain as a whole and in the process; it may involve scarifying individual's benefits for the betterment of the chain altogether. Supply chain management is the coordination of production, inventory, location, and transportation among the participants in a supply chain to achieve the best mix of responsiveness and efficiency for the market being served. (Hugos, 2003)

As per these definitions, successful supply chain management coordinates and integrates all of business activities within a particular company and across businesses within the supply chain in to a seamless process for the purpose of improving the long term performance of the individual companies and the supply chain as a whole.

2.1.6 Achieving Strategic Fit

As noted by Chopra and Meindl (2007), a company's competitive strategy defines, relative to its competitors, the set of customer needs that it seeks to satisfy through its products and services.

Competitive strategy targets one or more customer segments and aims to provide products and services that satisfy these customers' needs. To execute a company's competitive strategy, all core functions or processes play a significant role, and each must develop its own strategy. Here strategy refers to what each process or function will try to do particularly well.

A product development strategy specifies the portfolio of new products that a company will try to develop. It also dictates whether the development effort will be made internally or outsourced. A marketing and sales strategy specifies how the market will be segmented and how the product will be positioned, priced, and promoted. A supply chain strategy determines the nature of procurement of raw materials, transportation of materials to and from the company, manufacture of the product or operation to provide the service, and distribution of the product to the customer, along with any follow-up service and a specification of whether these processes will be performed in-house or outsourced. The value chain emphasizes the close relationship between the functional strategies within a company. Each function is crucial if a company is to satisfy customer needs profitably. Thus, the various functional strategies cannot be formulated in isolation. They are closely intertwined and must fit and support each other if a company is to succeed.

For any company to be successful, its supply chain strategy and competitive strategy must fit together. Strategic fit means that both the competitive and supply chain strategies have aligned goals. It refers to consistency between the customer priorities that the competitive strategy hopes to satisfy and the supply chain capabilities that the supply chain strategy aims to build. (Chopra and Meindl 2007)

All processes and functions that are part of a company's supply chain contribute to its success or failure. These processes and functions do not operate in isolation; no one process or function can ensure the chain's success. Failure at any one process or function, however, may lead to failure of the overall chain. According to Chopra and Meindl (2007), a company's success or failure is thus closely linked to the following keys. First the competitive strategy and all functional strategies must fit together to form a coordinated overall strategy. In other words, each functional strategy must support other functional strategies and help a firm reach its competitive strategy goal. Second, the different functions in a company must appropriately structure their processes and resources to be able to execute these strategies successfully. And last, the design of the overall supply chain and the role of each stage must be aligned to support the supply chain strategy.

Therefore, a company may fail either because of a lack of strategic fit or because its overall supply chain design, processes, and resources do not provide the capabilities to support the desired strategic fit. Hence, Chopra and Meindl (2007) point out three basic steps those companies must follow to achieve this strategic fit.

First, a company must understand the customer needs for each targeted segment and the uncertainty the supply chain faces in satisfying these needs. These needs help the company define the desired cost and service requirements. The supply chain uncertainty helps the company identify the extent of the unpredictability of demand, disruption, and delay that the supply chain must be prepared for. Second, a company must understand its supply chain capabilities. There are many types of supply chains, each of which is designed to perform different tasks well. A company must understand what its supply chain is designed to do well.

And lastly, achieving Strategic Fit: If a mismatch exists between what the supply chain does particularly well and the desired customer needs, the company will either need to restructure the supply chain to support the competitive strategy or alter its competitive strategy.

2.1.7 Supply Chain Coordination

Chopra and Meindl (2007) describe supply chain coordination as a chain where two or more independent organizations work jointly (collaborate) to plan and execute supply chain operations with greater success than when acting in isolation. They further elucidate that the chain coordination improves if all stages of the chain take actions that together increase total supply chain profits and if each stage tries to maximize its own profits, it will result in actions that often diminish total supply chain profits.

2.1.7.1 Reason for Lack of Supply Chain Coordination

As per Chopra and Meindl (2007) lack of supply chain coordination result from two basic reasons: either because different stages of the supply chain have objectives that conflict or because information moving between stages is delayed and distorted.

Different stages of a supply chain may have conflicting objectives since mostly each stage has a different owner. As a result, each stage tries to maximize its own profits, resulting in actions that

often diminish total supply chain profits. On the other hand information is distorted as it moves across the supply chain because complete information is not shared between stages and may result in inventory accumulation and cost increase.

2.1.7.2 Supply Chain Coordination and its Effect on Performance

If participants of a supply chain work as one organization; the result will be responsive service, low cost and profit maximization. If a supply chain lacks coordination the effect on its performance will be revealed in two ways. As discussed by Chopra and Meindl (2007), a supply chain lacks coordination because each stage optimizes only its local objectives without considering the impact on the complete chain, then total supply chain profits will be less than what could be achieved through coordination and/or a supply chain lacks coordination because there is information distortion in the supply chain then the result may be the bullwhip effect: distortion in demand information within the supply chain, each stage having a different estimate of what demand looks like. The bullwhip effect, then, increases manufacturing cost, inventory cost, transportation cost, replenishment lead time and labor cost for shipping and receiving. Moreover it decreases level of product availability and results in more stock outs in the supply chain which increases the likelihood that retailers will run out of stock and resulting in lost sales for the supply chain. And finally, since it has a negative effect on performance at every stage, it hurts the relationships between different stages of the supply chain and produce a situation that blaming one another in the supply chain to happen because each stage feels it is doing the best it can. The bullwhip effect thus leads to a loss of trust between different stages of the supply chain and makes any potential coordination efforts more difficult.

2.1.7.3 Managerial Keys to Achieve Coordination

Therefore to achieve this coordination and increase total supply chains profit and moderate the bullwhip effect, Chopra and Meindl (2007) discuss managerial actions that must be put in practice.

Aligning of goals and incentives is one among managerial actions that managers can use to improve coordination within the supply chain by aligning goals and incentives so that every participant in the supply chain activities works to maximize total supply chain profits.

Improving information accuracy is the other action that managers have to use to achieve coordination by improving the accuracy of information available to different stages in the supply chain. Sharing point-of-sale (POS) data across the supply chain and using the Internet to share data with suppliers, forecasting and planning jointly and designing a supply chain with a single stage control of replenishment; these together help to increase coordination across the supply chain participants and minimize the bullwhip effect.

The other action that can help a Manager diminish the bullwhip effect is improving operational performance and designing appropriate product allocation schemes in case of shortages. For instance ordering electronically can reduce the replenishment lead time, which in return can decrease the uncertainty of demand during the lead time.

Designing pricing strategies to stabilize orders and building partnerships and trust are also among the managerial actions that managers can use to achieve supply chain coordination and increase total supply chains profit. Managers can weaken the bullwhip effect by devising pricing strategies that encourage retailers to order in smaller lots and reduce forward buying. Chopra and Meindl (2007) mention volume-based quantity discounts result in smaller lot sizes, thus reduce order variability in the supply chain and placing limits on the quantity that may be purchased during a promotion help to decrease forward buying.

And finally, it had been easier to practice the above points to diminish the bullwhip effect and achieve coordination, if trust and strategic partnerships were already installed within the supply chain. Therefore if partnership and trust is build in the supply chain; actors in it can eliminate duplicated effort and this lower transaction cost along with accurate shared information and help to mitigate the bullwhip effect.

2.2 Empirical literature Review

Ethiopia is among the countries who supply coffee to the world market, specifically, she is grouped as one of the top supplier of coffee Arabica to the world coffee market. As per ten years trade information from ministry of trade, coffee is the first export item on the amount of foreign

exchange it captures to the country: on average it collects 611,432.72\$ of income from an average amount of 198,332.00 ton coffee exported. However, nowadays the amount that we are exporting is becoming lower and we are earning a small benefit compared to the potential we have. The same is true for Harrar coffee type: it is relatively low in amount of production from other Ethiopia's coffee types and it is becoming very low time to time. This section briefly discusses the way previous studies look this topic.

Ethiopian Commodity Exchange Authority (2014) on its study to evaluate Coffee Exporters Marketing Cost and Profit Margin; among the actors of the Ethiopia's coffee supply chain it tries to look only coffee exporters on the cost they incur in the process of marketing the commodity and the profit margin they get. And the study basing on its findings concludes that the profit margin these exporters get is very narrow and by that it also minimizes the return the country gets from the sector. The study also discussed the causes that make the profit margin thinner: coffee quality, increase in transaction costs and narrow market coverage sited as internal causes. And decrease in the price of coffee in world market mentioned as external factor.

