



Producer-Processor Relationships: The Case of Dairy Supply Chain in Addis Ababa and Its Surroundings

By

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A Thesis submitted to the School of Commerce, Addis Ababa
University, in partial fulfillment of the requirement for the Degree of
Master of Arts in Logistics and Supply Chain Management

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May, 2018

Addis Ababa, Ethiopia

Declaration

I, Bezaye Taye, hereby declare that the research work entitled “Producer-Processor Relationships: The Case of Dairy Supply Chain in Addis Ababa and Its Surroundings”, submitted by me for the award of the Degree of Master of Art in Logistics and Supply Chain Management, is my original work. This thesis has not been presented for the award of any other Degree, Diploma, Certificate or other similar titles of any other University or institution. Finally, I also confirm that all source materials used in the thesis have been recognized and dully acknowledged.

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Certification

This is to certify that the study entitled “*Producer-Processor Relationships: The Case of Dairy Supply Chain in Addis Ababa and Its Surroundings*”, submitted in partial fulfillment of the requirements for the award of the degree of Master of Arts in Logistics and Supply Chain Management, to the School of Commerce, Addis Ababa University, was carried out by Bezaye Taye, I.D. No. GSE/0133/08, under my supervision.

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We, the undersigned, members of the Board of Examiners of the MA Thesis Open Defense Examination, have read and evaluated the Thesis prepared by Bezaye Taye and examined the candidate. This is therefore to certify that the thesis has been accepted as fulfilling the Thesis requirement for the Degree of Master of Arts.

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Abbreviations and Acronyms

BOAM	Business Organizations and Their Access to Markets
COOPs	Cooperatives
DDE	Dairy Development Enterprise
ECR	Efficient Consumer Response
EDI	Electronic Data Interchange
EMPPA	Ethiopian Milk and Milk Products Producers & Processors Association
FAO	Food and Agriculture Organization
FCA	Federal Cooperatives Agency
NGO	Non-Governmental Organization
SCM	Supply Chain Management
SNV	StichtingNederlandseVrijwilligers(The Netherlands Development Organization)
USAID	United States Agency for International Development
VMI	Vendor Managed Inventory

Acknowledgements

First and foremost, I would like to express my indebtedness and sincere appreciation to my advisor, Dr Shiferaw Mitiku, who devoted his precious time and energy to follow up, comment on and facilitate the progress of the study since its initiation. The accomplishment of this research would have been very difficult without his guidance and constructive advice from the early design of the research proposal to the final write-up of the thesis.

I wish to express my heartfelt gratitude to my father, Dr Taye Assefa, for his critical remarks and valuable comments during my research work and to my mother, W/ro Genet Tadesse, for her encouragement, support and affection during my study. My special thanks should also go to my sister Dr Tsion Taye for her encouragement and valuable advice.

I am also deeply grateful to Ato Negusse Bekele and Ato Lemma Soboka from the Federal Cooperatives Agency, and Ms. Mekdes Asfaw from the SNV. I owe special thanks to all the interviewees for their time and unreserved collaboration by providing me with all the necessary information towards the completion of this study.

Abstract

This study is an exploratory research on the nature of the relationship existing between farmers and private processing companies operating within the dairy supply chain of Addis Ababa and its surroundings. The objectives of the study were: to give an insight into the nature of the relationship between the two supply chain actors; to identify the challenges they encountered during transactions; and to find out the strategies they used in order to cope with the challenges they faced. To achieve these, the study examined the individual issues of selected processors and farmers, and the effects of these relationship issues on the profitability of the dairy business sector for both actors. The approach of the study was qualitative. The method of data collection employed was a semi-structured interview with both open and closed-ended questions. The population of processors existing in Addis Ababa was first identified and then willing respondents were chosen from amongst them. Purposive sampling method was used in order to select the farmers that have a business relationship with the client processors. Content analysis of the interview transcript was used as a method of data analysis. The findings of the study show that both processors and farmers encountered problems related to lack of long-term written contract, market power imbalances, quality issues and lack of infrastructure. Processors adopted strategies of negotiation to tackle contract-related issues, training and awareness-raising to reduce quality-related issues, and allocation of additional funds for solving the infrastructure problems. On the other hand, producers used multiple-selling strategies; they also became members of a cooperative and formed a union in order to cope with price-related challenges. The study has concluded that despite the adoption of such strategies by the actors, the sector has not grown as much as it should have been during the last three decades. The study has also concluded that challenges related to land, infrastructure, production capacity, product quality, supply chain management, marketing, finance and poor policy environment were still hampering the rapid growth of the sector. The study recommends that a concerted and comprehensive policy intervention is necessary to address the challenges beyond the control of the supply chain actors and to improve the performance of the dairy sub-sector. It also recommends that more in-depth studies need to be conducted to identify existing policy gaps, explore best practices in other countries for adoption in Ethiopia and identify more viable strategies and approaches that actors in the dairy supply chain can adopt to emerge as successful operators.

Key Words: Dairy business, supply chain, processors, suppliers, coping strategies

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Chapter One

INTRODUCTION

In this chapter we would provide the background of the study, the problem statement, the objectives, the research questions, the scope, the significance and the definition of terms used in the actual study.

1.1. Background of the Study

This study tried to explore the nature of the relationships that exist between producers and processors in the dairy supply chain of Addis Ababa and its environs. It tried to identify the nature of relationships, identify relationships' challenges and the strategies the actors use to cope with their challenges.

In business practice, firms have frequently made deliberate attempts to establish stronger relationships and forge closer and more collaborative ties with supply chain partners (Speckman, 1988). The relationship between retailers and suppliers, for instance, is a two-way relationship with the focus on a mutually beneficial principle. A company with a short-term orientation only considers profits from each transaction, while companies with a long-term orientation will aim to maximize profit in various transactions. Firms engaged in a long-term relationship with their customers achieve higher profitability, and return on investment than firms using a transactional approach (Kalwani and Narayandas, 1995).

In the first chapter, we have presented an overview of the different actors of the dairy supply chain in Addis Ababa. We defined who they are, how they operate and their relational problems. Our study mainly focused on the relationships among smallholder farmers represented by cooperative unions and processors in the formal dairy chain of Addis Ababa and its surroundings.

The formal dairy chain is defined as the registered marketing channels through which milk is produced and processed in established processing plants and put on the market in packed products. The formal peri-urban dairy chain around Addis Ababa is characterized by three main production areas: Selale to the North of the capital, DebreZeit and Assela to the South; and Sebata area to the South West (Van der Valk, 2009).

With regard to the actors, this study focused on processors and milk producers in the dairy chain. The Ethiopian dairy processing industry has developed considerably in recent years. Dairy industrialization began in 1979 in Ethiopia, when the Derg regime established the Dairy Development Enterprise (DDE) in Addis Ababa. With the downfall of the Derg regime in 1991, the private sector began to enter the national dairy processing industry as an important actor (Yigezu, 2000). Nowadays, there are two large dairy processors (Lame dairy and Mama milk / Sebata Agro-Industries) collecting milk mostly from small-scale farmers, through collection centers along the main roads. Lame Dairy is a privatized state company and the oldest, while Sebata Agro-Industries has been a runner up with the brand Mama pasteurized milk. For the last decennium, around 9 private milk-processing plants operating in Addis Ababa) have entered the market (Van der Valk, 2009).The major private dairy enterprises operating in different parts of Addis Ababa are presented in table 1.1.

Table 1.1. Major private dairy enterprises operating in different parts of Addis Ababa

No.	Dairy enterprise	Location	Year of establishment	Daily processing capacity (liters)	Attained average capacity (liters)
1	Lame Dairy Processing (former DDE)	Addis Ababa	2008	60000	30000
2	MB PLC (Family)	Addis Ababa	2003	15000	7000
3	Yadeni Dairy Farm (Bora Milk)	Addis Ababa	2008	15000	7000
4	Berta and Family plc	Addis Ababa	2000	9000	6000
5	Ruth and Hirut Dairy Farm	Addis Ababa	2008	4000	1500
6	Chuye Milk and Milk Products Processing	Addis Ababa		3000	1000
7	Fantu and Family Dairy Farm	Addis Ababa		2500	2000
8	Penguin International Business plc	Addis Ababa		1800	600
9	Beral Milk	Addis Ababa	1991		

Source: Content study survey results(Land O'Lakes, 2011)

Producers are commercially orientated dairy farmers engaged in producing food commodities such as milk, butter and cottage cheese as a substantial part of their livelihood. Cooperatives (coops) are farmers' associations which exist in the milk chains, striving to alleviate marketing-related problems of the farmers. These unions buy 73% of the milk sold by

farmers (Amentae, Gebresenbet, and Ljungberg, 2015). Unions are more than two cooperative associations who may come together to form a union.

According to a study by Amentae (2016), relationship problems exist between cooperatives and processors. The relationship among the chain actors lacks long-term market orientation and adequate mutuality and trust. With regard to pricing negotiation between cooperatives and processors, the large processors have the power to decide on the price and the coops and farmers are price takers.

The importance of coordination among the different actors in the milk and dairy industry has been studied. It was shown that better coordination mechanisms for milk and dairy industries is necessary to improve the match between upstream and downstream phases of the supply chain (Lemma, Singh, and Kau, 2015). Default on contracts by farmers / cooperatives occurs during a period of scarcity of supply; and by processors during months of oversupply of raw milk. There is hardly any collaboration in the chain (neither horizontal nor vertical). The formal milk supply chain operates mainly on a spot-market basis, with no fixed volumes between market partners nor price differentiation based on quality (Van der Valk, 2009). Other studies show the benefits of the provision of long-term contracts with dairy processors; thus improving access to information and communication within dairy supply chains could certainly support quality upgrading (Ruben, and Bekele, and Lenjiso, 2017). In another study, it was stated that an effective implementation of supply chain management (SCM) approach is a solution for integrated and collective actions by all chain actors, thereby resulting in the reduction of costs, improvement of quality, and minimization of food losses in the chain (Amentae, Gebresenbet, and Ljungberg, 2015).

Although studies have indicated the existence of relationship problems in the Ethiopian dairy supply chain, such relationship problems were not supported with evidence using a sample of actors operating along the chain. This research is believed to fill this gap in knowledge using a sample of individual farmers, unions and processors operating in Addis Ababa and neighboring areas. In addition, no study has provided evidence of the strategies the chain actors use to cope with relationship challenges. This study would fill this gap by exploring such strategies in the dairy chain.

1.2. Statement of the Problem

Marketing relationships among actors in the Ethiopian dairy chain were characterized by lack of long-term market orientation and their being transaction-specific. Opportunistic behavior was common among the chain actors. Moreover, labelling and attributing the same problem to different causes were observed, such as farmers blaming poor feed quality for low-quality milk and buyers blaming farmers for water adulteration of the milk (Amentae, 2016). From supply chain management point of view, overall supply chain profitability can be achieved with an effective match between demand and supply, and only if strong cooperation is established among the chain members. Farmers' relationships with input supplier, which was identified as just only spot market relations, is another indication for further work on relationships management in this milk chain (Amentae, Gebresenbet, and Ljungberg, 2015).

Although studies have indicated the existence of relationship problems in the Ethiopian dairy chain, studies that provide empirical evidence of such problems by taking a sample of actors along the chain are lacking. The nature of supply chain relationships should be investigated, relationship problems should be identified and the strategies the actors adopt to tackle the problems should be investigated. This study serves to draw the attention of the concerned actors on the need to work on the inefficiencies across the dairy value chain and identify the necessary interventions.

1.3. Research Questions

This study has tried to address the following research questions:

- What are the dimensions of the relationships between dairy supply chain actors?
- What are the relationship challenges between dairy supply chain actors?
- What strategies do the dairy supply chain actors adopt to tackle their challenges?

1.4. Objectives of the Study

The general objective of the study was to explore the state of the dairy supply chain in and around Addis Ababa. The specific objectives were:

- To investigate the nature of the relationships between dairy supply chain actors,
- To identify relationship challenges between dairy supply chain actors, and
- To examine the strategies the dairy supply actors adopt to tackle the relationship problems.

1.5. Scope of the Study

The study was conducted within a period of approximately 5 months. The data were collected from individual farmers as well as farmers' union and processors located in Addis Ababa and neighboring towns. The study specifically concerned the relationships between individual farmers/farmers' union and processors, but it did not include the relationships of the other supply chain actors such as: distributors, retailers, and final consumers. Among the different processing companies found in Addis Ababa, our study included processing companies having small and large processing capacities.

1.6. Significance of the Study

Establishing and managing effective relationships at every link in the supply chain is becoming the prerequisite of business success. Firms engaged in long-term relationships with their customers achieve higher profitability than firms using a transactional approach. This study is believed to be significant because improving the relationship among actors in the dairy is crucial for the profitability and long-term orientation of the sector.

Previous studies stated that there is no linkage along dairy value chain actors and that there is absence of a strong vertical coordination. The existing relationship among the supply chain actors is on spot market consisting of instant buying/selling relationship and lacks long-term orientation. The links between the different actors should be studied in a systematic way by taking into consideration key relationship concepts such as trust, communication, commitment, cooperation, and power-dependence and their effects on relationships. Therefore, this study makes an important contribution to the relational literature and supply chain management literature; through the investigation of the nature of the actors' relationships, their challenges and the strategies adopted to tackle the problem.

1.7. Limitations of the Study

Although this study was carefully prepared, it still has its own limitations. First of all, the research was conducted not only in Addis Ababa, but also in its surroundings. The time allowed for data collection was not enough for the researcher to conduct the interviews with all operators within and outside Addis Ababa. Willingness of the interviewees in conforming to the meeting schedule was also a challenge. Secondly, the population of the interviewees was small, and this has tended to limit the diversification of the responses given by them.

1.8. Organizations of the Study

In chapter one, we briefly indicated the background of the study, the problem statement, the objectives, the research questions, the scope, the significance and the definition of terms of the actual study. Chapter two reviewed the theoretical literature, followed by the empirical literature, and the conceptual framework of the actual study. In chapter three, the methodology adopted in order to conduct the study was explained. Chapter four presented the results, and the interpretation of the discussion of the findings. Chapter five presented the Summary of findings, the Conclusions and the Recommendations of the study.

1.9. Definition of Concepts/ Operational Terms

Relationship: A supply chain is a node where the nodes are the business units. The relationships can be defined as the connecting strings among the nodes. Relationship among members determines the nature of the supply chain. “The relationship among supply chain members has an effect on the performance of the supply chain” and “the critical factor of supply chain performance is the nature of relationships in the supply chain” (Cooper, Lambert, and Pagh, 1997). Two types of supply chain relationships are concerned in this study: *transactional relationship*, in which both parties are at “arm’s length” and with limited commitment, and *collaborative relationship* in which two or more business organizations cooperate to drive better long-term combined results.

Supply chain actors: In this study, the supply chain actors are producers, cooperatives and processors.

Producers: These are smallholder farmers located in Addis Ababa, and their roles consist of the production of milk and milk products and selling their milk to collectors/cooperatives.

Cooperatives: Dairy cooperatives are defined as the major milk collectors from smallholder farmers. Cooperatives have been important in helping dairy smallholders to market their milk and lower their operating costs by providing scale of economies.

Processing companies: Milk processors are those adopting modern technology in which their majority output is pasteurized and packed milk.

Chapter Two

REVIEW OF RELATED LITERATURE

In this chapter we present the theoretical literature review and the theories on which the study is based. We also provide the empirical literature review which includes the findings of related studies that are conducted by other scholars and having consistent and contradictory findings. Lastly, we provide the conceptual framework and the identified literature gap.

2.1. Theoretical Literature Review

According to Christopher (2011), supply chain management (SCM) is defined as “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.” SCM is a process through which relationships between parties in chains is managed to incorporate individual interest in to the common interest for the whole chain so that the common interest guides the chain. (Christopher, 2011). The seasonality of both demand and supply; the issues of quality, traceability, safety and food risk management; short shelf life and sensitive demand caused by different factors as a result require much responsiveness and speed than stock management; and the fact that food production’s high dependence on natural resources such as water and polluter emissions has resulted in a huge impact on environmental degradation are major issues that need attention in agro-food supply chain management (Mena and Stevens, 2010).