Ethiopian Commodity Exchange Authority (2011) on its study to assess economic benefit of coffee, tries to look the benefit that coffee supply chain actor retrieve after the launch of ECX, current challenges in the supply chain and alternative actions to achieve more from the sector. The study concludes from its findings that the starting of ECX makes the marketing of coffee modern and legal and by that the actors on its supply chain beginning to get better revenue comparing to the older system; however the actors are still facing obstacles such infrastructure problems, logistics problems, limited participation of different supply chain actors on the sector and the sector still not free from illegal aspects.

Alebachew (2015) on the other hand tries to study the Value Chain of Ethiopian coffee: from Farmers to Exporters. It figures out the value added by each actors of coffee supply chain through investigating stakeholder governmental organizations in the sector and concludes that the actors are still not benefited as per their effort but off course the addition of ECX make the sector a little more manageable by regulatory governmental organizations.

2.3 Conceptual Framework

Hugos (2003) noted that, in supply chain management there are two characteristics that measure supply chain performance: responsiveness and efficiency. Hugos (2003) further discuss that these performance characteristics on the other hand precisely measured by four measurement

categories: customer service, internal efficiency, demand flexibility and product development. This study examines internal efficiency of Harrar coffee supply chain first by determining Harrar coffee supply chain actor’s roles, the link between them and the opportunities and challenges in the chain.

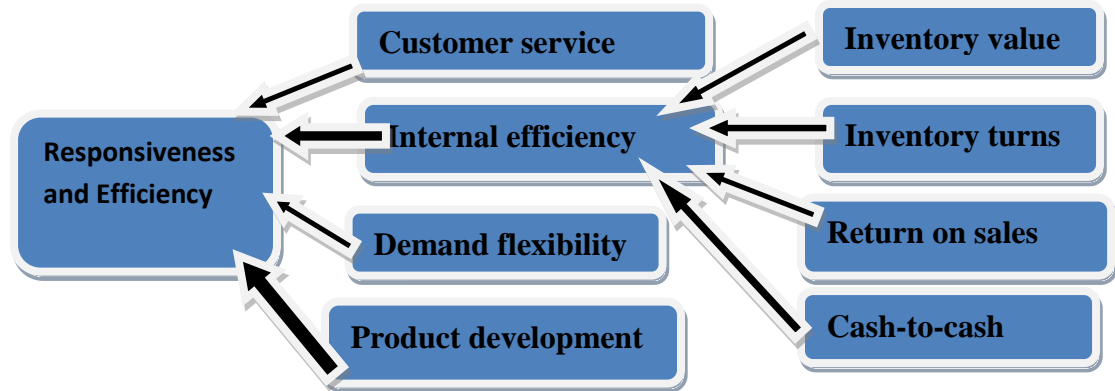



Figure 2: Internal efficiency measurement components

Source: own computation

Key: the direction of cumulative result 

2.4 Identified Literature Gap

This section briefly discuss the way previous studies look this topic and how this study differ and adds to the existing body of knowledge.

There are few studies on Ethiopia’s coffee concerning on its supply chain, legal and illegal market, economic benefit, production and marketing and opportunities and treats on it. Most of these studies are made by governmental organizations with the purpose to solve some popup problem at that specific time boundary; therefore they are more of applied type and among these studies some are not disclosed to the public and can’t be used to build up knowledge. And again some others are more of border in scope and fall to look the supply chain both in horizontally and vertically in detail with narrower scale. Moreover these studies are more of general types that they look Ethiopia’s coffee in general rather than separately study the coffee types that Ethiopia has.

The Ethiopian Commodity Exchange Authority (2014) study for instance focuses only on exporters among the participants of coffee supply chain of Ethiopia plus it only try to look the cost incurred and the revenue earned by the exporters. So this study considers only one actor of a supply chain and focus only on profit margin among other aspects of this specific actor.

Alebachew (2015) on the other hand studies value chain of Ethiopian coffee from farmer to exporter, however the scope is very wide: the study not specifically focus on a single coffee type, method of sampling is only non probability: the sample population is selected without giving equal chance to the population under study, the study didn't include all actors of a supply chain: it falls to consider private collectors who buys the coffee from farmers and provide the market and finally it didn't look Harrar coffee type at all.

Therefore, this study will give light on Harrar coffee's supply chain by giving a chance to everyone in the population to be considered under the investigation, look the role each actor plays and the relationship between them and also study opportunities and challenges existing in the supply chain in the process of marketing Harrar coffee. Again the role that logistic providers play also is seen since it is significant for a supply chain goal to be achieved.

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

On this chapter geographical and economical figure of the study area is given. Moreover the research design, approach and the type and source of data that is used in the study is described. Besides the procedures that are used to collect and analyze data from the survey discussed in detail.

3.1 Description of the Study Area

Harrerge is part of Oromiya composed of two zones: West and East Harrerge. This study is carried out in one of West Harrerge's wereda: Darolebu. Darolebu is the primary wereda that makes West Harrerge to supply more coffee relative to the other Harrar coffee producing zones. It encompasses 22,424 coffee farmers and 45 coffee traders (suppliers).

As per CSA's 1999E.C census, the wereda has a total population of 198,095. Of this total population, the rural population counts 181,233 and among this 22,424 engaged in coffee farming. The contribution of agriculture sector on the economy of the wereda is significant. And the sector in this wereda comprises crop production which includes food crops and cash crops such as coffee and chat and livestock rearing. Therefore, the society in Darolebu is agriculture dependent and mixed farming is the dominant practice; coffee on the other hand is part of this mixed farming.

3.2 Research Design

This is a descriptive study that assesses Harrar coffee's supply chain participants, their role and the link between them so as to be clear about the chain and build up knowledge on it and use this knowledge for further investigation in the process of solving coffee commodity's productivity obstacles.

3.3 Research Approach

Hailu (2016) argue that Supply chain analysis comprised of two main stages: mapping the chain and measuring chain performance. In mapping the chain; the actors involved in the chain, their role and connection can be identified and while measuring the chain performance, its responsiveness and efficiency is measured. Therefore to analyze Harrar coffee supply chain, a survey strategy is used because Saunders *et al.* (2009) mentioned it as the most frequently used strategy to answer who, what, where, how much and how many questions and by that it tends to be used for descriptive research. Moreover, Saunders *et al.* (2009) note that survey strategy allows to use both quantitative and qualitative method of data collection; and questionnaire and structured interviews fall into the most frequently used instruments in this strategy. So in this study to be clear with the actors involved in Harrar coffee supply chain, understand their role and relationship and map the chain and further to measure its performance with internal efficiency performance measurement, a survey strategy and mixed data collection method is used. Besides, opportunities and challenges existed in the chain is summarized by content analysis of the data gathered from the survey.

3.4 Study Variables

In this study supply chain internal efficiency measurement variables such as inventory value, inventory turns, and return on sales and cash-to-cash cycle time are examined. Moreover demographic variable of the actors of Harrar coffee supply chain such as age, sex, educational level and role also studied. Further the relationship between these participant parties is realized.

3.5 Population and Sample Design

The supply chain of export coffee starts with input suppliers and continues with producers, traders (primary collectors, cooperatives and suppliers of the commodity to the market), exporters (buyers of the commodity) and finishes with final consumers of it: coffee market outside the territory of Ethiopia which is excluded from the study. In this supply chain there are also business and governmental organizations that provide logistics service and regulate the chain so as a smooth flow of the commodity to happen.

Seed supply is the first and primary input in the supply chain of coffee. Atilaw (2010) concludes that seed supply system in Ethiopia is divided in to two broad types: the formal and informal systems. Although the formal system is the original source of improved seeds in the informal

system, the informal system (either self-saved seed or farmer to- farmer seed exchange) accounts for 90% of the seed used by smallholder farmers. Therefore the seed suppliers are the farmers themselves however, in this study among the formal seed supply system the Ethiopian Coffee and Tea Development Authority also included under examination.

Producers (farmers) are the second participants in the upper part of the supply chain. First from the three Harrar coffee type producer regions, basing on secondary data analysis and experience survey, West Harrerge region is selected as representative by the amount of supply and the Harrar coffee test it has. Then Darolebu wereda is selected from the region by the quantity of supply it has. Hence the population that the study examines is Darolebu wereda and the size of coffee farmers in the wereda is 22,424.00.