The strategic importance of supply chain management has been growing during the past two decades (Lee and Kim, 2009). The literature on supply chain management recognizes the importance of the strategic management of the supply chain (Croom et al., 2000; Macbeth and Ferguson, 1994; Cox, 1997). Companies generally do not seek to achieve cost reductions or profit increases at the expense of their supply chain partners. Rather, they utilize the supply chain to make themselves more competitive as a whole through collaboration (Macbeth and Ferguson, 1994; Croom et al., 2000). Traditionally, suppliers have a large and direct impact on cost, quality, speed, and responsiveness of buying companies (Ragatz et al., 1997). However, the modern competitive business environment requires reconsideration of the whole supply chain and products. As a result, active collaboration with the supply chain stakeholders can provide benefits, such as reduced cost, increased responsiveness to changes,

and visibility across the whole process with no organizational boundary constraints. Supply chain collaboration processes help in identifying, establishing, and managing such opportunities.

The literature outlines three major perspectives to classify SCM, including transactional, relational, and resource-based. Powell (1998) notes that research on SCM has focused primarily on either a transactional, exchange-oriented focus or a more relational, process-based focus. While the transactional view serves as a coordinating mechanism both within and outside the firm (Williamson, 1975), the relational view focuses on multi-firm efforts that seek to benefit the supply chain as a whole (Powell, 1998). In addition, authors like Jap (1999) note a resource-based view as also being critical while Lavie (2006) expands upon that by mentioning an extended resource-based view whereby collaborating firms combine resources to gain a competitive advantage (Cao and Zhang, 2011).

Transactional View

In his work on transaction cost economics (TCE), Williamson (1975) proposes two methods of organization that involve market transactions and hierarchy transactions. Market transactions are those that support the coordination of buyers and sellers and involve firms conducting business with those companies that offer the most attractive terms, such as price. Hierarchy transactions support coordination within the firm and includes initiatives like vertical integration. Koh and Venkatraman (1991) suggest a third method of organization for SCM that helps to avoid these factors. Their study of joint ventures and how they impact the market value of parent firms showed that this SCM organization method can limit costs related to opportunistic behaviors and monitoring partners in market transactions (Croom, 2001). This approach can also negate the limiting factor of hierarchy transactions since they may not be effective when a firm is forced to internalize an activity that does not match its competencies (Cao and Zhang, 2011).

Relational View

Competitive advantage can result as firms focus more on working together. This is relevant to SCM since the strategy requires firms to work closely to achieve mutual goals. The relational view builds upon the resource-based view by expanding the previously mentioned critical resources beyond firm boundaries to create joint profits from working in tandem that are greater than those that could be generated individually (Dyer and Singh, 1998). The key to

this view is that the firms involved are able to generate benefits together that they would be unable to generate in isolation (Cao and Zhang, 2011) and long-term profits are based on network relations (Duschek, 2004). Thus, firms have an incentive to work together for mutual benefit in the form of long-term profitability.

Resource-Based View

The resource-based view (RBV) begins with a firm gauging its key assets, including its own resources, capabilities, and core competencies (Barney, 1991; Jap, 1999). Porter (1985) notes this resource-based view and how it can lead to a competitive advantage when a firm utilizes its resources and capabilities more effectively than its rivals. While Porter's and other early research on this topic considered the tangible and intangible assets of the firm, Dyer and Singh (1998) note that these resources may extend beyond firm boundaries and be a part of inter-organizational processes. More specifically, they claim that firms that combine resources in unique and difficult to imitate ways may realize a competitive advantage over other firms that are unable to do the same. This perspective helps to facilitate collaboration by giving firms the opportunities to focus on what they do best and allowing partners to handle the rest, which can also improve the competitive position of a firm or group of firms.

2.1.1. Sourcing Strategies

Successful supply chain management necessitates an effective sourcing strategy to combat unreliable supply and stochastic demand. We divide the most frequently used approaches of sourcing into three types: (1) single sourcing, (2) dual sourcing, and (3) multiple sourcing. In the first type it is necessary to mention that single sourcing differs from sole sourcing. Sole sourcing refers to a buyer-supplier relationship where the supply base contains only one supplier, whereas single sourcing is when a buyer chooses a single supplier even though other comparable suppliers exist in the supplier base (Newman, 1989). The second sourcing strategy, dual sourcing, indicates that a buyer employs two suppliers, one of which may dominate the other in terms of business share, price, reliability, and others. In the last sourcing model, multiple sourcing, a buyer does business with several suppliers and plays one supplier against the other to enjoy the best price advantage.

Single sourcing strategy strives for a strategic partnership between a buyer and a supplier to foster a close collaboration and to optimize shared benefits. As single sourcing has become a priority for many firms, many researchers have studied the advantages of this strategy. The

general benefits of single sourcing, as indicated in a survey study by Larson and Kulchitsky (1998), include higher quality at lower total cost to the buyer and that suppliers are linked to higher levels of buyer–supplier cooperation. However, the dependence on a single source also exposes the buying firms to a greater risk of supply chain interruption.

Traditionally when the main objective is to avoid too strong a dependence on individual suppliers, because it reduces transaction uncertainty, enhances technological flexibility and creates price competition among suppliers. In other words, arm's length relationships are considered the best solution. Multiple sourcing was the recommended strategy in this respect because it helped companies in dealing with the negative consequences related to dependence on suppliers (Uzzi, 1997; Gadde-Snehota, 2000). There are two main arguments in favor of multiple sourcing. One is that it reduces dependence on individual suppliers. By using alternative sources a buying company is supposed to improve the reliability in the flow of goods on the supply side. If one supplier has a problem in delivering according to plan, an alternative source may be used at short notice (Gadde-Håkansson, 2001)

2.1.2. Modes of Value Chain Coordination

Vertical and horizontal integration

Vertically and horizontally integrated supply chains are supply chain management strategies adopted by companies to take advantage of synergies in their value chain to achieve more profits and competitive advantage (Naslund and Williamson, 2010). Effective supply chains are critical to the success of organizations operating in global multifaceted environments as well as organizations seeking to achieve optimal efficiency and customer satisfaction (Lambert, 2008). An increasingly competitive and interconnected global environment means that successful performance depends on the collective decisions and actions of all members of a supply chain rather than that of a single member and competition is increasingly between supply chains rather than between individual firms (Naslund and Williamson, 2010). Hence, organizations are faced with the challenge of making decisions regarding appropriate supply chain strategies that will deliver their objectives based on their capabilities, needs and circumstances. Vertical and Horizontal supply chain integration are two such strategies that enable companies to manage their organizations and their relationships with other companies in the same supply chain/value chain (Hill and Jones, 2012).

From a supply chain management perspective, vertical and horizontal integrations aim to achieve cost savings, higher profits, greater efficiency and customer satisfaction by improving supply chain processes and performance through value-adding investment and activities that benefit all supply chain members. For example, achieving cost reductions, improved performance and better target market access as a result of eliminating redundancies/duplications, lowering inventories, shorter lead times, greater control over supply and distribution, access to partner networks and lower fixed costs (Mentzer et al., 2008).

Vertical integration: Vertical integration (or relational contracting) refers to coordination of the interaction between two actors in the value chain. A contract between a product buyer and a producer is an example of vertical integration. Also the provision of market information to other actors within the value chain is an important part of vertical integration (FAO, 2013). This form of integration requires repeated interactions between the actors.

Vertical integration is a coordination strategy in which a company owns its supply chain by incorporating supplier and/or distributor supply chains in its operations strategy or by expanding its operations to perform activities traditionally performed by suppliers and distributors (Hill and Jones, 2012). This strategy helps organizations to ensure high levels of control and to avoid the "hold up" problem, a situation in which an organization's contract with another party in its supply chain results in delays and loss of profit due to delays, non-performance of contract or imbalance of bargaining power between the 2 parties (Hill and Jones, 2012). The Ford River Rouge Complex, an automobile factory built by Henry Ford in 1927 is a good example of a vertically integrated supply chain providing economies of scale and ensuring high levels of control in the supply and production process - Iron ore and coal from Ford owned mines arrived on Ford freighters to produce Ford steel. Ford also owned its timberlands, glass plants, rail lines and rubber plantation, which helped to ensure efficiency, availability of necessary components as well as control over inputs and outputs (Slywotzky, 1996).

A vertical integrated supply chain can be implemented to varying degrees, broadly classified into 3 categories:

- i) Backward vertical integration, in which a company owns subsidiaries that produce the inputs/components used in production. For example, the Ford River Rouge Factory with its own timberland and glass-making companies (Slywotzky, 1996).
- ii) Forward vertical integration in which a company owns or controls its distribution centers and/or retailers, thereby having direct contact with customers at the bottom of the value chain. For example, airlines performing the traditional roles of travel agents (Hill and Jones, 2012).
- iii) Balanced vertical Integration in which a company implements both backward and forward integration by owning/controlling its supply, production, marketing and/or retail centers. Apple is a good example of a company implementing balanced vertical integration by owning their own data centers, manufacturing equipment to produce their own chips and other proprietary components, as well as their own marketing and retail stores, content platforms and support centers (Hill and Jones, 2012).

As a strategic tool, a vertically integrated supply chain can provide companies with solutions to mitigate or remove the threat of powerful suppliers, decrease bargaining powers of suppliers, distributors and customers as well as reduce transaction costs. When properly implemented, a vertically integrated supply chain can help companies achieve competitive advantage and higher profits through economies of scale and scope (Fresard et al., 2014).

An important disadvantage of vertical integration is the issue of power. An actor in the value chain may press other actors to deliver a service to them at low cost, especially if there is only one supplier of that particular service in the area. Vertical integration makes the relationship between different actors in the value chain more secure for example by the use of contracts (Poulton and Lyne, 2009).

Horizontal integration: Horizontal integration (cooperation or central collaboration) refers to integration between the same types of actors in the value chain. (Poulton and Lyne, 2009).

Horizontal integration is a single industry SCM strategy whereby companies seek to achieve competitive advantage and profitable growth through value creation activities that are focused on a single business or industry, for example, McDonald's with its focus on global fast-food business and Walmart, with its focus on global discount retailing (Hill and Jones,

2012). A horizontally integrated supply chain is a business model whereby companies acquire or merge with industry competitors to achieve competitive advantage through economies of scale and scope (Fresard et al., 2014). For example, Boeing merged with McDonnell Douglas to create the world's largest aerospace company, Pfizer acquired Warner-Lambert to become the largest pharmaceutical company (Hill and Jones, 2012).

This SCM structure provides the advantage of focus and scope, particularly in fast growing, dynamic industries where companies are required to focus substantial resources and capabilities on competing in one area in order to achieve long term competitive advantage (Lambert, 2008). Technological advancements, changing customer needs, fierce competition and low levels of entry barriers are common features of horizontally integrated supply chains. Due to changing customer needs, new competition and the pace of change in such industries, companies often find it difficult to sustain competitive advantage without changing/adapting their business model (Juttner et al. 2010). For example, with the advent of wireless telephone service and the likes of SKYPE, companies like AT&T had to quickly adapt their business model and join forces with wireless companies that provided them with the capability to start offering broadband and wireless services. Its merger with Time Warner and Comcast enabled AT&T's competitive positioning and its relevance in the changing world of telecommunications (Hill and Jones, 2012).

A successfully implemented horizontal integration strategy can increase a company's profitability due to reduction in cost structures as a result of:

- Economies of scale, particularly in industries with high fixed cost structures;
- Increased product differentiation due to the combined product lines from merger or acquisition which enables the company to be able to offer product bundles and innovative new products to customers at different price points;
- Replication of the business model due to the ability to leverage the increased product differentiation and lower cost structure achieved through horizontal integration to replicate the business model in new market segment, for example Walmart using its low-cost discount retail business model to enter into the warehouse and supermarket segments in the US as well replicating the model globally as by acquiring supermarket chains in several countries;

- Reduced industry rivalry, as excess capacity is eliminated in the industry through acquisition or merging of competitors which results in more stable price environments and the elimination/reduction of price wars;
- Increased bargaining power due to the consolidation of the industry resulting in companies that are a much larger buyer and hence wield a level of leverage or "buyer power" which can be used to drive down the price it pays to suppliers. Walmart is a good example of a horizontally integrated supply chain with bargaining power advantage (Hill and Jones, 2012).

Horizontal integration has limitations that are worth noting and guarding against. Similar to vertical integration, horizontal integration is a complex and difficult strategy to implement. For example, it is difficult to successfully merge companies with very different corporate cultures and where the merger/acquisition is a hostile takeover, it often results in high staff turnover and loss of much needed talent and expertise hence resulting suboptimal benefits or downright failure. There is also the risk of failure or penalty due to antitrust laws when companies attempt to use horizontal integration to become a dominant industry player as these laws exist to ensure fair trading and prevent companies from using their market powers to prevent competition.

Improved horizontal integration of small-scale farmers gives them for example the opportunity to become more powerful in their relationship with other actors in the value chain. Horizontal integration may replace the imperfectly coordinated actions of independent actors by a more centralized decision making process in a single company, cooperative or enterprise. A clear example is the integration role of dairy cooperatives in Ethiopia. Cooperatives may coordinate the collection of milk, processing, input provision as seeds and financial services. Single farmers may not be able to process the milk up to the high quality standards of the formal market, but as a horizontally coordinated collective they might be able to buy high quality processing equipment (FAO, 2013; Poulton and Lyne, 2009). An important disadvantage of horizontal integration is monopolism. Price fixing of horizontally coordinated actors in a segment of the value chain excludes competition between value chain actors and has a negative effect on the income of other actors in the chain (Poulton and Lyne, 2009).

2.2. Empirical Literature Review

2.2.1. *Weak Linkages among Actors*

Some studies conducted in Ethiopia stated that there is poor linkage among the dairy chain actors and recommended the need for an establishment of an effective linkage among the dairy chain actors (Amentae, Gebresenbet, and Ljungberg, 2015). In another study, it is stated that there are opportunities for strong vertical coordination through linkages such as with local institutional milk buyers, supermarkets and private milk processors. The importance of establishing and strengthening formal vertical business linkages between the milk cooperative unions and dairy' product users, processors, supermarkets is emphasized (Negassa, 2009).

Earlier studies (Lemma et al., 2008; Yilma et al., 2011), reported that weak linkages among the different actors in the dairy value chain are some of the important factors that contribute to the poor development of Ethiopia's dairy sector.

The Dutch development organization StichtingNederlandseVrijwilligers (SNV) initiated a project entitled Business Organizations and Their Access to Markets (BOAM) (Haile, 2009). The SNV BOAM's interventions mainly address the exporters, processors and farmer organizations with the aim of improving linkages between mid-chain buyers and producers (Drost, 2011).

In addition to this, the SNV also assisted the formation of an institutional body -the Ethiopian Milk and Milk Products Producers & Processors Association (EMPPA); although it is still too weak to represent producers and processors and weak linkages, partly as a result of low trust relations, between producers and processors exist.

Since linkages and collaborations are still weak among producers and processors, stakeholders do not operate on common interests and goals (Drost, 2011).

2.2.2. Problem Related to Trust

The linkages between producers and processors are characterized by low confidence and distrust. On one hand, producers complain about the rejection rates by processors as being too high and prices paid by them as too low; on the other hand, the processors complain about the sub-standard quality of farmers' milk and the low quality awareness among farmers (Drost, 2011).

Amentae (2016), assessed farmers' reason for selling to the same buyer was assessed in Wolmera and Ejere district of Ethiopia. According to the results, 39% stated that it was because of ultimate share in the profit of the cooperatives, 20% indicated trust-based relationships, while 39% stated it was because they didn't access other buyers. From these results, we can conclude that trust isn't a major concern for farmers to sell to the same buyer. Looking at farmers' relationships with their feed supplies, the majority (62%) of farmers responded that they had neither formal nor informal relations with the feed suppliers, 33% of the respondents said that they had only informal trust-based relations while only 5% of the respondents said that they had written contract-based agreements with the feed suppliers. These results show that relationships among the actors are characterized as individualistic and opportunistic. The chain actors focus only on their own profit and lack system thinking.

In addition, it is noted that there are poor dairy value chains in Ethiopia, because there is lack of trust among the chain actors and low level of integrated dairy management practice. Therefore, strengthening of dairy cooperatives and further relationships establishment with other chain actors is a solution. Collective actions and decisions are necessary in order to implement coordination through the formation of partnerships and trust among the legally separate chain actors (Amentae, Gebresenbet, and Ljungberg, 2015).

2.2.3. Poor Communication among Actors

Various information content aspects are involved in the relationships between buyers and sellers. Technical, commercial and economic information and organizational issues dominate information exchanges. Information can be communicated between the parties by electronic means, such as: Electronic Data Interchange (EDI), Efficient Consumer Response (ECR), Vendor Managed Inventory (VMI), or by personal communication channels, such as: electronic mail (email) or phone (Chopra and Meindl, 2003). Constant exchange of technical and commercial information often creates trust between both parties, thus leading to

improvement in collaboration between them (Morgan and Hunt, 1994). In recent years, relationships between buyers and sellers have changed from unpleasant to close and friendly (Kotler, 2000), although it is not a common sense that collaboration would be considered important for competitiveness. In many companies, there is still the prevailing idea that buyers and sellers should keep distance from each other and concentrate on doing business individually (Brown et al. 2006; Barney and Hesterly, 2004; Dyer and Singh, 1998). The degree of formality depends on the businesses characteristics and size and may affect the nature of the interaction process and relationship as a whole. Thus it is expected that the information exchange is positively related to a collaboration relationship between buyers and sellers.

Poor information access and poor communication in milk markets lead to a higher profit loss for both processors and farmers, particularly during the fasting and wet seasons. Consequently, quality couldn't be upgraded if there is absence of long-term contracts with dairy processors. On the other hand, the existence of such contracts could have enhanced price and delivery certainty, improved access to information and communication services and reduced information constraints within dairy supply chains (Ruben et al., 2017).

On the other hand, studies show that ineffective communication problem causes milk losses, poor milk handling practice at the collection points, lack of immediate acceptors, milk carrying tools used and means of transport used. According to this study, dairy chain farmers claimed that sometimes they were waiting at the milk collection points, but the collector/buyer fail to come due to various problems without communicating with the producers. Based on the study results it was stated that implementing SCM is part of the solution for improving the communication problems as well as alleviating the milk losses (Amentae, 2016).

2.2.4. Long-term Orientation and Commitment

The marketing relations among the majority of these chain actors were not going beyond the instant buying-selling relations. It lacks long-term market orientation from value chain perspectives. According to Amentae (2016), long-term market orientation is defined as a situation that goes beyond particular actor and comprising the interaction among the value chain actors in creating value for the end user. The establishment of long-term win-win relationship between the dairy business and the small-holder farmers is regarded as a key

success factor (Amentae, Gebresenbet, and Ljungberg, 2015). Profitability for a particular chain actor and for the whole chain is possible through focus on customers down the chain or the end users. However, in the context of the Ethiopian dairy supply chain, it was observed that only individualistic market orientation exists.

Farmers' relationships with input suppliers, which was identified as just only spot market relations, is another indication for further work on relationships management in this milk chain (Van der Valk, 2009).

2.2.5. *Contract-Related Problems*

It is noted that the use of formal contracts between producers and processors has hardly increased; only a few processors and cooperatives are participating in contractual negotiations initiated by the Dutch organization SNV's BOAM (Drost, 2011).

Contracts between market partners are made for a maximum period of one year. Agreements are made on volumes and price. Independently of the duration of the contract, price is adjusted three to five times a year according to spot market prices. Default on contracts by farmers / cooperatives occur during a period of scarcity of supply; and by processors during months of oversupply of raw milk. There is hardly any collaboration in the chain (neither horizontal nor vertical) (Van der Valk, 2009).

Looking at farmers' relationships with their feed suppliers, the majority (62%) of farmers responded that they had neither formal nor informal relations with the feed suppliers. 33% of the respondents said that they had only informal trust-based relations while only 5% of the respondents said that they had written contract-based agreements with the feed suppliers. Therefore, the relationships are generally characterized by individualistic and opportunistic behavior (Amentae, Gebresenbet, and Ljungberg, 2015).

When we look at the farmers' side, they say that they face unreliable and unenforceable monthly contract with milk traders and processors. This implies that the attractiveness and reliability of procurement channels is critical for providing the required incentives toward upgrading of associated input use arrangements and labor use regime (Ruben, Bekele, and. Lenjiso, 2017).

On the other hand, milk processing interviewees oppose contracts since producers would behave opportunistically. The lack of trust and confidence among the two actor groups seems to be the key hindrance (Drost, 2011).

With regard to quality control, a study by Van der Valk showed that the rejection rate of milk seems to be higher during times of abundance of supply. Formal arbitration procedures for quality control between market partners do not exist, and enforcement on contracts or standards. The nearest accredited laboratory is said to be in Kampala. Processors do not differ payment for quality (fat content. Lame Dairy uses preferred suppliers for making cheese during the spring fasting period for quality reasons. These producers do not get a premium for their milk (Van der Valk, 2009).

Substantive improvements in the Ethiopian dairy sector in making cannot take place without the interference and supportive governmental policies. However, the government did not prioritize the dairy sector after the liberalization of the economy which is after the fall of the Derg regime. In order to solve this problem it is appropriate to initiate a multi-stakeholder platform where actors existing in the different sectors (private sector, government, and civil society) meet and work together to better link smallholder dairy producers and dairy processors to markets. However, the effects of these measures have been limited. In addition this the government should support dairy processors on setting higher mandatory quality standards for the dairy industry, because processors lack the market power to set such standards privately, however this failed to be achieved because the dairy sector is neglected by the government (Drost, 2011).

2.2.6. Cooperation and Collaboration among Supply Chain Actors

There is limited or no mutual trust and cooperation and the “vertical relations between processors and producers are not based on a partnership” (Drost, 2011). Producers and processors are considered as “two enemies who would like to kill each other in order to grab each other’s money”. Also the competition among processors is reportedly “unhealthy”, while a common body to address the grievances and coordination of the chain actors is lacking. The lack of trust and agreement among chain actors could not lead to higher levels of cooperation between producers and processors in changing the value chain’s business institutions (Drost, 2011).

In daily contacts, business members can solidify personal relationships and friendships. Companies with social ties with its partners can reduce uncertainties, solve short-term problems more easily and, consequently, have a higher chance to develop long-term collaborative relationships. Social ties are not easy to be copied by competitors, due to the obstacles and the long time required in the process of ties social development (Lovelock and Wirtz, 2006). The degree of interaction process involved in trade between seller and buyer can generate collaboration. Cannon and Perreault (1999) and relate collaboration process with the extent to which both parts work together to achieve a common goal. Collaboration may include some flexible rules, in accordance with the other party, about the company's focus on achieving individual goals, in order to preserve the business relationship (MacNeil, 1980). In general, many sales and purchases are not formalized or follow legal criteria. Relationships are based on mutual trust. Building trust is a social process and is based on personal experience (Ford et al., 2003).

2.2.7. Dairy Markets and Seasonality in Ethiopia

A common justification to the poor performance of the Ethiopian dairy sector is related to the fasting practices of national consumers (Ahmed et al., 2003). The Ethiopian Orthodox Christians follow fasts in a way similar to other Orthodox Christians but with a frequency of approximately 250 days in a year. There are seven official fasting periods for Ethiopian Orthodox Christians, including (i) all Wednesdays and Fridays, except for the 50 days after Easter; (ii) the Lent. In Western Christianity, Lent is the period from Ash Wednesday to Holy Saturday, the day before Easter Sunday. In Eastern Christianity, the period before Easter is known as Great Lent to distinguish it from the Winter Lent, or Advent. (<http://en.wikipedia.org/wiki/Lent>).

Approximately 40% of the Ethiopian population are Orthodox Christians. Ahmed et al. (2003) indicate that most milk surplus produced in Ethiopia is sold or bartered through arm-length trade across producers and their neighbors, relatives and friends. Nonetheless, in the last decade, new market opportunities have emerged at the margin of such a traditional and enclosed dairy sector. To a large extent these opportunities are driven by the rise of dairy supply chains, linking rural production sites to increasingly profitable markets in Addis Ababa. Emerging dairy chains can be disentangled into downstream operators, such as processors and retailers, and upstream operators such as farmers. The role of downstream operators is to systematically address, if not anticipate, evolutions in consumer preference;

whereas the role of upstream agents is to keep up with the increasingly stringent specifications of processors and retailers (Weaver and Kim, 2001).

During fasting time, producers would have surplus milk and for unsold milk which they will process into traditional byproducts like butter and distribute as a food. The same conclusion was given by Tanngka et al. (2002) who found that dairy products are not consumed during fasting seasons and most of the milk during this period is processed into cottage cheese (*Ayib*) and butter for later sales and consumption. As milk is a perishable product, during the fasting time, the milk also gets spoilt. This is a problem for milk producers. This shows that the need for processing factory in the area is important to reduce the problem by increasing the shelf life of the milk. The available demand and supply in the study area are not balanced; they fluctuate from season to season as there is seasonality of demand for milk. During fasting time, the available milk is more than the demand and after the fasting time, the supply does not satisfy the demand in the market (G/Silassie, 2014).

2.2.8. Infrastructure Issues in the Dairy Business

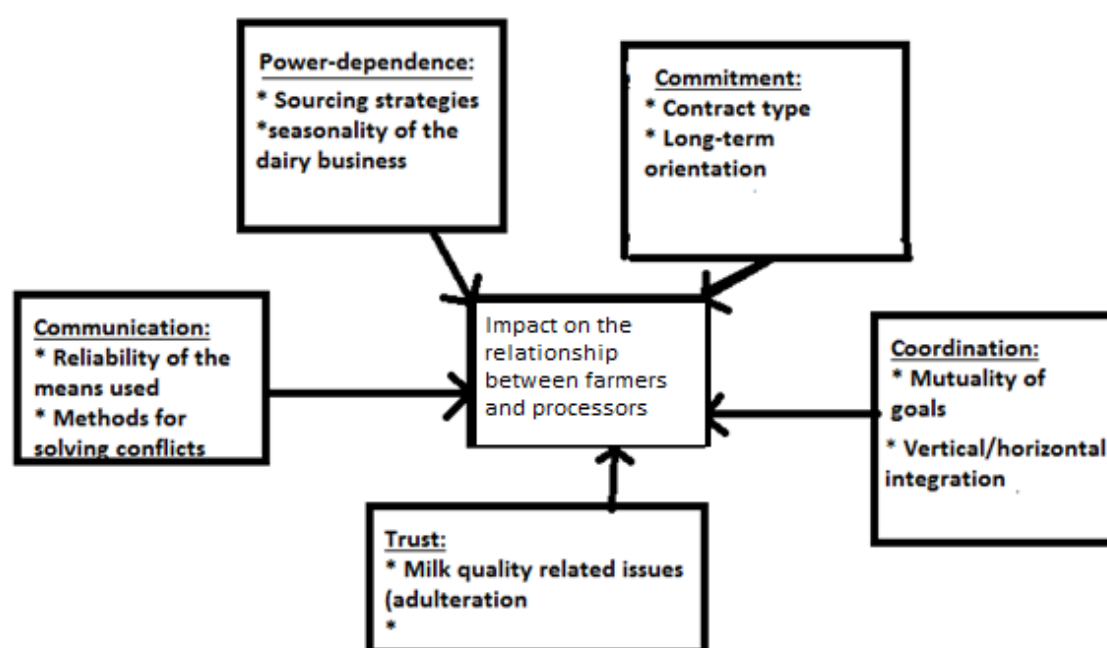
Due to poor infrastructure, concentration of milk producers in rural areas, seasonal fluctuation of demand for fresh milk, and perishability of milk, development and promotion of small-scale processing technologies is critical to increasing smallholder producers' performances (Mohamed, Simeon and Yemesrach, 2004). The government should also take the lead in building infrastructure and providing technical service to smallholders in order to increase milk production. Of the total milk produced only 5 percent is marketed as liquid milk due to underdevelopment of infrastructures in rural areas. The development of infrastructure like, transportation would help change the traditional thinking of fresh milk not for sale other than exclusively intended for human consumption among the rural population (Azage and Alemu 1998).

Similarly, government should also take the lead in building infrastructure and providing technical service to dairy cooperatives (Yusuf, 2008). Getachew, Medhin, and Getnet (2012) stated that among the constraints of dairy farm business are high disease prevalence of zoonotic livestock diseases, lack of aggressive livestock disease control, lack of effective quality control at different stages of milk production and transaction, lack of efficient liquid milk collection and cooling facility and transportation means to processing sites, poor

infrastructure, road access ,under developed milk processing and marketing system, lack of enforcement of quality control regulations and standards.

2.3. Conceptual Framework

Figure 2.1.The five prominent dimensions of the farmers/supplier relationship



Source: Researcher's design based on expositions by Melody, Purchase, and Rahman(n.d.).

This study has adopted the conceptual framework used by Melody, Purchase, and Rahman (n.d.) in the paper entitled "The impact of buyer-supplier relationship and purchasing process on the supply chain performance". In my study five dimensions of the producer-collector-processor relationships were explored, namely: trust, cooperation, power-dependence, communication and commitment as shown in Fig. 2.1 above.

Trust

Trust is a critical factor fostering commitment among supply chain partners. The presence of trust improves measurably the chance of successful supply chain performance. A lack of trust among supply chain partners often results in inefficient and ineffective performance as the transaction costs mount. One of the most critical factors in a committed and collaborative relationship between supply chain partners is trust. If trust is present, it can improve the

chances of a successful supply chain relationship; if not, transaction costs can rise through poor performance.

Organizations need trust in order to be flexible and agile. However, establishing trust can be elusive and even harder to maintain. It is also that trust is both individual and institutional. Trust in a supply chain evolves based upon commonalities among the partners and can take patience and time to develop. There is both risk and interference in a supply chain relationship and there must be an implicit agreement not to exploit the partner's vulnerabilities. This takes development, honesty, and openness to be successful.

Cooperation

Anderson and Narus (1990) define cooperation as “similar or complementary coordinated actions taken by firms in an interdependent relationship to achieve mutual or singular outcomes with expected reciprocation over time.” Cooperation between the exchange parties reflects the expectations of working together to achieve mutual and individual goals jointly (Cannon and Perreault, 1999). The cooperative inter-business relationship is primarily based upon personal trust between business parties. Most businessmen say that the most reliable sources of information come from close relationships within and among business organizations. Without close relationship, the suppliers or buyers are not willing to share information and have less intention to cooperate. Ambler, Styles, and Xiucum (1999) state that active cooperation plays a role in export sales growth. Previous research on channel distribution has suggested that there is a positive relationship between cooperation and satisfaction (Anderson and Narus 1990; Skinner, Gassenheimer, and Kelley, 1992). Cooperation between channel members will increase channel efficiency and help members attain their mutual goals. Cooperation is a dimension of SCM that has the potential to reduce a source of conflict existing in supply chain relationships. Also, it is the degree to which channel partners are able to coordinate critical decisions in planning and operations that benefit the supply chain as a whole (Cannon and Perreault, 1999).

Power-Dependence

The issue of power is closely associated with the nature of dependency in business relationships. Gaski (1984) pinpointed the roles of power and dependence in channels of distribution by noting that “channel member dependence and sources of power in marketing channels are conceptually inseparable,” and “dependence is a component or dimension of

these power sources rather than a separate phenomenon.” Brown, Lusch, and Nicholson (1995) define marketing channel power as the ability of one channel member (e.g. supplier) to control the decision variable in the marketing strategy of another member at a different level of distribution (e.g. retailer). Power plays a significant role in the supply chain, and the different sources of power have differing impact on inter-firm relationships and the performance of the entire supply chain (Maloni and Benton, 2000).