Then by using multi stage sampling method. First kebeles in the wereda is ranked from the smallest to largest basing on the number of coffee farmers they have then the kebele with the highest coffee farmers is just picked. Tekina is the kebele with highest coffee farmers in Darolebu wereda: 2514 households engaged in coffee cultivation. Then by using Carvalho *et al.* (2006), 125 coffee farmers are selected to be studied using simple random sampling method and out of them 80 farmers participate in the interview.

Table 1. Size of farmers under the study

Population Size	Sample Size		
	Low	Medium	High
51 – 90	5	13	20
91 – 150	8	20	32
151 – 280	13	32	50

281 – 500	20	50	80
501 – 1200	32	80	125
1201 – 3200	50	125	200
3201 – 10000	80	200	315
10001 – 35000	125	315	500
35001 – 50000	200	500	800

Source: Sample Size Determination Table, Carvalho *et al.* (2006)

On the trader’s side, according to Darolebu wereda trade and industry office 45 private licensed coffee traders (collectors) are available in the wereda. In addition there are 10 licensed intermediaries that have a permit to sell coffee for them and others in the ECX market. Therefore together there are 55 traders (collectors); then by using Carvalho’s Sample Size Determination Table, 13 traders (collectors) are selected to be studied using simple random sampling method.

The other actors that are included in the sample of this study is exporters; coffee exporters who specifically engage in exporting Harrar coffee type are 28 in number. Since they are small in number, all are taken under investigation.

The rest are commission agents and governmental organizations that have a stake on the flow of the commodity in the supply chain. There are 23 licensed commission agents who have a permit to act as a representative of the collectors and exporters in the process of selling and buying the coffee for a commission fee, however five of them are only exporters or collectors and do not work as commission agents so the left 18 are included under the study. Ethiopian Commodity

Exchange and other concerned governmental institutions such as Ethiopian Commodity Exchange Authority and Coffee and Tea Development Authority are also examined.

3.6 Types and Sources of Data

Both qualitative and quantitative types of data are collected from both primary and secondary data sources. The primary data type is collected from sample coffee producers, suppliers (primary collectors and cooperatives), exporters and other involved third parties who don't take ownership of title for the commodity but has a role in the supply chain (ECX and intermediary commission agents). The data from primary data sources is collected using structured interview and questionnaire method. Secondary data on the producer regions of Harrar coffee, amount of supply from the regions, number of producer weredas, coffee farmers' population in the weredas, list of kebeles in the weredas, number of licensed suppliers, number of intermediary commission agents and number of exporters is obtained from governmental organization such as ECEA, CSA, Ministry of Trade, Oromiya Trade Bureaus and Trade and Industry Offices of the weredas.

3.7 Data Collection Procedures

To collect primary data from the sample under study, structured interview and questionnaire methods of data collection is used. Interview method is used because it lets to gather information with greater depth, gives the researcher (interviewer) the chance to observe the situation and increase an opportunity for supplementary information to be cached that may not be possible if other method besides interview were used. The researcher uses structured interview type because Saunders *et al.* (2009) recommend it as more appropriate when the study purpose is description. The questionnaire on the other hand is used for those participants of the study with the ability to read and reply by themselves after receiving general advice on the matter and for those who doesn't have or want to give time for interviews to be taken. In this case use of interviews can be wastage and questionnaire is cost effective and saves time. The application processes includes both self-administered and interviewer administered types. Saunders *et al.* (2009) argue that, when these both instruments administered by the interviewer it gives the researcher more Confidence about the respondent being the right person and increase response rate; therefore the researcher applied more of interviewer administered application type. And to ensure that the data collected addresses the objective of the study and also to assess internal validity through content validity Saunders *et al.* (2009) argue that one method is to develop data requirement table.

Therefore the researcher develops this table so as to make sure that questions in the instruments touch all of the specific objectives under the study.

Table 2. Data requirement table

Research question/ objective:			
Types of research:			
Investigative questions	Variable(s) required	Detail in which data measured	Check measurement question included ✓

Source: Data requirement table, Saunders *et al.* (2009)

Thus by using the above table, questions of this research are checked if they are separately represented by questions in the instruments that are used to collect primary data. Hence the objective to determine the roles of supply chain actors in marketing of Harrar coffee is represented by question no. 8 and 3 of questionnaire prepared for exporters and suppliers respectively; to assess relationship between different supply chain actors of Harrar coffee, represented by question no. 6 and (6, 5) of questionnaire prepared for exporters and collectors respectively; to identify the major challenges and opportunities of supply chain actors involved in Harrar coffee, represented by question no.(14, 16), (5, 11) and (4, 11) of questionnaire prepared for exporters, producers and collectors respectively. In addition internal efficiency measurements that are employed to analyze Harrar coffee supply chain performance are also represented by questions under instruments used to collect primary data. So, these measures of internal efficiency: inventory value; represented by question no. 10 of each questionnaire prepared to the three actors, inventory turns; represented by question no. 5,16 and 4 of questionnaire prepared for producers, exporters and collectors respectively; return on sales; represented by question no. 11 and 9 of questionnaire prepared for exporters and producers respectively, and cash to cash cycle time represented by question no. 12, 8 and 7 of questionnaire prepared for exporters, producers and collectors respectively.

3.8 Method of Data Analysis

Data that is collected from both primary and secondary sources either it belong to qualitative or quantitative data type, is analyzed using both quantitative and qualitative analysis methods. Descriptive statistics measurements such as frequency distribution measure and inferential statistics such as correlation are used to scrutinize quantitative data types to see relationships

between the actors and also to summarize qualitative data quantitatively. For qualitative data type content analysis of response method is used. Then these measures applied in computer software called SPSS version 22 so as to come up with outputs and findings presented using tables and discussions. Additionally, supply chain map is also being used to identify, categorize, signify the role of each Harrar coffee supply chain actor and relate the actors involved.

3.9 Validity and Reliability test

Content validity refers to the extent to which the measurement device, the measurement questions in the questionnaire, provides adequate coverage of the investigative questions. (Saunders *et al*, 2009). Thus, the content validity of instruments used in this study is checked in the process of representing the research specific objectives under instruments. Reliability on the other hand, as mentioned by Saunders *et al*. (2009), is concerned with the robustness of questionnaire and, in particular, whether or not it will produce consistent findings at different times and under different conditions, such as with different samples or, in the case of an interviewer-administered questionnaire, with different interviewers. Therefore to asses it, internal consistency approach which measures the consistency of responses across questions from the questionnaire, is being used and it is calculated using Cronbach’s alpha method.

The formula for Cronbach’s alpha is:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N - 1) \cdot \bar{c}} \dots\dots\dots 1$$

Where:

- N = the number of items
- \bar{c} = average covariance between item-pairs
- \bar{v} = average variance

And a rule of thumb for interpreting alpha is:-

Table 3. Cronbach's alpha measurement

Cronbach's alpha	Internal consistency
$0.9 \leq \alpha$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

Source: Cronbach's alpha, Field (2005)

Therefore, using SPSS software, internal consistency of data gathered from Harrar coffee supply chain actors is calculated and the result become: alpha equals 0.79 for exporters, collectors and producers; which is acceptable based on Cronbach's alpha rule.

3.10 Ethical Consideration

As stated on the first chapter, above all, the goal of this study is to analyze Harrar coffee's supply chain. Therefore besides examining the chain there is no other hidden intention that can harm or endanger respondents or violate non-disclosure agreement of any institution which will be seen in the process of the study or who may have a role in the supply chain of Harrar coffee. To sum up, this study safeguards respondent and only use their ideas to meet the objective of the research and the secondary data that is being used in the study are only the one that is disclosed to the general society too.

CHAPTER FOUR

RESULTS, DISCUSSION AND INTERPRETATION

In this chapter the collected data from supply chain actors of Harrar coffee, analysis of it and discovered results will be presented. The collected data were analyzed by using both quantitative and qualitative analysis methods. Quantitative data types analyzed by applying frequency distribution measures and inferential statistics measurements on computer software called SPSS version 22. And for qualitative data types content analysis of response was used to obtain findings. In addition response rate and reliability test is used to confirm the quality of the collected data.