Communication

It plays a major role in the buyer/supplier relationship. Open and frequent communication between buying firm personnel and their suppliers are identified as a key approach to motivate suppliers (Humphreys, Li and Chan, 2004). The quality of communication also affects the supplier relationship. Frequent and timely communication could assist in resolving disputes as well as in aligning perceptions and expectations between buyers and suppliers (Amad et al., 2008). The honest and timely communications with the buyer have a strong effect on both trust and satisfaction (Selnes, 1998). Information sharing is a frequently noted dimension of SCM since shared information forms the backbone of the supply chain partners' relationships (Christopher, 2011).

Commitment

It refers to a partner's belief that an ongoing relationship with another firm is so important as to warrant maximum effort at maintaining it; the committed party believes the relationship is worth working on to ensure it endures indefinitely (Nyaga, Whipple and Lynch, 2010). The commitment plays a major role in the performance of supplier relationship. The commitment is defined as actions or communications leading to adaptation to specific customer needs and thus has a positive influence in the relationship satisfaction (Selnes, 1998). The commitment has a direct and positive impact on buyer and supplier performance.

2.4. Identified Literature Gap

Different scholars have studied the relationship problems existing in the dairy supply chain of Ethiopia. To mention some, the importance of coordination among the different actors in the milk and dairy industry has been studied. It was shown that better coordination mechanisms for milk and dairy industries is necessary to improve the match between upstream and downstream phases of the supply chain (Lemma, Singh, and Kau, 2015). Default on contracts

by farmers / cooperatives occurs during a period of scarcity of supply; and by processors during months of oversupply of raw milk. There is hardly any collaboration in the chain (neither horizontal nor vertical). The formal milk supply chain operates mainly on a spot-market basis, with no fixed volumes between market partners nor price differentiation based on quality (Van der Valk, 2009). Other studies show the benefits of the provision of long-term contracts with dairy processors; thus improving access to information and communication within dairy supply chains could certainly support quality upgrading (Ruben, and Bekele, and Lenjiso, 2017). In another study, it was stated that an effective implementation of supply chain management (SCM) approach is a solution for integrated and collective actions by all chain actors, thereby resulting in the reduction of costs, improvement of quality, and minimization of food losses in the chain (Amentae, Gebresenbet, and Ljungberg, 2015).

Although studies have indicated the existence of relationship problems in the Ethiopian dairy supply chain, such relationship problems were not supported with evidence using a sample of actors operating along the chain. This research is believed to fill this gap in knowledge using a sample of individual farmers/ farmers' unions and processors operating in Addis Ababa and neighboring areas. In addition, no study has provided evidence of the strategies the chain actors use to cope with relationship challenges. This study will fill this gap by exploring such strategies in the dairy chain.

Chapter Three

METHODS OF SAMPLING, DATA COLLECTION AND ANALYSIS

This chapter presents the study area, the population and sample size will be stated along with the sampling size determination technique. In addition to this, the data source and type, the data collection procedure will be informed. Ethical considerations, method of data analysis and presentation, validity and reliability test will also be presented at last.

3.1. Description of the Subject of Study

In this study, dairy supply chain actors' relationships was assessed so as to identify the nature of the relationships, the relationship challenges encountered among the actors and the strategies they adopt in order to tackle their problems.

3.2. Method of Data Collection

An exploratory approach was used in this paper to assess the nature of the relationships in the dairy supply chain, the relationship challenges encountered among the chain actors and the strategies they adopt in order to tackle their challenges. Exploration is used as a methodological approach “when a group, process, activity or situation has received little or no systematic empirical scrutiny or has been largely examined using prediction and control rather flexibility and open-mindedness” (Stebbins, 2001). Since the relationship's nature, challenges and the strategies actors deal with differ from actor to actor, an open-ended approach is more suitable to explore compared to the structured approach that survey questionnaires impose.

Data was collected using in-depth interviews with semi-structured questions. Some structure was imposed on the questions to guide the interview process and keep the focus on the key topics that were the subjects of investigation. The imposed structure also assured some consistency in the questions across respondents. The questions, nevertheless, allowed some room for probing and in-depth inquiry. Probing was facilitated by including ‘non-standardized’ or semi-structured questions. Non-standardization in interviews is “most

helpful when exploring new topics, sensitive issues and when the businesses are highly variable in their characteristics” (Healey and Rawlinson, 1993).

Exploratory research focuses on the discovery of ideas and insights as opposed to collecting statistically accurate data. The aim is to expand our understanding of things (be it people, relationships, strategies, or other things of interest) and provide quality information that can lead to a better discovery of new ideas and challenges that should be dealt with. Findings from an exploratory research can inform future large-scale surveys that can statistically be generalized as they bring in new ideas and insights for more structured research.

The data collected in this study is primarily qualitative in nature. Nevertheless, some Likert scale questions were included in the interviews providing some quantitative information regarding proportions of affected respondents by a given issue.

3.3. Population and Sample Selection

Since the farmer-processor relationship is investigated in this research, the interviews were conducted with milk processors and farmers supplying directly to the selected processors. This implies that the number of farmers selected for interviews is guided by the number of processors interviewed. For convenience, the focus will be on milk processors operating in Addis Ababa and the respective farmers who supply them.

Currently, there are around 9 active dairy processing companies operating in Addis Ababa (Land O’ Lakes, 2011). Five processors out of the population (i.e. 9 processors) are interviewed. As shown in Table 3.1, the processing capacities of these 5 processors range from 1800 to 60000 liters of milk daily. Four out of the nine existing processors weren’t included in the interview because they were not willing to be interviewed.

Table 3.1. Milk processing capacities of interviewed processors and no. of suppliers

Processors	Daily processing capacities in liters	Number of registered individual farmers who supply to the selected processors	Farmers with daily production capacity < 50liters	Farmers with daily production capacity > 50liters
No. 1	60000	30		
No. 2	4000	23		
No. 3	3000	19		
No. 4	2500	18		
No. 5	1800	16		
Total = 106			61	45

Source: Researcher’s survey (2018).

With regard to the selection of the farmers sample size, the total population of the individual farmers supplying to the selected processing companies is unknown. For this reason, only farmers who are registered on the contact list of the selected processing companies and who have direct contact with the selected private processing companies are interviewed. Table 2. Above shows the number of formally registered farmers in each of the five interviewed processing companies.

Out of the 106 formally registered farmers supplying to the interviewed 5 processors, a total of 31 farmers were selected. The selection of the 31 farmers was purposive in nature. That is, the selection made sure that the interviewed farmers differed in their milk production capacities. Accordingly, 16 farmers with a daily production capacity of less than 50 liters and 15 farmers with a daily milk production capacity exceeding 50 liters were selected so that to represent equally each sub-group. Differentiating farmers based on their production capacities helps to see if the nature of the farmers' relationships, the challenges that they face and the strategies that they use depends on such capacities. An average of 6 farmers was selected from the registered farmers supplying each of the five selected processors. It was made sure that at least 3 farmers with daily production capacities above 50 liters and at least 3 farmers with capacities below 50 liters are selected from the farmers supplying each processor. The minimum sample size for each group was determined when it was observed that saturation occurred when the 3rd^d participant was interviewed for each group of participants. Beyond this point of saturation, no new major concepts emerged in the next few interviews. Snowball sampling was also additionally used to find the farmers supplying the 5 processors. This technique helped in easily locating the farmers to be interviewed.

In addition to the 5 processors and 31 individual farmers interviewed, two unions' representatives were interviewed.

Currently, there are around 4 unions and cooperatives operating in the surroundings of Addis Ababa (Federal Cooperatives Agency of Addis Ababa). Two unions out of the population (i.e. 4 unions) are interviewed. As shown in Table 3.2, the production capacities of these organizations range from 8280 to 50000 liters of milk daily.

Table 3.2. Unions and cooperatives operating in the surroundings of Addis Ababa

No.	Name of the union/coops	Location	Production capacities in liters
1	Selale milk and dairy products union	Selale	50000
2	Ada'a milk and dairy products union	Bishoftu	45000
3	BiftuBerga milk and dairy products union	Holeta	4000
4	Angulala milk producers' cooperatives	Anguala	8280

Source: Federal Cooperatives Agency of Addis Ababa

Among the 4 currently existing cooperatives and unions 2 were included in the study and the rest were not interviewed because one was not willing and the second one has its own processing company and retail store; and so, does not have a relationship with the private processing company. The first union as shown in table 4.below,comprises 13 primary cooperatives and 698 individual famers. Since the primary cooperatives of this union didn't have direct relationship with the private processing companies, only the representative of the union was interviewed in person. This union supplies 1 of the processors interviewed in this research.

Table 3.3.Profile of first union

Total number of primary cooperatives	Daily milk supply capacity of the union in liters	Current number of individual members			Total number of processors to whom it sales	Total number of clients among the 5selected processors
		MALE	FEMALE	TOTAL		
13	4000	488	210	698	3	1

Source: Researcher's survey (2018).

The second union as shown below in table 3.4comprises 11 primary cooperatives and 3000 individual famers. This union has encountered machinery related problems and intends to expand its cooperatives number to 27. This union supplies 1 of the processors interviewed in this research but is planning to deliver to other processors. According to the union's representative, the relationship with other processors has been interrupted temporarily because of machinery related problems. This union has a daily supply capacity of 2500 liters and comprises 3000 individual farmers.

Table 3.4. Profile of second union

Number of primary cooperatives	Daily milk supply capacity in liters	Current number of individual farmers			Total number of processor to whom it sales	Number of clients among the 9 selected processors
		Male	Female	Total		
Currently 11 but soon expanding to 27	2500				Above 5	3
		2700	300	3000		

Source: Researcher's survey (2018).

Data was also collected from an NGO known as the SNV which works to enhance the growth of the dairy sector in Ethiopia. This NGO was particularly selected because it provides support to the development of the dairy chain through its different but complementary programs aimed at increasing access to production and market for quality milk. As part of this approach, SNV wishes to increase investment in the dairy sub-sectors in Ethiopia and contribute to market access and development of the formal dairy value chain and capacity building of institutions and actors in the chain. The aim of the interview conducted with SNV is to triangulate the findings obtained from the interviews with the farmers, processors and the farmers' union.

3.4. Method of Data Analysis

Content analysis of the interview transcripts was used in this study to identify the nature of the relationship, challenges and strategies used by farmers and processors in the dairy supply chain. The process of content analysis includes open coding, creating categories and abstraction (Elo and Kynga, 2008). Elo and Kyngas (2008) define open coding as the writing of notes and headings to describe the content of the interview transcript. They define abstraction as the naming of the categories and sub-categories of notes and headings generated in the open-coding process. The conceptual framework defined at the start of the thesis will guide the analysis and interpretation of the sub-categories identified through the coding and abstraction process.

In addition to the content analysis of the interview transcripts, the quantitative data collected through Likert scales will be analyzed through basic descriptive statistical tools. These include simple percentages and pie charts.

3.5. Ethical Considerations

The data that was collected, the results and the findings of the research are confidential in nature, and will only be used for a research purpose and no other unethical aim is intended. Hence, to protect the interests of the respective respondents and avoid causing strains in the trust relations between processors and producers, their identities have been kept anonymous in the discussions of their responses to interview questions. Full consent of the interviewees was obtained prior to the data collection.

3.6. Validity and Reliability Test

Bryman and Bell (2007) defined validity as how much any measuring instrument measures what it is intended to measure. They also suggest that the important issue of measurement validity relates to whether measures of concepts really measure the concept or not. There are several ways of establishing validity such as content validity, convergent validity, concurrent predictive validity; construct validity. This study addressed content validity through the review of literature and by adapting data collection instruments adopted by (G/Silassie, 2014) that can be field-tested.

The interview questionnaire was tested on 2 processors and several farmers. The respondents understood some questions differently than the intended objective of the questions. For instance for closed ended questions, the answers provided respondents didn't match at all the alternative answers provided. For this reason the data collection instruments which is the semi-structured questions' answers were redesigned in a way as to get the expected results. For questions with multiple response choices, the interviewees were asked if there are any choices that should be listed. Also, for some questions where a number of interviewees specified an "other" answer, the question was left open-end.

Afterwards, a field test was conducted on the farmers that represent the two subgroups chosen, those with production capacities below and above 50 liters. Saturation point was determined when the 3rd respondents' answer didn't have a new emerging idea. Farmers' views are confirmed by people on the same subgroup. The Likert scale variables were also revised from 5 to 3 variables because it was difficult for the respondents to rate their answers in 5 variables. And so, their answers were rated as "highly challenging, moderately challenging and not challenging".

Chapter Four

RESULTS AND DISCUSSIONS

In this chapter, the study's results are presented based on the objective. This is followed by discussions substantiated with previous findings of scholars in the area. Finally interpretations of the results are presented.

4.1 Demographic Profile of Sample

The selected samples have the following demographic profile:

- a) *Processing companies*: 1 out of the 5 processing companies is considered as a large processor and processes around 60,000 liters of milk a day; the rest are considered as medium-sized processing companies, and their processing capacities range from 1,800 to 4,000 liters of milk a day. All of the respondents were male except for one. Ages of the respondents range from 40 to 50 years. All interviewed processing company owners have completed higher education. The processing companies are all located in Addis Ababa city. With regard to the year of establishment, the earliest was established in 2003 and the most recent one dates to 2008.
- b) *Dairy farmers*: 50% of respondents produced below 50 liters of milk a day and 50% above 50 liters of milk a day. All interviewed farmers are owners of their farms and milk production is their main economic activity. 16% were female and 84% were male. Interviewed farmers ages range between 30 and 50 years of age. 15% of the respondents haven't completed high school while 85% have finished high school education. With regard to the geographical concentration of the producers: 62.3% of respondents were located within 50 km from Addis Ababa and 37.7% farther from 40km. All interviewed farmers are married and have children.

The data collection method used in this study is a semi-structured interview, with both open and closed-ended questions. A sample of five processors was used from among the nine existing in Addis Ababa. The remaining four processors among the nine weren't included because they weren't willing to participate in the interviews for reasons of inconvenience. With regard to the profile of the farmers, 31 individual farmers, two unions representing 11 and 13 primary cooperatives were included in the interview through their representative.

4.2. Nature of the Relationship between Farmers and Processors

Communication between supply chain partners

It is important to maintain high trust and high communication for mutually beneficial relationships between key suppliers and customers. In the actual supply chain relationship, both farmers and processors get connected in ways that allow them to easily exchange information, demand data, and demonstrate status. Farmers and processors have daily contact and exchange of information. The farmers know about the processors' capacities and capabilities, just as processors know about theirs. For instance, producers are well aware of the limit of processors' collection capacities during fasting periods. As Christopher(2011) noted, information sharing is a frequently noted dimension of SCM since shared information forms the backbone of the supply chain partners' relationships. Potential benefits of shared information among farmers and processors include early problem detection with regard to milk quality and faster response for improvements. On the other hand, the lack of vertical and horizontal integration marked an absence of information sharing between actors within the same chain. If there was horizontal and vertical integration then it would reduce the uncertainty levels thereby improving the degree to which actors trust one another. It means working together to reduce operational costs, set prices together and form farmers' unions. In the literature, it is noted that improving access to information and communication within dairy supply chains would certainly support quality upgrading (Ruben, and Bekele, and Lenjiso, 2017). The results of this study confirmed this fact because the supply chain partners have regular communication that helped them improve the quality level of the milk.

Decision synchronization and goal alignment

It is a dimension of SCM that has the potential to reduce a source of conflict existing in supply chain relationships. Also, it is the degree to which channel partners are able to coordinate critical decisions in planning and operations that benefit the supply chain as a whole(Cannon and Perreault, 1999). In the actual dairy supply chain, the lack of long-term written contract shows that there is no collaboration and mutuality of goal. Partners make on the spot transactions and decisions are limited to their own benefits. It was noticed that this is a source of contractual conflict between the dairy actors. Each act opportunistically and individualistically without long-term objective and commitment. In the literature it was stated that milk processing companies oppose contracts since milk producers would behave

opportunistically (Drost, 2011). The results of this finding agree with the literature because each actor acts opportunistically according to the season and their relationships lack commitment and long-term orientation.

Table 4.1 Statistical analysis of the ratings by the respondents

Variables	Not challenging	Moderately challenging	Highly challenging
Marketing/purchasing problems encountered during business			
Failure of buyer/seller to communicate in advance the changes in the agreed transaction items (price, quality...)	17	7	14
Unreliability of the communication means used (telephone, fax...)	38		
Strong power of buyer/seller (price, quality, volume negotiation)	6	6	25
Agility in responding to demands	19	6	13
Difficulty finding new buyers/seller	6	13	19
Difficulty keeping existing buyer/seller	11	19	8
Challenges related to distance	30	4	4
Buyer/seller not meeting contractual obligations	14	7	17
Mean	17.6	8.9	14.3
Median	15.5	7.0	14.0
Standard deviation	11.3	5.3	7.0
Percentage	46.5	20.5	33.0
Operation related challenges			
Shortage and seasonality of raw milk supply	3		35
Long lead time from production to sales	24	7	7
Poor volume of demand/supply, price, quality forecast	25	8	4
Expensive inventories (e.g., storage with appropriate cooling system, small inventory capacity, cost of transforming milk to products with long shelf life)	21	3	14
Getting supply of good quality milk	19	3	16
Mean	18	5	15
Median	21	5	14
Standard deviation	8.9	2.6	12.1
Percentage	48.7	11.1	40.2
Distribution related challenges			
Lack of infrastructure (transport....)	13	3	22
Manipulation of the milk quality by farmers	10	7	21
Delayed/ irregular payments	23	4	11

Variables	Not challenging	Moderately challenging	Highly challenging
Involvement of too many intermediaries	23	3	12
Mean	17	4	17
Standard deviation	6.8	1.9	5.8
Median	18.0	3.5	16.5
Percentage	45.4	11.2	43.4
Integration/coordination related challenges			
Lack of financial capacity to integrate vertically	6		5
Lack of regulatory framework to solve conflicts	21		17
Lack of trust	15	13	10
Lack of financial capacity to integrate vertically	0	0	38
Lack of horizontal collaboration in information sharing (price, quality, supply aggregation)	3	8	22
Lack of (vertical) buyer/supplier collaboration in information sharing	2	0	3
Mean	6	5	13
Median	3	3	8
Standard deviation	7.6	5.6	12.6
Percentage	28.7	13.8	57.5

Source: Researcher's survey (2018).

The average of the respondents who rated the different variables such as marketing, operation, distribution and integration as highly challenging have means which ranges from [12.5-16.5]. Although the means of the variables have approximate values, the standard deviation of marketing and distribution variables is lower and those of operations and integration is higher. This shows that most respondents' ratings for marketing and distribution are concentrated around the mean and that of the operation and integration ratings deviate from the mean. In addition to this, the results show that responses are polarized and that the mean doesn't represent most respondents' opinions who consider that operations and distribution are highly challenging variables.

The highest mean of respondents who rated variables as a not challenging factor is for marketing and the lowest is for integration-related challenges. This shows that most respondents are highly affected by challenges related to integration because very few respondents rated integration-related challenges as not challenging. On the other hand, distribution-related challenges are considered by most respondents as a not challenging factor because it shows the highest means.

The proportion of respondents who rated integration and coordination related problems as ‘not challenging’ is lower (27.6%) as compared to those who rated marketing problems showing a higher result (46.5%). Proportion of respondents who rated integration and coordination related problems as ‘highly challenging’ is higher (57%) as compared to marketing problems (33%). This shows that integration and coordination is a highly challenging factor as compared to marketing related problems.

The power distribution between the farmers and processors is explained below in the selling/sourcing strategies.

4.2.1. Selling/Sourcing Strategies

a. Farmers’ strategies and reasons

According to interviews conducted with farmers having daily production above 50 liters, selling to a single buyer isn’t advantageous because their production capacities aren’t equivalent to the purchasing capacity of a single buyer. The advantage of selling milk to multiple processors is that there is a possibility of selling a large quantity of milk daily. According to these farmers, selling to resorts is preferable because there is a 5 to 6 birr difference as compared to the lower price paid by processors. However, resorts only collect milk from them when there is a meeting. Consequently, these farmers prefer to sell most of their milk to resorts and the remaining to processors.

According to the unions’ managers, a multiple-selling strategy is adopted because during fasting seasons, farmers have difficulties finding markets. Selling to a single processor has many disadvantages because if the milk is sold based on its fat content and if the farmers fail to meet this criterion, then the milk will be turned back. Also, if a single processor decreases the amount of milk purchased, then there is a possibility of shifting to another buyer. He says, “Diversifying our potential milk buyers is advantageous and helps us to survive in the market”. In addition to this, multiple selling strategies helps the unions to sell large volume of milk is a means of achieving economies of scale; with the profit they earn by selling large quantities, it is possible for them to cover their costs and earn profits

According to an interview conducted with farmer having daily production capacities below 50 liters, there is a risk related to selling to a single buyer (cooperative/processor). When they used to sell all their milk to a single cooperative, the administrators of the cooperative abused the profit earned by the cooperative by reducing the profit margin and this affected their revenue. Selling to a single processor has also drawbacks, because the relationship can soon turn out to be complicated. The processor can abuse his power by reducing dramatically the milk's price or can even refuse to buy his milk. According to these farmers, there was a time when they had to sell some of their cows because there were no alternative buyers for their milk and this made them incur losses.

b. Processors' strategies and reasons

According to three processors in Addis Ababa City, the main reason for not sourcing from a single farmer is that the later doesn't have the capacity to sell the required quantity of milk. From experience, farmers who are considered as having a high capacity of production are those producing 50 to 100 lts of milk daily, though processors' need is higher than that. If a single farmer was capable of providing the required volume and quality of milk it would have been advantageous, but for the time being, such opportunities aren't available. Most of the farmers working in the dairy business have low financial capacity. On the other hand, according to a processor, there exists competition between the different processors to buy the raw milk available in the market. Therefore, they try to source from as many farmers as possible by opening chilling centers at different locations. That way they can check and control the quality of the raw milk coming from the different sources. According to another processor, buying milk directly from farmers is preferable because there is a possibility of avoiding intermediaries who could be sources of adulteration.

In the literature review, the theme of sourcing strategies was discussed. Findings from the studies indicate that multiple sourcing was the recommended strategy because it helped companies in dealing with the negative consequences related to dependence on suppliers (Uzzi, 1997; Gadde-Snehota, 2000) and that dependence on a single source also exposes the buying firms to a greater risk of supply chain interruption Larson and Kulchitsky (1998). The results of this study are consistent with the literature because according to the interviews, the actors are faced with power dependability when sourcing from a single farmer or selling to a single processor. This is shown in table 4.2.

Table 4.2. Actors' reasons for choosing multiple selling and sourcing strategies

Actors	Reasons for choosing multiple sourcing/selling strategies by the actors			
	<i>Avoid the risk of supply disruption</i>	<i>Price related benefits</i>	<i>Quality of the raw milk</i>	<i>Volume</i>
Processors	54%	10%	12%	24%
Farmers	16%	20%		64%

Source: Researchers' survey (2018)

This could be related to supply disruption during fasting seasons, dominance while setting prices or volume determination. In addition to this, processors main reason for sourcing from multiple sources is related to the volume of the supplies milk and avoidance of the supply disruption. The production capacity has a significant importance for the processors and that the main reason for selecting the individual farmers sample size purposively based on the production capacities.

4.2.2. Nature of the Contracts between Farmers and Processors

a. Farmers' viewpoints of the contract type

According to most farmers, no written contract exists when making transactions with processors. These farmers worked for more than 6 years with processors without written contracts. According to these farmers, the presence of a written contract would have been advantageous because it will lessen the risk related to price fluctuation. Farmer pointed out that the lack of a written contract gives processors the power to set the price as they like. During fasting season the price lowers and after a fasting season the prices rises.

On the other hand, interviewed farmers stated that if there was a contract the sales would have been regular even during fasting seasons. These farmers complained that during fasting seasons, processors reduce dramatically the volume bought and forcethem to search for other individual buyers. Farmers with high production capacities are mostly affected by the seasonality of the dairy business and some were even forced to reduce their cows' number because they had difficulties finding markets. In addition to this, some interviewed farmers don't have access to equipment that produces cheese and for this reason the milk will be spoiled.

b.Processors' viewpoints concerning contracts

Interviewed processors stated that a written contracts are signed when the quantity of the milk sold reaches 100 lts. These processors believe that the presence of a contract is advantageous for both parties. However, most farmers don't agree with such type of transaction because the dairy business in our country is seasonal in nature and farmers have difficulties finding markets during fasting seasons. Nevertheless, at the end of fasting periods, the absence of acontract allows the dairy farmers to sell their milk to processors paying an attractive price. On the other hand, the absence of a written contract gives processors the freedom to refuse milk during fasting periods. The other problem processors face is that, once there is alegal commitment to buy milk from a given farmer and if the milk's quality isn't as expected, the farmer still expects the milk to be collected. If the processor refuses the relationship could be affected.

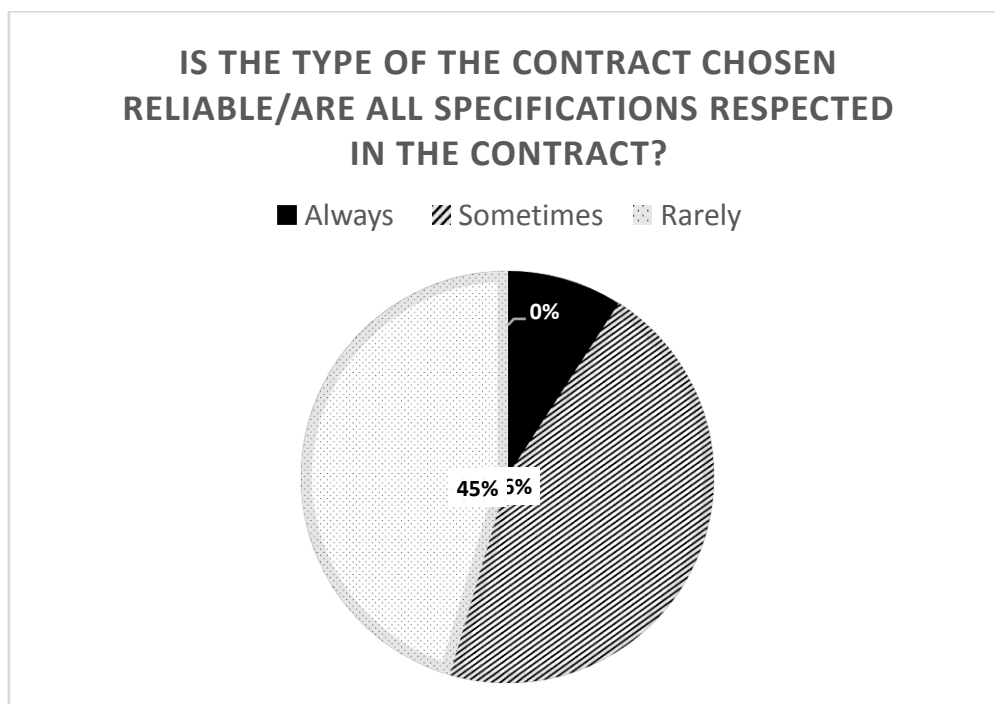
In addition to this, written contracts don't extend for more than 6 months due to fasting seasons. The reason behind this is that a processing company cannot continue to buy the same quantity of milk during fasting periods since milk has a short shelf life. One the other hand, short-term contracts (3 months) is considered as a threat by other processors because the supply might be discontinued once the contract has ended. And they have to compete with other bidders.

Two interviewed processors stated that they have long-term written contracts which extend from 6 months to one year. One processor said that a long-term contract is signed with farmers but it is not a closed one and it can be renewed any time if there are issues related to price adjustment.

The interviewee from the SNV confirmed the contractual problems existing between farmers and processors. According to this interviewee, contractual obligations fail to be respected by the processor during fasting periods because the processors refuse to collect the agreed volume of milk. During fasting periods, processors find fictitious reasons for rejecting the milk by putting the blame of the milk's inferior quality. From cooperative side providing quality milk according to the agreement sometimes violated. This affects the relationship between farmers and processors because, cooperative or milk producers are forced to look for other buyer and have difficulties finding markets.

In the literature it was stated that the marketing relations among the majority of these chain actors were not going beyond the instant buying-selling relations. They lack long-term market orientation from value chain perspectives (Amentae, 2016). Farmers' relationship with input suppliers, which was identified as just only spot market relation, is another indication for further work on relationships management in this milk chain (Van der Valk, 2009). The results from this study agree with the literature because the relationships between farmers and producers lack long-term orientation and commitment from both parties. The contract type is short term and most often on the spot transaction. Most interviewees (46%) as shown in Fig. 4.1, find the contract type as unreliable; long-term written contract would lessen the risk for both parties. On one side, farmers have difficulties finding markets during fasting season because processors set small quotas for their products; on the other hand, the purchase price demanded from the processor is inflated at the end of fasting seasons; the processors also have to compete on price with other buyers in order to increase their volume.

Figure 4.1. Degree of the reliability of the contract type chosen by the actors



c. Contract specifications related issues

For most processors, price is a specification which can be negotiated, unlike quality which is strictly controlled. Quality parameters such as sourness and fat content are stated clearly in the agreement, and if the farmer fails to meet these requirements then the milk will immediately be rejected. According to a processor in Addis Ababa, the reason behind this strictness is that, prices can rise or lower according to the season (fasting) unlike quality level which is expected to be constant. However, quality has a relation with the nature of the product they produce. When milk is bought from a farmer, the fat content should be around 3.5%. After pasteurization the fat content of the milk sold at the market is around 2.7%. The remaining fat will be used for other products like butter or cream.

Most processors and farmers interviewed commonly agreed to use the same means of checking the milk's quality, which is lactometer or alcohol. The lactometer is used to check the fat content of the milk as it is believed to be an easy instrument although it doesn't show adulteration.

Farmers that provided good quality milk expect to be paid a higher price; they say that below that price, it wouldn't be profitable. Hence, processors pay the required price so as to retain the seller. However, most of the interviewed farmers complained about the price paid by the processors because the cow's feed price was too high. According to interviewed processors, when the fat content of their milk is lower than usual, farmers are required to make adjustments for future transactions. Sometimes, problems might occur because the farmer hired unethical people like for instance collectors who pour water into the milk after drinking some of the milk. Some processors try to give awareness to the farmers with regard to the cleaning, handling of the raw milk and the warehouses, but the quality could also be related to the cooling system and the hygiene and feed quality of the cows.

With regard to the level of milk delivered, processors usually leave open the maximum amount that they will collect except for fasting periods, but the minimum quantity should always be respected. With regard to the payment methods used, some farmers expect to be paid based on the quality of their milk. However, some processors refuse to do so. According to all respondents, payment is made after 15 days of delivery of milk; hence it is a credit-based transaction. Some farmers complain about the delay in the payment but the processors justify it by saying that they had difficulties finding markets.

Farmers that supplied good quality milk expect to be paid a higher price and refuse to accept lower prices because the cow's feed is very expensive as compared to the milk's selling price.

According to the interviewed actors (farmers and processors), failure to meet contractual obligations like for instance payment for farmers or quality standards for processors or volume of the milk sold is a very challenging issue for both parties. This is illustrated in Fig.4.2. Most respondents (46%) stated that this is a highly challenging factor when making transactions.

Figure 4.2. Degree of challenge of failure to meet contractual obligations



With regard to the contract specifications, in the literature review, the theme of contract defaults was discussed. Findings from the literature indicate that defaults on contracts by farmers / cooperatives occur during a period of scarcity of supply; and by processors during months of oversupply of raw milk (Van der Valk, 2009). Results from the present study agree with the literature. Lack of commitment is observed on both parties as they both face risks related to the seasonality of the dairy business. During fasting season, farmers have difficulties finding enough markets and the same is true for processors. However, in the literature it was stated that milk processing interviewees opposed contracts since producers would behave opportunistically (Drost, 2011). The result from this study disagrees with this

statement because the interviewed processors encourage the existence of contracts. At the end of the fasting seasons, processors have difficulties competing on price with the existing processors and the availability of a contract is a safety for them especially during scarcity of the supply.