In this study 85 farmers, 13 collectors and 28 exporters of Harrar coffee participate and all are respond to the questionnaire and interview provided since the application of data collection instruments is mainly administered by the researcher. Besides 18 intermediary commission agents and three governmental stakeholder organizations also included. All 85 of farmers are male; and 26 of them belong to 18-30 age group, 40 of them belong to 31-45 age group and 14 are belong to 46-60 age group. Of the 13 collectors 7 are sole proprietors, 4 are private limited companies and 2 are cooperatives. And the 28 exporters' owners (managers) educational level is distributed starting from below tenth grade level to post graduate level. so, 4 of them are below tenth grade level, 7 of them belong to in the high school graduate level, 10 of them are degree holder and 1 is belong post graduate category.

4.1 Harrar coffee supply chain actors and their roles

Supply chain actors are differing from supply chain supporters in terms of ownership status they have to the product. Supply chain actors own the product. Ownership is transferred from one actor to the next actor in the chain. Chain supporters are logistics providers who support actors in the supply chain by providing services but not own the product. The actors in Harrar coffee supply chain are input suppliers, producers, collectors (suppliers) and exporters. Whereas the Harrar coffee supply chain actors supporters include different governmental stakeholder organizations, commission agents and logistic providers.

4.1.1 **Input suppliers:** As revealed by the sample farmers in this survey, the input suppliers in coffee supply chain are farmers, district agriculture bureau and local supply market. The input provided includes seed, fertilizer, and pesticides. The coffee seed that producers' uses in most cases home saved seeds of local varieties but in the case of improved seed supply the share of local agriculture bureaus increases.

Table 4. Percent of farmers getting seed supply from various input suppliers

Source of seed supply	Frequency	Percent (%)
Local agriculture bureau	40	50
Farmers (self save)	33	41
market	20	25

Source: own survey, 2018

So the input suppliers' role is to provide farmers with inputs such as seed and basing on this survey, 41% of seed supply comes from the farmers themselves. Therefore as per Atilaw(2010), the seed supply for Harrar coffee supply chain is mainly from the informal system.

4.1.2 **Producers:** Harrar coffee producers are small-scale farmers who grow coffee mainly to generate income and for home consumption also. These farmers' age composition on average belongs to the country's work force age group and mainly dominated by male sex. Besides coffee cultivation is their life time expertise. The seeds that they use are in most cases home saved seeds of local varieties and improved seed obtained from local agriculture bureaus. After harvests, the coffee is sold mainly to local traders such as primary market collectors, cooperatives (unions) and wholesalers. Farmers are supply chain actors that participate in both production and marketing of the coffee they produce. At the same time, they transport the coffee to the nearest markets or urban markets by themselves, either using a pack animal or a hire vehicles. Therefore, these farmers are small scale farmers with traditional cultivation system and low quantity and quality production level.

Table 5. Demographic presentation of Harrar coffee producers (farmers)

Demographic variables	Age (in years)					Sex	
	18-30	31-45	46-60	above 60	total	male	female
frequency	26	40	14	0	80	80	0
Percent (%)	32.5	50	17.5	0	100	100	0

Demographic variable	work experience				
	1-10 years	10-25 years	25-40 years	above 40 years	total
frequency	26	26	20	7	79
Percent (%)	33	33	25	9	99

Source: own survey, 2018

4.1.3 **Collectors:** are legally licensed coffee traders that can be primary coffee collectors from the farmers, cooperatives (unions) organized by the government having farmers as a member and suppliers that buy the coffee from primary collectors, cooperatives or farmers. Collectors use their vehicles or hire the service to transport the coffee to ECX warehouses located at Diredawa city. After the coffee reaches at ECX warehouses, they have a responsibility to comply with all quality qualification and grading processes requirements demanded by ECX so as the coffee to be sold in the trading unit of ECX. Fulfilling these requirements that are demanded by ECX officials can be done by the collector itself as a member or by using commission agents that are registered as agent (or intermediary member) of coffee traders at ECX. After the coffee meets all qualification processes and gets its grade level it should be sold within a maximum of 30 days; otherwise it will expire. These graded Harrar coffee type will be sold to legally licensed exporters that can be able to present or represent themselves in the ECX market.

Table 6. Frequency distribution of collectors with respect to the form of the company, managers (owners) sex, and work experience

Demographic variable	sex			Work experience				
	male	female	total	1-5 years	5-10 years	10-15 years	Above 15 years	total
frequency	11	2	13	3	8	1	1	13
Percent (%)	85	15	100	23	61	8	8	100

Demographic variable	Form of the company				
	Sole proprietor	Share company	PLC	Cooperatives	total
Frequency	7	0	4	2	13
Percent (%)	54	0	31	15	100

Source: own survey, 2018

As the data shows, despite the collectors existed in Harrar coffee supply chain organized in a different form of company, they are dominated by single person ownership form. In addition above 50% of them have above five years experience in the sector.

4.1.4 **Exporters:** are business organizations that can be a sole proprietor or private limited company or government owned firm with legal permit as a buyer of coffee in the ECX market. These business organizations can directly export the coffee they collect and processes from primary market just only by passing ECX's quality control preconditions and grading processes or they can buy a coffee that is provided by a collector to ECX market. These exporters after they buy the row coffee from the collectors, they transport it to their processing plants and sort and pack the coffee in the way that the world coffee market requires. They are also the one who search the market for the commodity in the world market, negotiate for price and other terms, and fulfill all the necessary quality conformation processes and custom clearing processes that are required by appointed governmental organizations so that the coffee to pass the territory of Ethiopia. Finally they transport the coffee either by

using their own vehicles or by hiring to the port of Djibouti and make sure that the commodity is on board of the buyer's water transport system; after that it is the buyer's responsibility.

Table 7. Frequency distribution of exporters with respect to the form of the company, managers (owners) sex and education level

Demographic variable	Education level						sex		
	Below 10 grade	10-12 grade	diploma	degree	Above degree	total	male	female	Total
Frequency	4	7	6	10	1	28	24	4	28
Percent (%)	14	25	21	36	4	100	86	14	100

Demographic variable	Form of the company				
	Sole proprietor	Share company	PLC	Governmentally owned companies	total
Frequency	6	0	21	1	28
Percent (%)	21	0	75	4	100

Source: own survey, 2018

Generally, considering the demographic variables, the data declare that the sector is dominated by males (90%) and majority of the businesses organizations in Harrar coffee supply chain are sole proprietors (58%). In addition even at the exporters level most of (above 50%) the companies managed by managers below degree level educational background only by depending on their long term attachment with the commodity.

4.1.5 Logistic providers: There are many governmental stakeholder organizations who has a role in the supply chain of coffee and work in components such as awareness creation and knowledge development both in production and marketing aspects; legally certifying the actors; making rules, regulations and guidelines and follow and support the actors to make sure that their work is in accordance to the rules; and also

work in quality controlling, custom clearing and transportation services. However, ECX and commission agents (intermediary members) at ECX play a major role in the supply chain of coffee without taking ownership title to the commodity.

4.1.5.1 ***Ethiopian Commodity Exchange (ECX)***: ECX is governmental organization that works as a market for an exchange to take place. It has warehouses and quality measurement and grading laboratories at some parts of the country and has manual and electronic trading floors at Addis Ababa. It receives suppliers' coffee on its warehouses and performs jobs such as sampling, grading and issuing grade certificate; weigh the commodity and issue scale ticket and store the commodity until it expires in line with their grade specifications. ECX also work with few legally certified banks that exist in the country so as money to be drawn and transferred from exporters' depots to sellers (suppliers) account after the point of trade. So without owning any ownership title, ECX is just modern exchange place or a market that sellers and buyers come together and exchange what they have. And to do so it asks for a service charge from both actors.

4.1.5.2 ***Commission agents (intermediary members) at ECX***: To be an exchange actor at ECX market one has to be a member at ECX by having a seat. In other words there are imaginary "seat" that is open to any Ethiopian to be bought so as one can enter and make an exchange of commodities that are stated to be sold at ECX market by law of the country. So plenty of exchange actors (suppliers and exporters) want and able to have that seat but the seat is limited in number. So commission agents are members of ECX who have a seat and a permit to represent other exchange actors at ECX trading unit. Although there are 23 certified commission agents (intermediary members) who particularly work as a trader of Harrar coffee type and has a permit to represent others, only 18 are practicing their right; the rest just buy or sell for them only. So these intermediary members facilitate and ease the exchange by representing plenty of suppliers and exporters at ECX and made an exchange for them and take commission fee in return.