In the literature review, it was stated that formal arbitration procedures for quality control between market partners do not exist, and enforcement on contracts or standards (Van der Valk, 2009). Results from this study disagree with this because most processors and farmers interviewed commonly agreed to use the same means of checking the milk's quality which are lactometer or alcohol. According to the interviewees, the instruments used show objectively the quality of the milk; so there is no room for disagreements between the two actors.

4.2.3. Nature of the Communication between Farmers and Processors

With regard to the communication means used, all farmers and processors stated that the communication means are reliable and that orders are made by phone, specifying the quantity needed. Hence, farmers know in advance the volume of milk needed and estimate their production capacities accordingly. Sometimes, problems might occur when the processors fail to make an order a day before and in that case they try to cooperate and adjust the quantity required in order to solve the problem. According to these respondents, telephones are widely used but they also meet in person at least twice daily. However, communication problems occur when farmers try to meet with the main processing company owners in order to solve disagreements related to price and seasonality. According to an expert interview with a staff in SNV NGO, farmers and processors have a chance of discussing milk sales related issues mostly when the management committee of the cooperative organizes meetings.

In the literature, it was stated that an ineffective communication problem causes milk losses, poor milk handling practice at the collection points, lack of immediate acceptors, milk-carrying tools used and means of transport used (Amentae, 2016).

The results from this study disagree with this author's claim because, according to most interviewees, farmers and processors' collectors meet in person twice a day when milk is collected. This enables the actors to communicate well and make the required adjustments as

needed in cases of contract-related disagreements. In addition to this, the interviewed farmers and processors stated that they communicated well when quality related issues arise. In those cases, the processors try to give awareness and trainings on how to handle the milk to the farmers before it is collected. However, problems occur when the farmers have difficulties meeting directly with the main representative of the processing companies in order to deal with price-related issues.

4.3. Major Relationship Challenges Encountered by the Dairy Business Actors

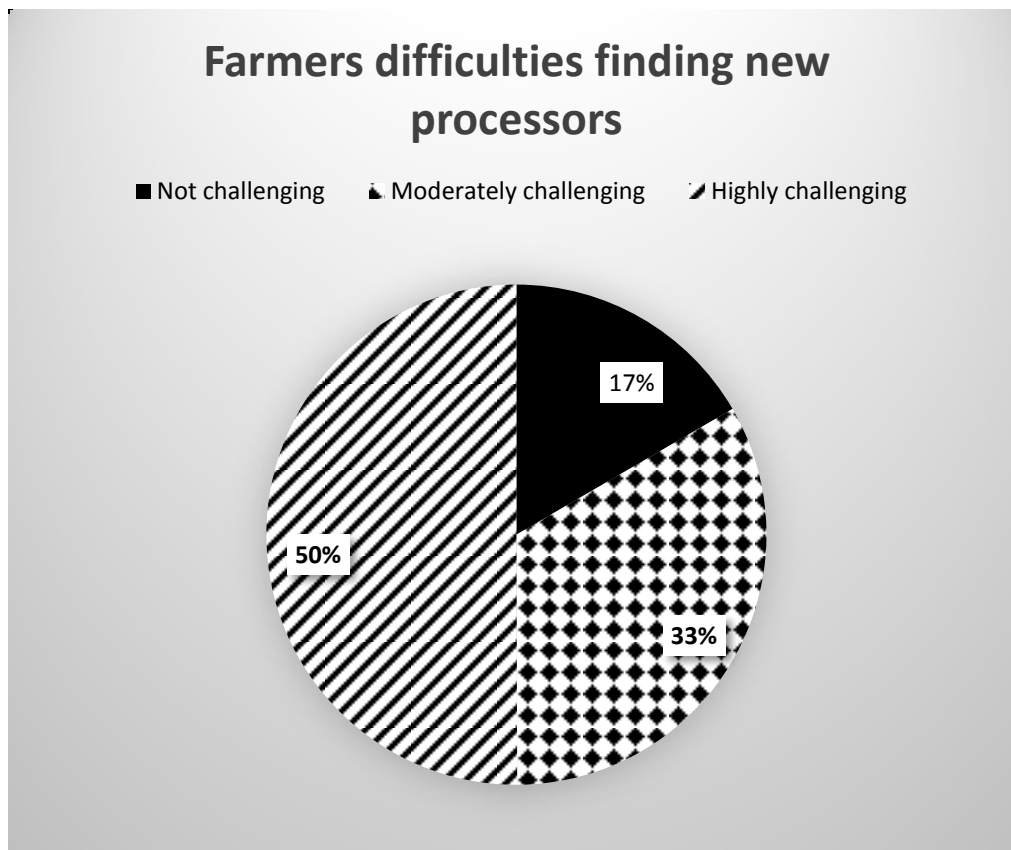
4.3.1 *Marketing and Purchasing-Related Problems*

4.3.1.1. Market Power Balance

a. Power distribution according to farmers

Most interviewed farmers, stated that they tried to sell their milk to several of the nine processors present in Addis Ababa. However, there was no possibility of comparing the prices and choosing the best one during fasting seasons, as the purchase price of all processors is almost the same, which is around 13-15 birr/liter.

Figure 4.3. Farmers' difficulty in finding new processors



Farmers' difficulty to find new processors in the market has been rated. The results are illustrated in Fig. 4.3. 50% of the respondents stated that it is highly challenging to find a new buyer during a fasting season and only 16.6% stated that it isn't a challenge. The challenge arises because the number of processors' operating in the dairy market is low, although their number is increasing, and as a result, farmers encounter difficulties finding new buyers for their milk in fasting seasons.

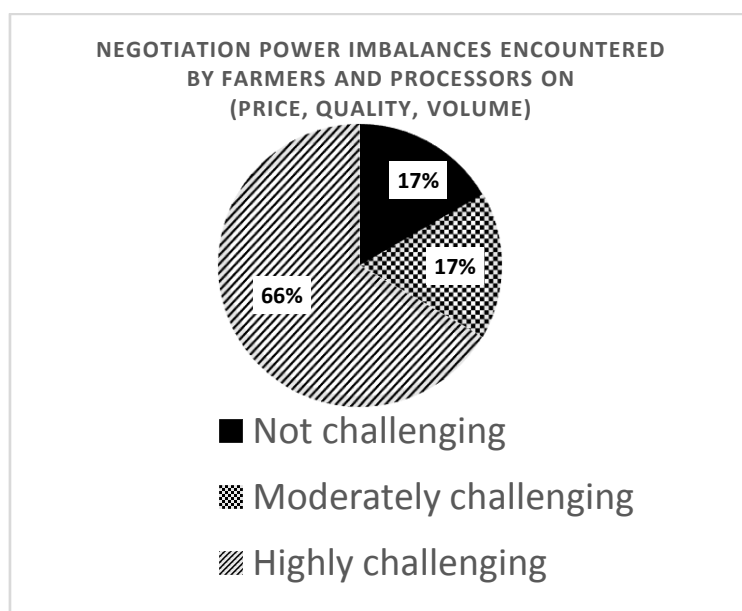
All interviewed farmers stated that during fasting season, processors have full power in the market because they are the ones who set quotas for the collected milk. In addition, processors have more power compared to farmers because they are the ones who set the price. Purchase prices are almost similar and farmers have difficulties finding processors with better prices.

b. Power distribution according to processors

Most interviewed processors stated that there is power imbalance because the dairy business is seasonal in nature. During fasting periods processors have difficulties finding market for pasteurized milk. For this reason they refuse to collect the same quantity of milk as they used to do during non-fasting seasons. Therefore, they convert the liquid milk to other type of products having longer shelf life such as cottage cheese (*ayib*) or butter, which aren't profitable. During fasting seasons processors reach the breakeven point. Sometimes there are cases when the sale of the aforementioned products doesn't enable processors to pay for the raw milk's price, and in that case, farmers are asked to reduce their prices. This is a common procedure amongst processors. At the end of fasting periods, there is a threat from new bidders (business men that enter the market according to the season) and these business men offer attractive prices to the farmers. During this time, farmers have more power and processors buy the raw milk according to the price set by the farmers. According to two interviewed processors, the processors lack a union in order to set the price collectively. Nowadays, farmers have more power because there are more and more processors entering the milk industry. As a result, farmers have more alternative options and a possibility of selling their milk at attractive prices. Processors also believe that farmers have more power as they are highly communicative; so, processors have no choice and become price takers.

According to a processing company's manager, the farmer is the one that supplies and if the supply is disrupted then it affects the plans and objectives of the business. For instance, when a 3 months contract comes to an end, the farmer might invite other potential buyers, and in that case prices might rise because there is no government control. Contrarily, a processor of a cheese company stated that power distribution in his sub-sector is a bit different in comparison to other dairy businesses because cheese isn't much affected by fasting periods. During fasting periods cheese processing companies become dominant. The SNV staff stated that power imbalances exist and that the buyer has more power during negotiation on fasting periods.

Figure 4.4. Negotiation power imbalances



In literature review, the theme of power dependence among supply chain partners was discussed. Findings from the literature indicated that power-created dependence can lead to opportunism by partners and subsequently dissolve many of the relational elements that are necessary for the development of effective buyer-supplier relationships (Lambert, et al., 1994). In addition to this, improved horizontal integration of small-scale farmers gives them, for example, the opportunity to become more powerful in their relationship with other actors in the value chain (Poulton and Lyne, 2009).

The results of this study agree with the literature because the majority (66%) of the interviewees (farmers and processors included) responded that power imbalances exist during negotiations (Fig. 4.4). The reason behind the power imbalance is mainly related to the seasonality of the dairy business in Ethiopia and that the power distribution changes according to fasting seasons. This highly affects the relationships between the processors and the producers. During fasting seasons, the negotiation power is with the processors because they set quotas and reduce the quantity of the milk they used to buy. Since there is lack of legal contracts, farmers' negotiation power is reduced and they are unable to enforce the contract items. When it comes to meeting contractual obligations, 45% of the respondents stated that such failure is highly challenging while 36.4% stated that it isn't a challenge. Amongst these respondents the majority reporting challenges are farmers, and this shows that

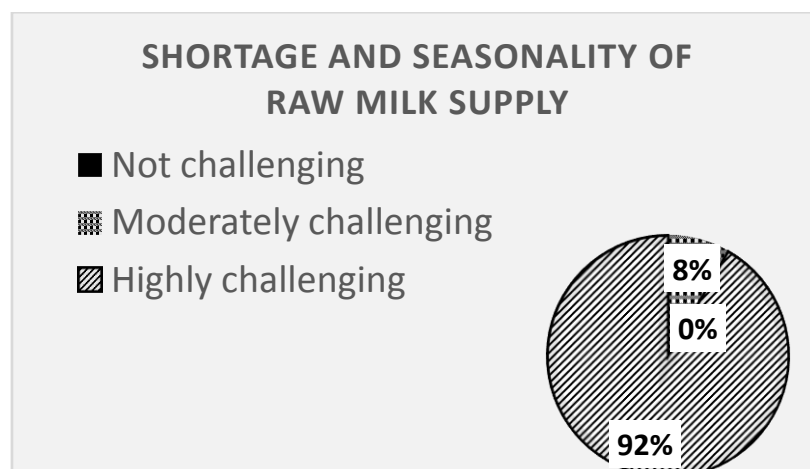
farmers are highly vulnerable when it comes to enforcing contractual obligations, and that it could affect the continuity of their relationships with processors. However, if there were horizontal integration of small-scale farmers, then the power distribution would have been fair. The bargaining power of the farmers would have improved because information will adequately be exchanged when integrating horizontally.

However, at the end of the fasting seasons, farmers become dominant during negotiations because there is scarcity of milk products and they are free to sell their milk to processors that offer attractive prices. That means that failure to meet this criterion isn't a motive to discontinue the relationship. This is mainly related to power-created dependence between farmers and processors who don't consider each other as partners but act opportunistically according to the seasons. These actors are unwilling to cooperate to advance their mutual interests.

4.3.1 Operation Related Challenges

Shortages and seasonality of the dairy business are highly challenging factors for the majority of the interviewees (91.6%). This has to do with fasting seasons in Ethiopia. According to one source, in Ethiopia there are 250 fasting days annually. This is a major challenge affecting the relationship between processors and producers. (See results in Fig. 4.5.)

Figure 4.5. Shortage and seasonality related challenges



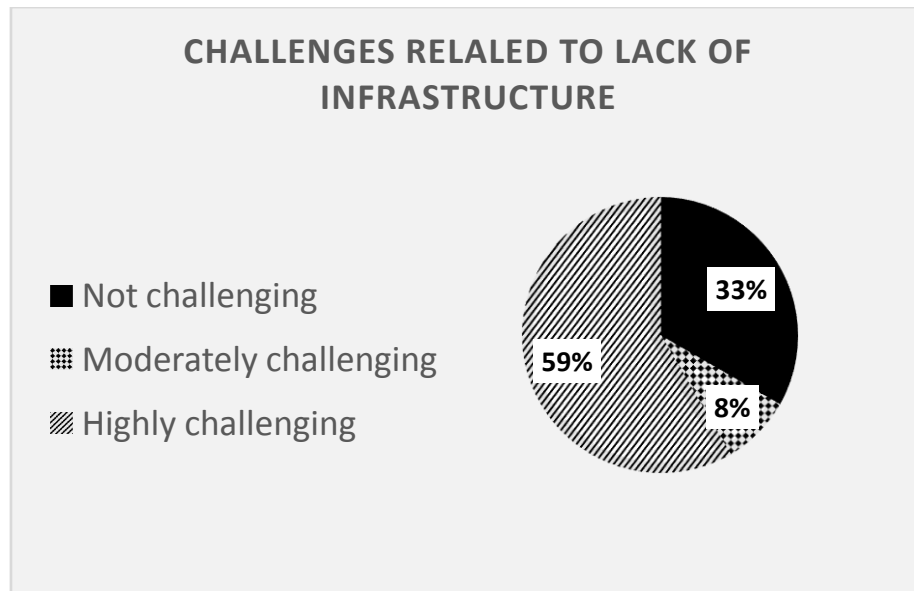
This finding agrees with the literature which shows that during fast the unsold producers would have surplus milk and the unsold milk is traditionally processed into byproducts like butter and cheese or feed calves (Tanngka et al., 2002).

Distance isn't a major challenge for most respondents (77.8% of processors and producers) because according to these respondents, milk is collect directly from their farms or from a nearby collection center.63.6% of the respondents (farmers and producers) stated that there is no long lead time from production to sales. This shows that milk is collected directly from farmers and that the lead time doesn't affect the milk's quality. In addition to this, only processors located in Addis Ababa source milk from neighboring areas of the city.

4.3.3. Distribution Related Challenges

a. Absence of infrastructure and its effects on the relationship

Figure 4.6.Challenges due to lack of infrastructure



The challenges related to the lack of infrastructure have been rated by farmers and processors. The results are as follows: 58.4% of the interviewees reported that lack of infrastructure is highly challenging and that the relationship between processor and producers is indirectly affected by it. However, 33.3% of the interviewees stated that the absence of infrastructure isn't a challenge (Fig.4.6).

- **Electricity**

According to three processors, electricity (power cut) related problems are very common. When there is no electricity the milk is spoilt and this affects the productivity of the companies. In addition, a processor stated that he had to buy an electric pole out of his own pocket and that the government isn't providing him with the required assistance.

Secondly, farmers that milk cows in the evening are forced to put their product in water as a cooling means. If they had access to electricity such inconvenience could have been avoided. These problems are aggravated in nearby towns like Sendafa, which isn't considered remote.

The electricity problems affect the relationships between farmers and processors because the milk spoilage limits the farmers' capacity to increase their milk volume as well as maintain the quality as required by the processors.

A manager of a union stated that there is no access to electricity in the rural areas and that there is no possibility of checking the milk's quality with a lacto scan which works with electric power; and hence they had difficulties meeting processors' quality requirements.