4.2 Mapping the Harrar Coffee Supply Chain

Hailu (2016) argue that supply chain analysis comprised of two main stages: mapping the chain and measuring chain performance. In mapping Harrar coffee supply chain; the actors involved in the chain, their role and relationship is identified. Harrar coffee supply chain starts with input suppliers: mostly the farmers themselves and sometimes the local agricultural bureaus since their close appearance made the farmers immediately to contact them. Then the chain goes down to the producers: who are the cultivators of the coffee and then cooperatives, primary market collectors and collectors (suppliers) take ownership of title and make the coffee reaches to the commodity market. Since this study's focus area is Harrar type export coffee, the final actor of Harrar coffee supply chain is the exporter. So finally the exporter buys the coffee and sends it to world's coffee market. In the process of ownership transfer from one actor to the other information and money also exchanged. Besides to make this coffee reaches exporters, many governmental and private organizations involve in the process and play different supporting and facilitating roles. These organizations include federal, zonal, and local trade and industry development offices; agricultural development bureaus; different private and governmental logistic providers and commission agents; quality control and custom clearing organizations and governmental regulatory organizations.

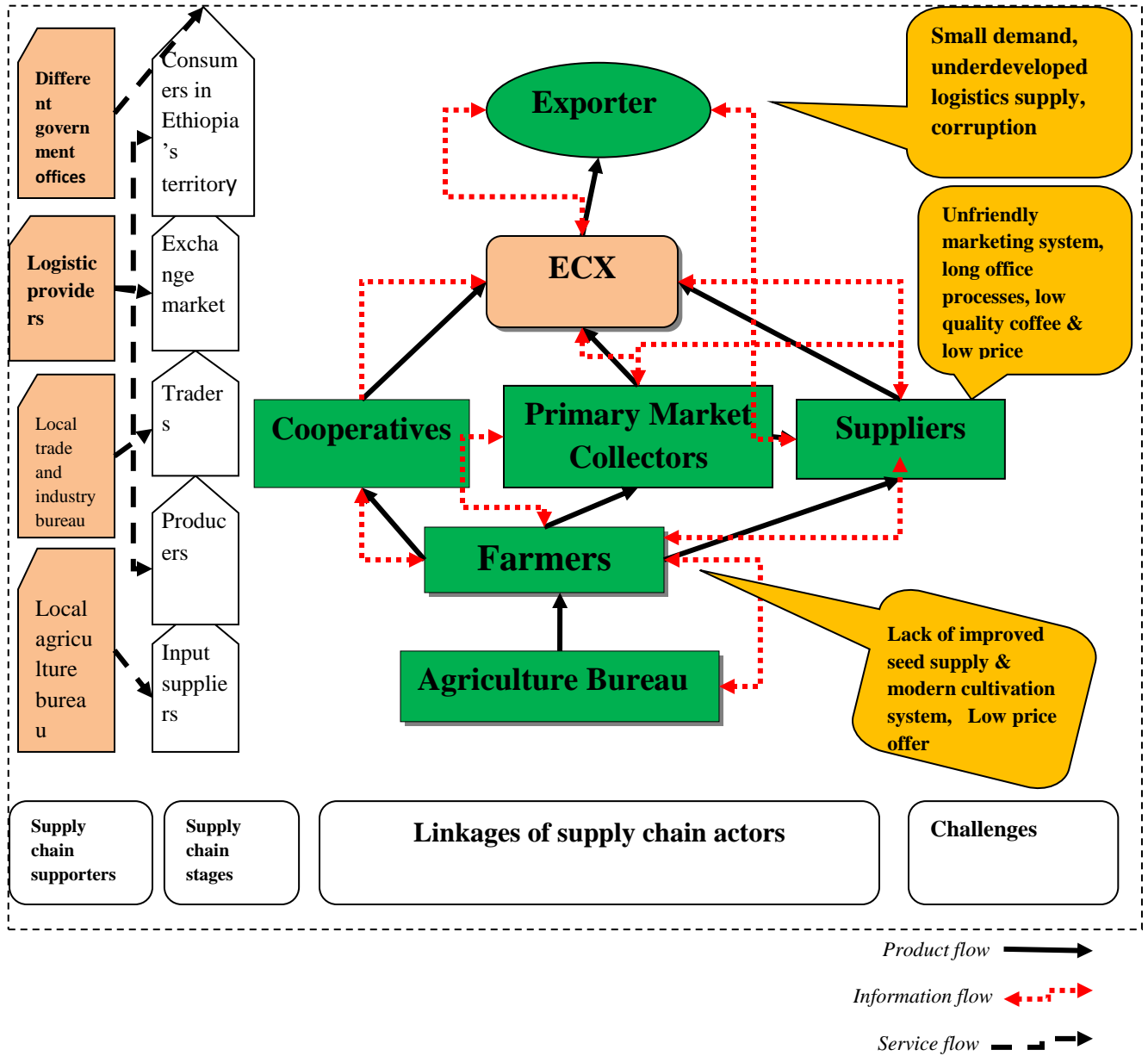


Figure 3. Harrar coffee supply chain map (actual)

Source: own draw from the survey, 2018

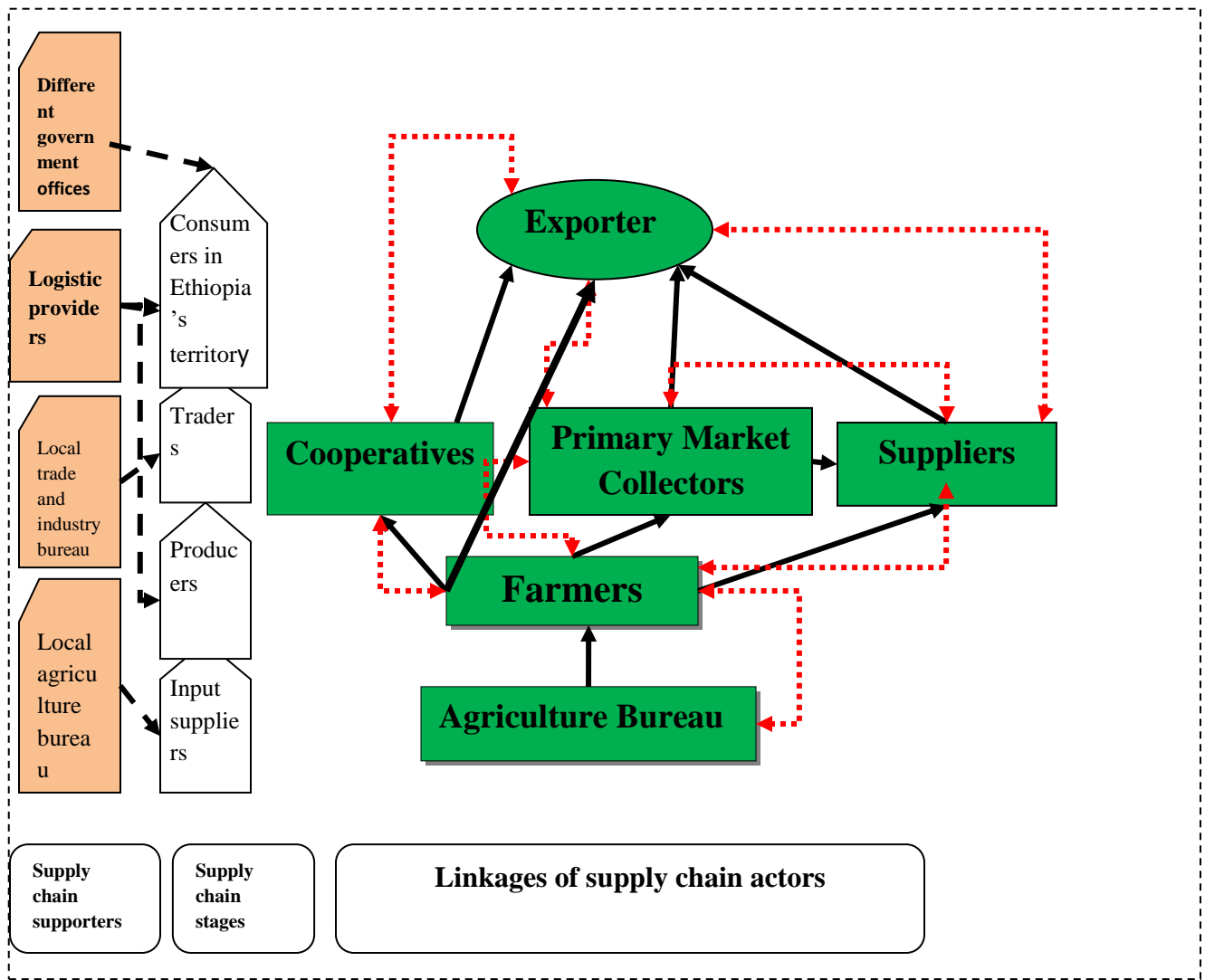


Figure 4. Harrar coffee supply chain map (proposed)

Source: own draw

In Harrar coffee supply chain if ECX and the commission agents, who works as representative body for the suppliers and exporters in the ECX market in return for commission fee, are omitted from the chain; the chain can minimize its cost and generate better revenue. Moreover, if the number of governmental organizations who have a stake in the chain can be cut down to a few in

numbers and if strong logistic provider company replaces them, then the Harrar coffee supply chain would be more efficient than before.

4.3 Performance, Opportunities and Challenges of Harrar coffee supply chain actors

4.3.1 Performance of Harrar coffee supply chain actors

As discussed by Hugos (2003), supply chain performance is described by two characteristics: efficiency and responsiveness. Further these performance characteristics precisely measured by four measurement categories: customer service, internal efficiency, demand flexibility and product development. In this survey, Harrar coffee supply chain performance is measured by looking internal efficiency measurement category since looking the chain's productivity is the major aim of this study and going further to look the other three performance measurements is less relevant to the aim considering the time and budget constraints.

“Internal efficiency refers to the ability of a company or a supply chain to use their assets as profitably as possible.” (Hugos, 2003). As pointed out by Hugos (2003) the major measures of internal efficiency are Inventory value, Inventory turns, Return on sales and Cash-to-cash cycle time. Inventory value means matching supply with demand and not have excess inventory left over. Inventory turns are the speed that inventories turned to earnings and generally the higher the turn rate the better. Return on sales on the other hand measures how well fixed and variables costs are managed and also the gross profit generated on sales and the higher it is the better. And finally cash- to- cash cycle time is a measurement of the time it takes from when a company pays its suppliers for materials to when it gets paid by its customers and the shorter this cycle time the better. (Hugos, 2003)

Inventory value: from 121 cumulative respondents from farmers, collectors and exporters; 39% of them mentions that supply and demand matches, 7% state that supply is below demand, 20% conforms the existence of more supply beyond the demand and there is a situation that is very difficult to made comparison between demand and the rest 34% declare that supply and have unstable behavior. This means around 25 respondents affirm that there is excess coffee inventory left over in the supply chain. So this response signifies inefficiency in the supply chain by measurement of inventory value.

Inventory turns: all sample respondents from the three Harrar coffee supply chain actors: farmers, suppliers and exporters mention that coffee is the most quickly converted to money

commodity and that is one of the reasons why they stay in the business when it is less profitable compared to their effort. So by inventory turns measurement Harrar coffee supply chain internal performance is efficient.

Return on sales: based on the collected responses from the sample 121 Harrar coffee supply chains actors, 48 of them state that there is low return from their sales, 66 confirm that they get average return from their sales and 7 are said they get above average return from the sale of the coffee. So 114 of the respondents' mention they are getting only average and below average return on their sales. This implies that most of respondents declare that there is low return on sale for the Harrar coffee supply chain actors; which indicate inefficiency in the chain.

Cash- to- cash cycle time: the time each actor waits to collect its sales revenue differs from one another. All farmers states that they collect revenue at the spot of ownership transfer. For suppliers on the other hand there is a process at ECX's system that obligates money to be deducted from exporters account at the point of trade and to be added to suppliers account with in a maximum of 24 hours after the exchange takes place. Exporters, however, declare that the time they wait until they collect their revenue from their sales is dependent on the contract time frame that they negotiate and agree with their coffee buyers abroad and it is a maximum of three months. Therefore by cumulative sum of cash to cash cycle time of the farmers and collectors, Harrar coffee supply chain actors' cash- to- cash cycle time is shorter. And by cash to cash cycle time measurement, this implies the chain is efficient.

Generally by the four methods of internal efficiency measurement, Harrar coffee supply chain is inefficient.

4.3.2 Opportunities and challenges in Harrar coffee supply chain

To capture opportunities and challenges in Harrar coffee supply chain from the data collected, qualitative data analysis measure, content analysis of response, is used.

4.3.2.1 Opportunities for Harrar coffee supply chain actors

Producers

Eighty farmers mention both opportunities and challenges that they encounter as an actor in Harrar coffee supply chain. They specify attractive forces which make them join and stay in the sector such as the suitability of the region for coffee production, availability of market and better

revenue compared to other crops and since it is abundant cash crop in the region it give them life time experience.

Collectors

Sample collectors on their side cite few points as an opportunity in the coffee business. It is the most respected commodity in the world society and it is also Ethiopia's pride, so it attracts everyone to involve, it quickly converted to cash and it is the country's number one foreign currency earning resource.

Exporters

Exporters on the other hand discuss opportunities exist in Harrar coffee supply chain beginning with its attractiveness and continue by mentioning that the business is wide and far growing, it doesn't hold money: it easily converted to cash unlike other commodities, they have enough experience on the business and it is a means to get a foreign exchange for import business they do side by side.

4.3.2.2 Challenges in Harrar coffee supply chain

Producers

Challenges on the other hand that the sample farmers state as a treat which hinder them not to be benefited as their effort include: lack of improved seed supply and lack of knowledge on modern coffee production and preservation ways, the continuous occurrence of natural climate change which make production to vary and decline, high bargaining power of buyers and their low price offer and distantly located market from production area and high transportation cost.

Collectors

Challenges for collectors which get in their way and embrace them from achieving the best in their work include: low quality coffee that arise from backward cultivation, harvest and handling processes by farmers and primary collectors; high bargaining power of buyers, their low price offer and in addition the prevalence of unstable price; unfriendly marketing system at ECX and its bureaucratic system which is an obstacle by itself rather than facilitating the flow of the coffee; the existence of high logistics cost specially on transportation; low concern by the government to the sector in spite the fact that the commodity is still number one export item

based on foreign exchange it attracts to the country; the prevalence of illegal market and finally coffee is politics by itself: government use it for political terms without considering how to develop the economic side it holds to the country.

Exporters

Challenges that exporters point out in the first rank include the existence of supply shortage since producers are small scale farmers, backward cultivation and handling process all the way until it reaches exporters hand which in return results decline in quality of the coffee, difficulty to get the pure Harrar type coffee without mixing up with other coffee types that the country produces, lack of well developed logistic providers in packaging, warehousing and transportation and high logistics cost and long supply chain and the involvement of many stakeholders.

Exporters also talk about causes for the cost they incur to raise: the existence of governmental stakeholder organizations that formed for the purpose to facilitate the flow of the coffee and control its quality, however, becomes an obstacle by themselves. These organizations (including ECX) by their bottleneck bureaucratic processes add cost to exporters and also they are the reason for paper less costs to emerge and expand in the sector. Further these organizations don't work together and support by technology which make the exporter to incur additional cost for the redundant formalities they ask to fulfill.

Furthermore, low promotion work makes it very difficult for Ethiopia's coffee to be acknowledged by the world market and get a good price. Besides there is low concern for the sector by the government in spite of the fact that the commodity is still number one export item based on foreign exchange it attracts to the country and there is also low support and privilege to investors in the sector.

Although challenges in Harrar coffee supply chain are ahead of opportunities, the actors couldn't be able to give up participation. This is because, beside other things, coffee is Ethiopia's pride by its long term top level position on foreign currency earning, its quick cash-to-cash conversion behavior and being a good means to get a foreign currency for businesses who also engaged in importing too.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summaries that are generated from the survey findings and conclusions drawn will be discussed in this chapter. Further from the conclusion arrived recommendations will be point out and suggestion for further future studies will be given.

5.1 Summary of major findings

Coffee is the most important cash crop in Ethiopia in terms of revenue it earns from foreign market; it is the leading crop by accounting 35% of the country's total export revenues as ten years ministry of trade export data shows.