- ***Transportation, road availability***

According to a farmer, the absence of roads makes his livelihood very difficult and restricts him from achieving higher sales volume. Some farmers are located in remote areas, where even donkeys aren't capable of transporting the milk. For this reason, they are forced to carry the milk on their shoulders to the collection areas. Moreover, farmers that are located in remote rural farms complained that the milk is shaken until it arrives at the processors' collection area because the roads are in a very bad condition and that the milk is transported with *Garis*. Once the milk is spoilt on the road, the processor refuses to collect the milk although the milk was in a good condition when the farmer left the farm.

There is lack of good roads and collection centers. Farmers and processors need to work together to implement preservation mechanisms. Milk is also spoilt while it is being transported from the collection area to the processing area. If there was a good cooling system then there would be a possibility of maintaining the quality of the milk. Farmers deliver milk after a one-hour walk from their farm to the collection centers. If the roads were convenient enough then the processors would have supported the farms by collecting milk directly from the farms using the processing company's vehicles. Processing companies are concentrated in Addis Ababa and its surroundings. When one says that there are shortages of milk, it doesn't mean that there is shortage of milk in Ethiopia. Ethiopia is no. 1 in cattle population from Africa. Shortage occurs only because all processing companies source from the same areas. If one goes to Arsi Zone, milk production is in abundance. However, if a processor sources from Arsi Zone, the milk will be spoilt and will not be processed.

- ***Water availability***

Processors reported that the government promised to supply them with 9000lts of water daily to their processing site. A processor thus said, "Based on this information I did what I had to

do and that is to install a 3 km pipe. However, in reality, this hasn't been put into practice because there is no water and when we appealed to the required authority, we were told that the community should be given priority. You don't know which legal body solves these problems; so we were forced to complain to each government authority for a solution. They say that they support women in the media but nothing has been put into practice."

In the literature the theme of infrastructure was discussed. Findings show that the poor infrastructure, concentration of milk producers in rural areas, seasonal fluctuation of demand for fresh milk, and perishability of milk, development and promotion of small-scale processing technologies is critical to increasing smallholder producers' performances (Mohamed, Simeon and Yemesrach, 2004). The government should also take the lead in building infrastructure and providing technical service to smallholders in order to increase milk production. Of the total milk produced only 5 percent is marketed as liquid milk due to underdevelopment of infrastructures in rural areas. The development of infrastructure like, transportation would help change the traditional thinking of fresh milk not for sale other than exclusively intended for human consumption among the rural population (Azage and Alemu 1998).

The results of this findings agree with the literature because the main infrastructure problems mentioned by the interviewed supply chain actors are access to water, electricity and roads. Electricity related problems mostly affect processors unlike farmers who milk in a traditional way. Absence of roads is a challenge that mostly affects farmers because some are located in areas where the vehicle of the processors cannot have access. And so, farmers' livelihood is challenged and limits their performances.

b. Adulteration-related challenges

Manipulation of the milk's quality is a high challenge for most interviewees (54.6%), although 27.3% said that it is not a challenge. This indicates that milk adulteration is a serious challenge in the Ethiopian dairy business, and that for processors it is a major challenge affecting their relationships with producers. This problem affects the trust processors have on farmers and they constantly try to find alternatives when such problems occur. With regard to the quality of the milk sold on the market, 60% of the respondents stated that maintaining the milk's quality is highly challenging and a cause of disagreement during transactions. Most challenged respondents are processors who face adulteration while collecting milk. This fact

has been confirmed by the interviewed staff of the SNV because, during non-fasting periods, processors are forced to collect milk that doesn't meet the required level of quality because they have no choice. In the literature, it was stated that farmers blamed the poor feed quality for low-quality milk and buyers blamed farmers for water adulteration of the milk (Amentae, 2016). The results of this study agree with the literature because adulteration is a serious issue during collection and that different reasons are associated with the milk's poor quality.

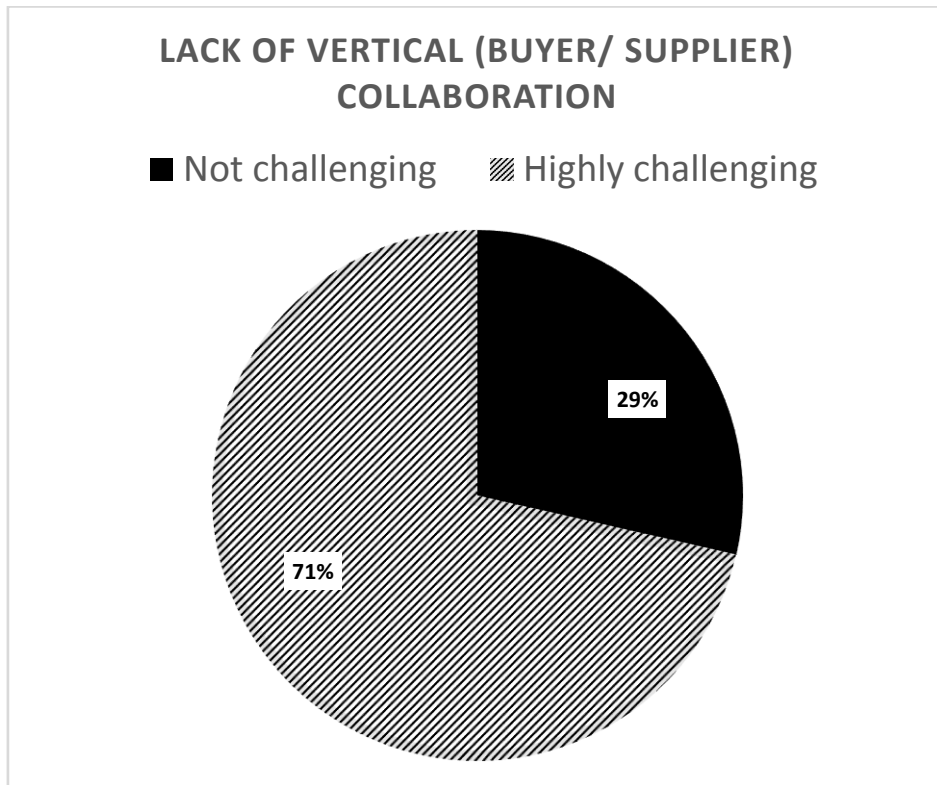
With regard to the milk quality and adulterations, in the literature it was stated that producers complain about the rejection rates by processors as being too high and prices paid by them are too low; on the other hand, the processors complain about the sub-standard quality of farmers' milk and the low quality-awareness among farmers (Drost, 2011). The results from this study agree with the literature because the interviewed processors confirmed that the milk collected doesn't meet the expected level of quality. However, in the literature it was stated that there is limited or no mutual trust and cooperation and the "vertical relations between processors and producers are not based on a partnership" (Drost, 2011). The results of this study is in contradiction with the literature because processors try to solve quality related problems by raising awareness and giving training on how to handle the milk. Most farmers take the necessary measures in order to improve their milk's quality by improving the quality of the cows' feed. Sometimes when the farmers adulterate the milk by pouring water or other additives, processors give them warnings. In order to increase the price paid by the processor, farmers ask payments based on the milk's quality. Two processors interviewed stated that they encourage farmers that deliver good quality of milk by paying them attractive prices.

Therefore, we can say that some forms of cooperation and collaboration exist between the two parties because there is mutuality of goals. Both parties work together in order to improve the quality of the milk since this has an effect on the performance of both farmers and processors.

4.3.4. *Integration and Coordination related Challenges*

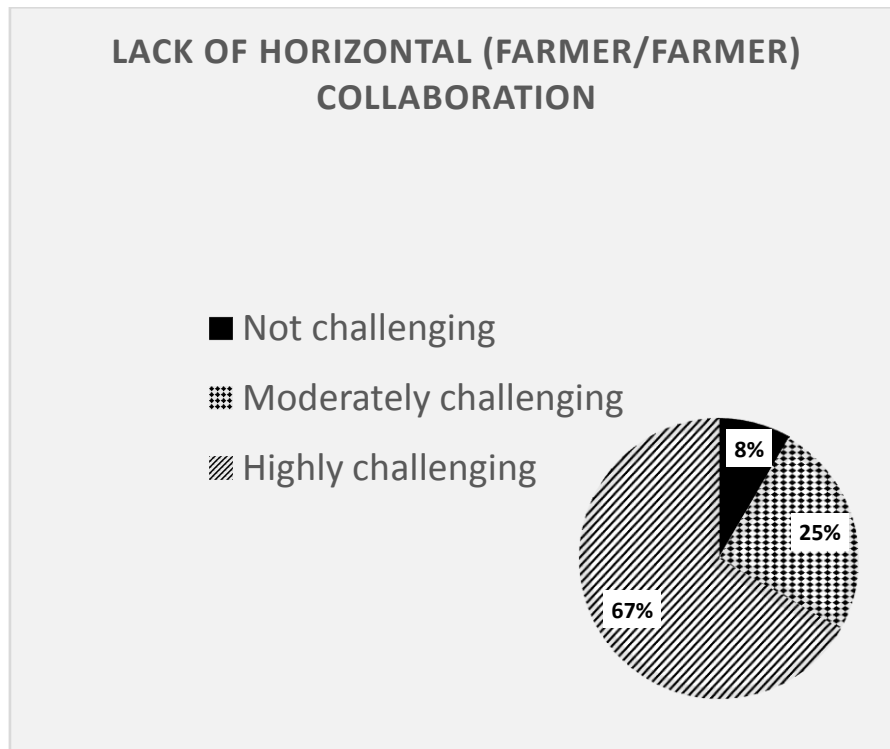
Most respondents in the interview (71%) stated that they lack financial capacities in order to integrate vertically. They stated that it would have been easy to get credit from governmental bodies; however, the major challenge is to get land at an appropriate distance from the market. This result is illustrated in Fig. 4.7.

Figure 4.7.Lack of vertical integration between farmers and processors



In the literature it was stated that lack of access to land is the greatest institutional and socio-economic constraint that the dairy industry faces today. It arises out of socio-economic rather than technical problem, i.e. the lack of access to land for expansion of the dairy enterprises and feed production (SNV, 2008). The results of this study agree with this argument since most interviewees don't have access to land to expand their businesses and are hence discouraged to expand further their production capacities.

Figure 4.8. Challenges related to horizontal collaboration



In addition to this, most farmers interviewed (67%) stated that information sharing is a major challenge among farmers. This is illustrated in Fig. 4.8. Many farmers have an individualistic approach and are reluctant to form or join a union in order to determine market prices together or integrate horizontally. They lack cooperation and collaboration among themselves in order to improve their performances. Results of this study agree with the literature because it was stated that there is hardly any collaboration in the chain (neither horizontal nor vertical), (Van der Valk, and 2009).

4.4. Strategies to Cope with the Relationship Challenges

4.4.1. Means Used to Solve Contract-related Problems and Their Reliability

Failure to meet written or unwritten contract specification doesn't end the relationship between farmers and processors. Instead, conflicts are solved by negotiations and arbitration through elders. 54.6% of the interviewees stated that conflict is solved amicably through negotiations and that it isn't a major challenge in the processor/supplier relationship. However, 45.5% stated that there is a need for an external party to solve disagreements or enforcement of contractual obligations.

According to one processor, when a farmer fails to meet his contractual obligations, the manager of the processing company sends collectors to the farms in order to understand and solve the problem. According to another processor, information is exchanged throughout the chain and if they encounter disagreements then they openly discuss it with farmers and invite NGOs and governmental bodies in order to find solutions.

With regard to the reliability of the above-mentioned measures, processors consider that it is satisfactory considering the awareness level of the parties with whom the contract is concluded. Contracts are signed with parties who are considered to have basic legal knowledge. They are capable of reading the terms of the contract and agree to put their signature on the legal documents. However, there are cases where farmers might deny the agreed clause and respond violently to their failure to meet their contractual obligations. Written contract is widely used between processors and farmers having large producing capacities and who have legal recognition but not with individual farmers.

On the other hand, according to some farmers, processors call farmers for a meeting in order to discuss and listen to their complaints and reasons for not meeting contractual obligations. In most cases, the managers write down their complaints, but they don't come up with a solution. They have no information whether the managers transmitted the report to the company's owners or not. Farmers complain of never having the chance to talk directly with the main owners of the processing companies. And hence, most farmers consider the means used to solve contract-related issues as unreliable.

In the literature it is noted that the use of formal contracts between producers and processors has hardly increased; only a few processors and cooperatives are participating in contractual negotiations initiated by the Dutch organization SNV's BOAM (Drost, 2011). In the actual study's results, this argument has been confirmed and that these problems haven't still improved up to now.

4.4.2. Legal Bodies' Roles in Smoothing Farmers' and Processors' Relationships

- ***Contract-related problems***

According to two farmers, there are no legal bodies that solve contract-related issues because farmers aren't registered and don't have legal recognition. If they had formed a union then there was a possibility of dealing with the legal body in order to solve their problems. According to one farmer, the legal bodies pay more attention to the processors because they're legally recognized. According to a union's manager, disagreements are solved with negotiation. Processors and farmers are called to the union's office so that farmers and processors can communicate directly with each other. Legal bodies are sometimes present during those meetings in order to solve issues related to the price or quality. These discussions were useful although the problems aren't solved totally. According to the union's manager, the legal agent known as the "Mahiberat Aderaj" (organizer of associations) provides the union with the required assistance. According to a processor in Addis Ababa, however, the relationship between farmers and processors is followed up by a legal body known as the "Ethiopian Milk and Meat Institute". This institution intervenes and provides the required support when farmers and processors encounter market-related problems or when illegal businessmen enter the market.

Another processor pointed out that problems are solved by discussions with cooperative/unions. However, Non-Governmental Organizations like the USAID intervene to support the farmers and make them beneficiaries of the dairy sector. They also give training to the farmers on quality improvement but do not intervene on issues related to contract disagreements.

In the literature it was noted that "the Ethiopian dairy sector in making substantive improvements cannot take place without the interference and supportive governmental policies. However, the government did not prioritize the dairy sector after the liberalization of the economy which is after the fall of the Derg regime. In order to solve this problem it is appropriate to initiate a multi-stakeholder platform where actors existing in the different sectors (private sector, government, and civil society) meet and work together to better link smallholder dairy producers and dairy processors to markets. However, the effects of these measures have been limited" (Drost, 2011). Results from this studies agree with the findings

in the literature because some the interviewed actors stated that government bodies like Cooperatives Organizers or the Ethiopian Milk and Meat Institutions intervene to support or solve market related issues although they don't have a role in solving contractual problems.

- ***Infrastructure-related problems***

According to an interviewed processor, serious infrastructure problems exist and affect indirectly the relationship between farmers and processors. The main infrastructure problems are related to the availability of electric power, access to clean water and roads. So far, the existing processing companies try to solve the existing problems on their own. For instance, all processing companies' managers interviewed are equipped with generators, because with the actual power cut they wouldn't have achieved their required level of performance. However, these measures make them incur additional expenses and investments like, for instance, buying fuel, electric poles, and transformers. These additional costs have an adverse effect on their selling prices and the final consumers. The same is true for other investments like access to clean water. In order to solve these problems, processors had to use underground water or bought water in water tanks which are very expensive.

The interviewed SNV expert stated that absence of infrastructures such as lack of clean water supply and electricity (power cut) affect the milk's quality significantly. If the farmers lack those infrastructures, then it might affect the quality of milk they supply and this will affect the relationship between actors.

4.4.3. Strategies for Managing Market Power Imbalances and Seasonality of the Dairy Business

According to a farmer, when the processors set low quotas and reject their milk during fasting seasons or when they set unfair prices, then the farmers turn to hotels as an alternative option. The latter are willing to collect their milk for attractive prices, although their collection volume is low as compared to processors. According to a union's manager, during seasons of abundance of milk supply, processors raise intentionally the alcohol level in order to avoid buying the required volume. Usually, the alcohol level should be around 68%, but processors intentionally raise it up to 75-78% while checking the milk's quality before collection. For this reason the milk is easily spoilt. This type of abuse is common when the processor wants to reduce the milk's quantity. In those cases, the union manager tries to find alternative buyers and that's the advantage of having multiple buyers. They try to negotiate with the buyer offering them better prices. According to farmer, in order to lessen the market

dominance of the processors, farmers tried to integrate horizontally by cooperating with each other and appealed to the concerned governmental body to give them land. This way they could have their own processing plants. However, the answers they got from the governmental body is that there was no land available.