Supply chain actors of coffee supply chain are input suppliers, producers, primary market collectors, major collectors (suppliers) and exporters. Harrar coffee supply chain logistic providers and supporters are ECX, commission agents, ECEA, MOT, Tea and coffee development authority, NBE, Ethiopia shipping lines, Ethiopia custom authority and different governmental and private logistic providers. The input suppliers for Harrar coffee producers are the local agriculture bureaus and the farmers themselves and the input mostly supplied is seed. During production farmers receive little support on better plantation and harvesting skills from the woreda's agriculture bureau. After harvest farmers sell the coffee, by transporting it to the local market, to primary market collectors or traders or they sell it to cooperatives (unions) which they are a member on it. Then traders (collectors) sell the coffee in the ECX market to exporters after fulfilling every necessary requirements demanded by ECX.

The Harrar coffee supply chain performance basing on the outcome of internal efficiency measurement components used in this study resulted in inventory value measurement signifying inefficiency; in inventory turns measurement all the three Harrar coffee supply chain actors mention that it is the most quickly converted to cash commodity and by that the Harrar coffee supply chain performance in this measurement aspect is efficient; based on return on sale internal efficiency measurement, Harrar coffee supply chain lacks efficiency; and by cash- to- cash cycle time internal efficiency measurement, Harrar coffee supply chain actors waits a shorter time for most of its actors which shows good efficiency. Generally by the four internal efficiency

measurements of supply chain performance: inventory value, inventory turns, return on sales and cash- to- cash cycle time, Harrar coffee supply chain have insufficient efficiency.

The suitability of the Harrarge region for coffee production, availability of market and better revenue compared to other crops, the actors developed experience in the sector, the behavior of the commodity to quickly convert to cash and being a means to get a foreign exchange are opportunities exist in the coffee supply chain for Harrar coffee supply chain actors. Challenges that Harrar coffee supply chain actors face include: lack of improved seed supply and lack of knowledge on modern coffee production and preservation ways which result in small scale production and poor quality coffee output, high bargaining power of buyers (exporters) and their low price offer, lack of well developed logistic providers and high logistics cost, long supply chain and the involvement of many stakeholders without adding value but just add cost to actors, small scale promotional work for Ethiopia's coffee in the world market, low concern by the government to the sector and the prevalence of illegal market.

5.2 Conclusion

Basing on findings obtained by analyzing Harrar coffee supply chain, the following conclusions is drowned.

The Harrar coffee supply chain besides the actors that play a role in marketing of the commodity, involve plenty of participants with additional cost to the chain compared to the value they offer. input suppliers, producers, primary collectors, major collectors (suppliers) and exporters play a role of providing input to producers, producing the commodity, prepare and deliver it to local market and forward it to the world coffee market respectively.

The internal efficiency measurement of Harrar coffee supply chain indicates that there is inefficiency in the supply chain. This leads to a conclusion that before tiring to search hindrances for Harrar coffee supply chain profitability in the other performance measurement components: customer service, demand flexibility and product development measures, the internal efficiency incompetence inside the chain should get a solution first.

Even though there are numerous opportunities available in Harrar coffee supply chain such as availability of market and better revenue compared to other export items the country have, the actors developed experience in the sector and the behavior of the commodity to quickly convert

to cash, the challenges worth more; and they are mostly arise from lack of enough concern to sector by the government in spite of the fact that the commodity is still have huge role in foreign exchange attraction to the country.

5.3 Recommendations

The following recommendations forwarded from the findings obtained:-

The continuous occurrence of natural climate change which make production to vary and decline also lack of improved seed supply and lack of knowledge on modern coffee production and preservation ways are among the findings. Therefore, regulating the environment and keeping it green is necessary so that the occurrence of climatic disasters such as shortage of rain to minimize. Alongside using improved seed, modern ways of plantation and harvesting system can still make the production to be fruitful and stable. So government expected to do much work on awareness creation and knowledge development on farmers on modern ways of planting and harvesting plus preserving the coffee so as to minimize wastage and keep the quality of the coffee.

Promoting Ethiopia's coffee in the world market is mandatory; because of lack of promotional work exporters are facing complexity to easily penetrate the world coffee market and get good price that can cover their costs and made them profitable. Here separate promotional works by exporters can be possible however first the exporters admit that they don't have the capacity to do so again even if they try to do it, it is difficult to reach wider coffee market of the world; so county level promotional work is compulsory.

Well developed logistic providers; in packaging, warehousing and transportation services are necessary to minimize the cost of exporting and maximize the revenue gain. In this survey study 75% of the exporters declare that they spend maximum cost on logistics and the farmers and suppliers also state that transportation took off all the money they earn from the coffee sale. Therefore letting more investments to flow in this sector and making the sector more attractive by attaching it with tax and other subsidies is necessary.

Plenty of governmental and non-governmental organizations have involvement in the sector to facilitate the work done by coffee supply chain actors. Most of these organizations are governmental organization that formed for the purpose of facilitating, monitoring, controlling

and supporting the actors and generating revenue for government. These stakeholder organizations first they are plenty which make the actors to incur more cost, second they are not interconnected by technology so there is information gap which create redundant work to be executed by actors and finally everyone has a corrupted environment that for every process there is the involvement of paperless cost. Therefore some of these organizations should be omitted and the reset should be reconfigured in the way to make the cost of the actors' minimum and the revenue the country gets from the sector maximum.

The presence of high bargaining power of buyers (exporters) and their low price offer is observed from the survey; this finding contradicts the theory by Chopra and Meindl (2007). They argue that supply chain profitability is measured by the overall supply chain gain rather than the profit that individual players achieve and even the profit individual participants achieve can reduce the profitability of the overall supply chain. So if one tries to dominate the other and if the actors don't work together, this supply chain goal of becoming profitable will not be realistic. So exporters should closely and cooperatively work with collectors and producers of the commodity.

Lack of support and privilege to investors in the sector is a discouraging factor for further investments to occur. Hence government should make the sector more attractive by attaching it with tax and other subsidies so that more investors to participate in the business and large scale production to emerge and modern ways of production and harvesting to develop; further value addition besides just packing the raw commodity also to expand.

Illegal coffee market is still not eliminated from the country. Thus continuous joint struggle of government and the society to diminish it is unquestionable.

5.4 Further research forward

In this survey study the researcher tried to measure Harrar coffee supply chain performance by taking only one of performance characteristics: efficiency. From efficiency measurements in this study only internal efficiency measurement category is addressed. So looking for more performance measurements on efficiency and responsiveness is untouched area for further studies to take place. Moreover in this study Harrar coffee supply chain is studied by taking a narrow part of Harrar as a study area. Therefore making a research on Harrar coffee or

Ethiopia's coffee with more sample area can bring more positive results that this study could't reaches.

Depending on this survey study results the author suggest the following areas for more studies to take place;

- Why the production of Harrar coffee type is small in amount?
- Harrar coffee and the expanding of chat.
- Quality problems in Harrar coffee and the consequence it brought to the country.

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Appendixes

Appendix-I

Addis Ababa University School of Commerce

MA- in Logistics and Supply Chain Management Program

Questionnaire for stakeholder organizations in coffee supply chain

Dear respondents;

I am undertaking a thesis entitled on “Analyzing Coffee Supply Chain: a study on Harrar coffee, Ethiopia” for partial fulfillment of **Masters of Art Degree in Logistics and Supply Chain Management** at Addis Ababa University School of Commerce. Considering that you have a significant part in Ethiopia’s coffee supply chain, you are kindly requested to spare your precious time in fulfilling this questionnaire designed for gathering primary data related to the topic of the study and return it as early as possible.

Please put check mark (√) in the box of your choice and note down your supplementary response. Your attempt to answer all questions is highly appreciated. I confirm you that the entire data gathering will be held confidential and your response be used only for the purpose of the study. Meantime, please be aware that it is not necessary to mention your position in the organization and your name as well.

Finally, I express my special thanks for your concern, objectivity and patience while responding this questionnaire.

Thank you in advance!

(Please tick (√) where appropriate)

1. Which one of the following describes your organization?

- Ministry of Trade
- Ethiopian Commodity Exchange
- Ethiopian Commodity Exchange Authority

Tea and Coffee Development Authority

Other _____

2. How long your organizations stand as legal person?

1-5 years 5-10 years 10-15 years above 15 years

3. Where is your organization location?

Addis Ababa

All regions in Ethiopia

Only in rural weredas

All of the above

Other _____

4. Which supply chain actors is your organization has relationship?

Farmers traders (coffee suppliers) exporters

Others _____

5. How can you describe the relationship your organization has with coffee supply chain actors?

Very close Close Normal Little relationship No relationship at all

6. Can you specify the way that your organization related with coffee supply chain actors?

7. How can you describe the role your organization should play for the betterment of the performance of coffee supply chain?

Very big role Big role Normal Little No role at all

8. Can you believe that the marketing of coffee is fruitful to the country?

Very strongly agree Strongly agree Agree Strongly disagree Very strongly disagree

9. If you believe that the country is not benefited from the marketing of coffee compared to the natural resource exist, can you list some of the obstacles?

10. What do you recommend to be done to make the marketing of coffee more productive?

Thank you for your cooperation!!

Appendix-II

Addis Ababa University School of Commerce

MA- in Logistics and Supply Chain Management Program

Questionnaire for exporters

Dear respondents;

I am undertaking a thesis entitled on “Analyzing Coffee Supply Chain: a study on Harrar coffee, Ethiopia” for partial fulfillment of **Masters of Art Degree in Logistics and Supply Chain Management** at Addis Ababa University School of Commerce. Considering that you have a significant part in Ethiopia’s coffee supply chain, you are kindly requested to spare your precious time in fulfilling this questionnaire designed for gathering primary data related to the topic of the study and return it as early as possible.

Please put check mark (√) in the box of your choice and note down your supplementary response. Your attempt to answer all questions is highly appreciated. I conform you that the entire data gathering will be held confidential and your response be used only for the purpose of the study. Meantime, please be aware that it is not necessary to mention your position in the organization and your name as well.

Finally, I express my special thanks for your concern, objectivity and patience while responding this questionnaire.

Thank you in advance!

(Please tick (√) where appropriate)

Part One- General Information

1. How long does your company work as an exporter?
 1-5 years 5-10 years 10-15 years above 15 years
2. What is the form of your company?
 Sole proprietor other _____

Private Limited Company

Share Company

3. What is the sex of your company owner or manager?

Male Female

4. What is the level of education of your company owner or manager?

Below 10 Between 10 and 12 Diploma Degree Other _____

5. Where is your company located?

Addis Ababa
 Other towns of the country
 Rural part of the country
 Other _____

Part Two- The role you play in supply chain of coffee

6. Can you rank Harrar coffee type basing on the repetition of your purchases among other coffee types?

It belongs in the 1st order it belongs in the 2nd order
 It belongs in the 3rd order Other _____

7. Which transportation system do you use to pick and deliver the coffee to your processing plants?

Road Rail Air Other _____

8. Which transportation system do you use to transport the coffee abroad?

Road Rail Air Other _____

9. What value do you add in the coffee commodity you export?

Packing Sorting Transporting Other _____

10. How can you describe the supply of coffee?

as per the demand level above the demand below the demand other _____

11. Do you believe the return from your export of coffee is rewarding compared to your investments?

Very strongly agree

Strongly agree

- Agree
- Strongly disagree
- Very strongly disagree

12. How long does it take to collect revenue from your sales?

- Revenue collected at the spot of supply
- Revenue collected within a week from the supply
- Revenue collected within a month from the supply
- Other _____

13. How can you describe the cost of exporting?

- Minimum
- Maximum
- average
- Other

14. Are there any obstacles you can mention that hinder you from achieving the best in export of coffee?

15. What do you suggest to be done to improve the productivity of coffee marketing?

16. What makes you to choose and stay in this sector and commodity despite there is other business streams in the country?

17. What organization do you contact to facilitate the process of coffee export?

- ECX
- Tea and Coffee Development Authority
- commission agents'
- Ministry of Trade
- Other _____

18. Can you rank the organizations in question No. 17 in their order of importance in the process of marketing coffee?(start from the most important)

19. If you have any information or idea to add you are welcome.

Thank you for your cooperation!!

Appendix-III

Addis Ababa University School of Commerce

MA- in Logistics and Supply Chain Management Program

Interview questions for producers

Dear respondents;

I am undertaking a thesis entitled on “Analyzing Coffee Supply Chain: a study on Harrar coffee, Ethiopia” for partial fulfillment of **Masters of Art Degree in Logistics and Supply Chain Management** at Addis Ababa University School of Commerce.

Considering that you have a significant part in Ethiopia’s coffee supply chain you are kindly requested to spare your precious time to do this interview for gathering primary data related to the topic of the study .I confirm you that the entire data gathering will be held confidential and your response be used only for the purpose of the study. Finally, I express my special thanks for your concern, objectivity and patience while doing this interview.

Thank you in advance!

1. How long do you involve in growing coffee?
2. What is your sex?
3. How old are you?
4. Where do you get the coffee seeds? Is there a quality problem on the seed?
5. What makes you to choose coffee instead of growing other commodity?
6. To whom do you sell the coffee you grow?
7. Which transportation method do you use to transport the coffee to market?
8. How long does it take to collect revenue from your sales?
9. Is coffee giving you better revenue compared to your effort and expectation?
10. Is there a demand shortage for coffee in the market?
11. What are the problems existing in the sector?
12. What do you suggest to be done to make coffee more productive?
13. From Which organization do you get a support?

14. Is the support from these organization is enough?

Appendix-IV

Addis Ababa University School of Commerce

MA- in Logistics and Supply Chain Management Program

Interview questions for traders (collectors)

Dear respondents;

I am undertaking a thesis entitled on “Analyzing Coffee Supply Chain: a study on Harrar coffee, Ethiopia” for partial fulfillment of **Masters of Art Degree in Logistics and Supply Chain Management** at Addis Ababa University School of Commerce.

Considering that you have a significant part in Ethiopia’s coffee supply chain you are kindly requested to spare your precious time to do this interview for gathering primary data related to the topic of the study .I conform you that the entire data gathering will be held confidential and your response be used only for the purpose of the study. Finally, I express my special thanks for your concern, objectivity and patience while doing this interview.

Thank you in advance!

1. What is the form of your company?
2. What is the sex of your company owner or manager?
3. How long do you involve in marketing of coffee?
4. Why do you choose coffee over other commodity trading?
5. From whom do you buy the coffee?
6. To whom do you sell the coffee?
7. How long does it take to collect revenue from your sales?
8. Which transportation method do you use to transport the coffee?
9. Is coffee giving you better revenue compared to your effort and expectation?
10. Is there a demand shortage for coffee in the market?
11. What are the problems existing in the sector?
12. What do you suggest to be done to make coffee more productive?
13. From Which organization do you get a support?

14. Is the support from these organization is enough?

15. Can you describe the importance of commission agents involved in marketing of coffee?

Appendix-V

Addis Ababa University School of Commerce

MA- in Logistics and Supply Chain Management Program

Questionnaire for commission agents involved in coffee supply chain

Dear respondents;

I am undertaking a thesis entitled on “Analyzing Coffee Supply Chain: a study on Harrar coffee, Ethiopia” for partial fulfillment of **Masters of Art Degree in Logistics and Supply Chain Management** at Addis Ababa University School of Commerce. Considering that you have a significant part in Ethiopia’s coffee supply chain, you are kindly requested to spare your precious time in fulfilling this questionnaire designed for gathering primary data related to the topic of the study and return it as early as possible.

Please put check mark (√) in the box of your choice and note down your supplementary response. Your attempt to answer all questions is highly appreciated. I conform you that the entire data gathering will be held confidential and your response be used only for the purpose of the study. Meantime, please be aware that it is not necessary to mention your position in the organization and your name as well.

Finally, I express my special thanks for your concern, objectivity and patience while responding this questionnaire.

Thank you in advance!

(Please tick (√) where appropriate)

1. What is the form of your company?

Sole proprietor

Private Limited Company

Share Company

Other _____

1. How long does your company work as a commission agent in coffee marketing sector?

1-5 years 5-10 years 10-15 years above 15 years

2. How can you describe your company's involvement in coffee marketing sector?

it just facilitate the sell or buy of coffee for others and take commission fee

it also engage in the sell or buy of coffee for itself too

Other _____

3. Can you rate the role your company plays in the process of bringing coffee to the market?

Most significant role significant role neutral little role no role at all

4. Which supply chain actors is your company has relationship?

Farmers traders (coffee suppliers) exporters

Others _____

5. How can you describe the relationship your company has with coffee supply chain actors?

Very close Close Normal Little relationship No relationship at all

6. How can you describe the productivity of coffee marketing?

Very fruitful fruitful satisfactory low return very low return

7. Is there any obstacle in the supply chain of coffee that may hinder its productivity? Can you list them?

8. What do you recommend to be done to make the marketing of coffee more productive?

Thank you for your cooperation!!