According to a processor in Addis Ababa, in order to avoid farmers' market dominance, they are trying to upgrade their own farms. According to this processor, if they had multiple farms then there would be a possibility of controlling the output, quality, and price. They would try to manage well the feed of the cows, maintain the milk's quality and lessen their dependence on farmers.

Farmers also try to minimize their risks. According to a farmer, in order to lessen the loss incurred due to lack of market during fasting seasons, he decided to reduce the number of his cows although this measure affected his performance. According to a union's manager, milk storage place is a serious problem during fasting seasons. Since they don't have alternative choices with regard to the milk storage, converting the milk to traditional cheese is the only solution found so far. Only one processing company has a system that preserves milk for longer period of time, extending for up to 6 months. This fact has been confirmed by the interviewed staff of the Federal Cooperatives Agency, who stated that during fasting seasons, farmers convert their liquid milk to butter and cheese. In addition to this they try to sell their milk in the informal market to the large community at a reasonable price. This way they are able to survive in the market.

Another processor in Addis Ababa stated that farmers should be registered and should be traceable. In Kenya, for instance, all farmers have an identification number and information is available with regard to where farmers sell, how they sell, etc. This way power can be shared, and processors are more protected, but for the time being, farmers have all the power.

According to the literature, pricing negotiation between cooperatives and processors, the large processors have the power to decide on the price and the coops and farmers are price takers Amentae (2016). The results of this study proved that this only happens only during fasting seasons.

4.4.4. What Are the Strategies to Solve the Problems Related to Quality?

According to a union's manager, assuring milk quality is a serious problem and in order to solve this problem, training and advices given to the farmers. Sometimes farmers spoil the milk's quality by adding water to increase the quantity; they add salt to lessen the effect of alcohol during the collection test; and they extract the fat from the milk to use it for other purposes. In the future, the union's manager has a plan to use generators to make the lacto scan function properly in the absence of electricity. Hence, there is a possibility of himself controlling the quality of the milk collected from the primary cooperatives and before it is sold to the processors. This way, there is a possibility of meeting the processors' expectations.

A processor in Addis Ababa pointed out that no complaint has yet been made by any farmer with regard to the instruments used to check the milk's quality. Farmers and processors agreed to use the same instruments. All checking is done with the presence of both farmers and processors' representatives witnessing the spoilage of milk before the collection. According to this processor, abuses sometimes occur when farmers reduce the fat content intentionally or unintentionally; and in those cases, they try to give them orientation on how to handle the milk. If there are additives or if the milk doesn't meet the required level of quality, then farmers are well aware that their milk will automatically be rejected. In addition to this, this processor tried to encourage farmers by making payments based on quality. Farmers with good quality milk are paid very attractive prices and this is a means of maintaining consistencies in the milk's quality.

According to a processor, previously the rejection rate of the milk was high because farmers don't provide milk that meets the required level of quality and this practice was unprofitable for processor. For this reason, the processor tried to give orientation to the farmers with regard to the cleaning, handling of the raw milk and the storage areas of the milk. Once these measures have been implemented, the rejection rate of the milk has become low and there were some improvements with regard to reliability of the contract. If the quality of the milk sometimes lowers, the processor tries to understand the reason behind this. The reason can be related to the type and quality of feed the cows are given or it could also be related to a cow who gave birth. These reasons could affect the fat content of the raw milk as well as the volume. According to an expert at the SNV, in order to fight quality related issues, farmers are paid based on the quality of the milk they supply. By implementing quality based payment

system, there is a possibility for farmers to increase their income by supplying goods quality milk. In addition to this, establishing regulatory bodies like dairy boards is advised in order to enforce mandatory quality standards. The Federal Cooperatives Agency expert advised that training should be given to farmers on how keep the cow's hygiene, the water cleanliness, and contagious diseases should be controlled.

With regard to the milk quality and adulterations, in the literature it was stated that there is limited or no mutual trust and cooperation and the “vertical relations between processors and producers are not based on a partnership” (Drost, 2011). The results of this study is in contradiction with the literature because processors try to solve quality related problems by raising awareness and giving training on how to handle the milk. Both farmers and processors interviewed stated that they communicate when there are issues related to quality arise and hence cooperation exists between the two actors. In addition this the government should support dairy processors on setting higher mandatory quality standards for the dairy industry, because processors lack the market power to set such standards privately, however this failed to be achieved because the dairy sector is neglected by the government (Drost, 2011).

Chapter Five

SUMMARY OF MAJOR FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

In this chapter, we provide a summary of the major findings, the conclusions and the recommendations.

5.1 Summary of Findings

This study was conducted with the objective to explore the nature of the relationship between farmers and processors in the dairy supply chain of Addis Ababa and its surroundings. Data was collected from 31 individual farmers out of the 106 formally registered farmers, 5 processors and 2 unions representing 24 dairy cooperatives and a total of 3698 individual farmers. Data was collected using a semi-structured interview and was analyzed with content analysis of the interview transcripts. Descriptive statistics like percentage and pie charts were used to present the results.

The major finding with regard to the nature of the relationships between processors and farmers is that they both choose multiple sourcing or selling strategies. This has to do with avoidance of risk related to dependence on a single source. It was noticed that relying on a single source could affect the sales volume, sudden supply disruption, negotiation power is enhanced if alternative are present, and a means of comparing the quality.

According to the findings, the existence of a long-term written contract is considered by both parties as a market guarantee. For farmers for instance, the existence of a contract lessens the impact of price fluctuations and guarantees availability of a market during fasting seasons. Likewise, it enables the processors to get adequate supply of milk at the end of fasting seasons. On the other hand, the lack of a written contract also allows both actors to act opportunistically, with no long-term commitment. For instance, the lack of a written contract gives farmers the freedom to get attractive prices from bidders at the end of fasting seasons. Similarly, the lack of a written contract leaves the processors to set supply quotas during fasting seasons and gives them the freedom to reduce or reject the milk's quantity. In order to cope with disagreements related to the lack of a legal contract, the actors use negotiations.

This method of solving problems is believed to be unreliable although the actors continue to use it due to lack of alternative solutions.

With regard to market power distribution, farmers become more dominant at the end of fasting season and processor during fasting seasons. Processors are few in number but have large purchasing capacity and a power to determine the market price. For these reasons, farmers have no choice but to take the price set by the processors. The advantage of becoming members of a union is that farmers can increase their bargaining power and avoid selling their milk for lower prices. In order to cope with the power imbalances, farmers try to find alternative buyers in the informal market whom buy them milk in small quantities but for good prices.

The results of this study show that the supply chain actors face challenges due to lack of infrastructures. For processors, the lack of infrastructures like electricity, roads and water make them incur additional costs. On the other hand, the lack of roads in remote farms compounds the farmers' livelihood difficulties. Consequently, this has an effect on meeting the quality requirements of the milk expected by the processors. According to all processors, quality standards should be met. The strategy that processors have used so far is to solve the infrastructural problems on their own.

According to the results of the study, there is lack of horizontal integration in the dairy supply of Addis Ababa. Individual farmers aren't willing to become members of a union because they mistrust efficacy of the performance. Also, there is poor information exchange and cooperation among farmers. With regard to vertical integration, farmers don't have the financial capacity to become processors because the processing equipment is expensive; they also don't have access to land at a reasonable distance from the market. On the other hand, processors are faced with the same problem related to access to land and most of them believe that having their own farms would enable them to control the output, quality and price of the milk. However, when it comes to problems related to quality of the raw milk, some sort of cooperation exists between farmers and processors who try to solve the problem together. Interviewed processors believe that quality is a major requirement for the success of their business, and in order to ensure mutual benefits, they try to enhance suppliers' awareness and give trainings to producers.

5.2 Conclusions

The relationship between farmers and private processors lacks long-term orientation. This is mainly due to the seasonality of the dairy business in Ethiopia arising from decrease in demand during fasting seasons. The absence of written contracts enables both parties to act individualistically and opportunistically without long-term objectives and commitment. Market power is distributed among the actors according to the season. For farmers, bargaining power with regard to price improves when they integrate horizontally by becoming members of cooperatives. Also, when they become members of unions, there is an opportunity for them to have their own processing equipment and retail stores. However, some interviewed individual farmers are reluctant to become members of cooperatives due to various reasons including trust-related issue in relation to the representatives and attitudinal differences to cooperate. With regard to the vertical integration some improvements have been noticed with regard to the cooperation level between farmers and processors on quality improvements. Both actors encountered problems with regard to land access and expansion areas nearest to the market. The government's role in the dairy sector has been limited ever since the dairy business was liberalized. It doesn't get involved in solving quality-related problems, regulating illegal intermediaries and addressing infrastructure-related impediments like lack of electricity, water and roads. Nevertheless, the government encourages importing tax free equipment. Despite this, the challenges are so entrenched that the sector has not been able to grow to the extent that it should.

5.3 Recommendations for State and Non-State Actors

Upon examination of these relationship issues, it is clear that further efforts and measures need to be considered both by the government and the concerned NGOs in order to improve the performance of both actors by finding solution to eliminate their dependency on each other. Furthermore, the government should provide more incentives so as to encourage more processors to enter the dairy business. Likewise, processors should be encouraged to buy more milk during fasting seasons and convert the surplus into other dairy products such as cheese and butter which can be sold during non-fasting seasons or exported to neighboring countries such as Djibouti and Middle East countries. This way the power balance could be improved. The government should regulate the dairy business by setting minimum quality standards in order to protect processors and consumers. It should also make land accessible to

producers so that they can raise their production capacity. It should provide support for their unions to engage in dairy processing, thereby reducing their current dependence on processing clients. Both the government and other non-state actors need to engage in awareness raising and capacity building to enhance dairy quality and productivity.

5.4. Recommendations for Future Research

Relationship problems existing among members of cooperatives and unions should be further explored and analyzed to find lasting solutions. The reasons for the collapse of cooperatives and unions as well as the dropout of members or their reluctance to organize into cooperatives and unions should be studied more comprehensively. In addition to this, administrative or relational problems existing among member farmers in the cooperatives should be explored. The reasons for the government's low involvement and lack of adequate attention to the dairy business should be studied. Best practices from other countries should be identified and adopted in Ethiopia to improve the performance of dairy supply chain actors and the profitability of the sub-sector. Such inputs cannot be derived from a one-off research. Nor will recommendations from practical researches be easily adopted by the actors and policy makers without sustained sensitization and advocacy programs.

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Annex

SEMI-STRUCTURED INTERVIEW QUESTIONS

A. On the Nature of the Relationship

1. Which type of dairy supply chain actor is your firm?
 - a. Dairy farmer
 - b. Dairy Processor
 - c. Primary cooperative/union
2. From does whom your firm get the required supplies?
 - a. Dairy Processor
 - b. Primary cooperative/union
3. From how many farmers do you collect milk?
 - a. Single farmer
 - b. Multiple farmers
4. To how many processors do you sell?
 - a. Single processor
 - b. Multiple processors
5. Which of the following is the reason behind this sourcing/selling strategy?
 - a. To avoid the risk of supply/sourcing disruption
 - b. An attractive price
 - c. Volume
 - d. Quality of the raw milk
 - e. Other reasons. Please specify
6. How do you characterize your purchase/sales transaction? Please choose a transaction type.
 - a. Long-term written contract (6 months or above)
 - b. Short-term written contract (6 months or less)
 - c. Long-term unwritten contract (6 months or above)
 - d. Short-term unwritten
 - e. contract (6 months or less)
 - f. Spot transaction
 - g. Other. Specify
7. Please state the specifications you agree on in the transaction.
8. Is the type of contract chosen reliable/are all specifications respected in the contract?
 - a. Always
 - b. Sometimes
 - c. Rarely
9. If the contract is rarely reliable, which specifications in the agreed contract are usually not respected and why?
10. Please explain how the changes in the agreed specifications affect business relationships?
11. If specifications are rarely met, do sellers/buyers make adjustments (in price, quality...) in future transactions in order to meet the unmet needs?
 - a. Always
 - b. Sometimes
 - c. Never

12. What are the communication means used (for example...)
13. How do the communication problems, if there is any, affect the relationship between the actors?
14. How would you characterize the buyer-seller market power balance?
 - a. Equal power during negotiation
 - b. Seller has more power during negotiation
 - c. Buyer has more power during negotiation
15. If there is power imbalance with the seller/buyer, how does that affect your business relationship?
16. How does seasonality in dairy production and consumption (for example during fasting season, drought...) affect your business relationship?
17. How do you make forecasts with regard to the volume/price/quality of dairy production?
 - a. Previous experiences
 - b. Production on demand
 - c. Randomly production
 - d. Other
18. What challenges do you face when making a forecast?
19. What are the main advantages of reducing time to market?
 - a. To gain competitive advantage
 - b. Milk spoilage reduction
 - c. Productivity is higher
 - d. Customer service is improved
 - e. The milk quality is higher
 - f. Other
20. Do buyers make on time payment?
 - a. Always
 - b. Sometimes
 - c. Rarely
21. Are there abuses while checking the quality of the milk sold?
 - a. Always
 - b. Sometimes
 - c. Rarely
22. If there are abuses, please state details of the type of abuses?
23. What are the main problems related to the infrastructure (roads, water supply, electricity, telecommunications...) and how does it affect the relationship between actors?

1. Major Challenges Hindering the Success of Dairy Business Supply Chain Actors

- 1: Not challenging factor
- 2: Moderately challenging factor
- 3: Highly challenging factor

Variables	1	2	3
Marketing/communication problems encountered during business			
Failure of buyer to communicate in advance the changes in the agreed transaction items (price, quality...)			
Unreliability of the communication means used (telephone, fax...)			
Strong power of buyer (price, quality, volume negotiation)			
Agility in responding to demands			
Difficulty finding new buyers			
Difficulty keeping existing buyer			
Challenges related to distance			
Buyer not meeting contractual obligations			
Purchasing related challenges			
Failure of seller to communicate in advance the changes in the agreed transaction items (price, quality...)			
Difficulty finding new suppliers			
Difficulty keeping existing supplier			
Poor quality of raw milk at delivery			
Challenges related to distance			
Getting adequate supply or supply priority in times of shortage			
Getting adequate supply when supply is urgently needed			
Seller not meeting contractual obligations			
Operation related challenges			
Shortage and seasonality of raw milk supply			
Long lead time from production to sales			
Poor volume of demand/supply, price, quality forecast			
Expensive inventories (for ex, storage with appropriate cooling system, small inventory capacity, cost of transforming milk to products with long shelf life)			
Getting supply of good quality milk			
Distribution related challenges			
Lack of infrastructure (transport....)			
Manipulation of the milk quality by farmers			
Delayed/ irregular payments			
Involvement of too many intermediaries			
Integration/coordination related challenges			
Lack of financial capacity to integrate vertically			
Lack of horizontal collaboration in information sharing (price, quality, supply aggregation)			

Variables	1	2	3
Lack of (vertical) buyer/ supplier collaboration in information sharing			
Lack of regulatory framework to solve conflicts			

2. Strategies

1. What are the measures or strategies taken when written or unwritten contract specifications are not met?
2. How reliable are the measures specified above?
 - a. High
 - b. Moderate
 - c. Low
3. Are there legal bodies to solve these misunderstandings, if “yes” who are they and how effective are they?
4. What strategies have you used to date to manage the market power imbalance with the producer/processor?
5. How effective were the strategies indicated in Q.22.
6. What strategies have you used to date to manage seasonality problems?
7. How effective were the strategies indicated in Q. 24?
8. What kind of strategies would you suggest to improve the communication between actors in the dairy business?
9. What are the strategies to solve the contract-related problems?