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Constraints and opportunities for
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Getachew, Legese and Hailemariam, Teklewold and Dawit,
Alemu and Asfaw, Negassa

Ethiopian Institute of Agricultural Research, TAES: SPS-LMM,
International Livestock Research Institute

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Live animal and meat export value chains for selected areas in Ethiopia: Constraints and opportunities for enhancing meat exports



Rapid appraisal

Getachew Legese¹, Hailemariam Teklewold¹, Dawit Alemu¹ and Asfaw Negassa²

1. Ethiopian Institute of Agricultural Research (EIAR), Addis Ababa, Ethiopia
2. International Livestock Research Institute (ILRI), Addis Ababa, Ethiopia

Addis Ababa, Ethiopia
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Acronyms and abbreviations

ACDI/VOCA	Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance
EIAR	Ethiopian Institute of Agricultural Research
FAO	Food and Agriculture Organization of the United Nations
ILRI	International Livestock Research Institute
LMA	Livestock Marketing Authority
masl	meter above sea level
NGOs	non-governmental organizations
PLI-LM	Pastoralist Livelihood Initiative - Livestock Marketing Project
RMA	Rapid Market Appraisal
RVF	Rift Valley Fever
SNNPR	Southern Nations, Nationalities and Peoples Region
SORDU	Southern Range Development Project
SPS-LMM	Sanitary and Phyto-Sanitary-Livestock and Meat Marketing
TAES	Texas Agricultural Experiment Station
USAID	United States Agency for International Development
USD	United States dollar

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Summary

The Ethiopian live animal and meat export marketing system is operating in an environment characterized by several constraints that needs the attention and action of the government and other non-governmental development organizations. Despite the reported high livestock population of the country, the major meat and live animal exporters are complaining of shortage of supply and inferior quality of animals (especially shoats). The problem could be because of the constraints in the marketing system of exporters themselves, the market information system, poor market infrastructures like road, seasonality in production, competition of the domestic and the export sector, problems in the production system, or a combination of several factors. Thus, it is imperative to identify the major factors contributing for the reported supply shortage that has hindered smooth functioning of the Ethiopian live animal and meat export market and take appropriate action as much as possible. This study, therefore, characterizes live animal and meat export value chains to determine constraints and opportunities for enhancing the efficiency of meat export from Ethiopia. The study was conducted using a Rapid Market Appraisal (RMA), which is a method that offers a quick and effective means for learning about the main characteristics of the marketing system, mapping the supply chains, understanding constraints and opportunities, and generating information as a basis for designing follow-up research such as focused survey of value chain components and actors.

1. Introduction

1.1 Background

Livestock production systems in Ethiopia are generally subsistence oriented and productivity is very low (Belachew and Jemberu, 2003). The supply originates in small numbers from highly dispersed small producers that supply non-homogenous products to local markets. Presently, due to the low productivity of the animals and the absence of market-oriented production systems, the volume of marketed surplus is very low. In addition, the different live animals supplied to the market by pastoralist and farmers do not meet the quality attributes required by diverse markets. This is because of poor link of producers and other actors in the chain to the critical support services. Some of the problems related to the support services include:

- absence of commercial animal health services,
- non-existence of appropriate trucking equipment,
- lack of sufficient air-cargo capacity,
- underdeveloped feed industry, and
- lack of commercial fattening and holding facilities (Adina and Elizabeth, 2006).

It is also observed that frequent and sudden occurrences of certain diseases such as Rift Valley Fever (RVF) usually result in unstable market environment and imposition of ban on exports of livestock from the country. Livestock trade in Ethiopia is also characterized by informal cross-boarder trade between adjacent neighboring countries, mainly Somalia and Kenya, where the livestock are used either for re-export or domestic consumption.

To improve the competitiveness of live animals and meat export from Ethiopia tremendous interventions in the coordination of livestock marketing activities and in the provision of market support services are needed. To attain efficient use of the sector, to ensure food security and improved export performance cost-effective marketing channels and coordinated supply chains, which reduce non-value adding transaction costs among different actors along the supply chain, are crucial. If livestock producers and exporters are to be competitive in both domestic and international markets, their value supply chains need to be more efficient and more effective. This will require not only the competitiveness of individual

firms but also improving the efficiency of all its elements from production, to processing, handling, distribution, and marketing. Hence, there is a need for analyzing the value chains for live animal and meat exports.

This study was conducted in collaboration with the Ethiopian Institute of Agricultural Research (EIAR), the Sanitary and Phyto-Sanitary and Livestock and Meat Marketing (SPS–LMM) program of the Texas Agricultural Experiment Station (TAES), and the International Livestock Research Institute (ILRI). The major objectives of the SPS–LMM program are upgrading SPS related activities and veterinary services to support Ethiopia's meat and livestock exports; and improving Ethiopia's competitive advantage for meat and livestock exports.

1.2. Objectives of the study

The major objective of this study is to characterize live animal and meat export value chains to determine constraints and opportunities for enhancing the efficiency of meat export from Ethiopia. The specific objectives of the study are:

- ◇ to describe the livestock production and marketing systems,
- ◇ to identify the major production and marketing constraints,
- ◇ to assess the main actors in marketing of live animals and meat export and the role they play, and
- ◇ to suggest policy options to improve the performance of live animal and meat export value chains.

The findings will be used to design focused surveys on specific elements in the live animal and meat value chains and also to understand constraints in the chains that hinder supply of quality animals for meat export.

1.3. Organization of the report

The paper is organized as follows. Section 2 presents the research methodology. An overview of production and marketing trends for livestock and meat in Ethiopia is presented in section three. Section 4 discusses supply hinterlands, characteristics and seasonality of livestock traded. The fifth section presents supply chains for major live animal and meat export including description of market participants and marketing facilities with emphasis on constraints and opportunities for live animal and meat exports. Competition among different livestock market

channels for different types of livestock is also discussed in this section. The sixth section provides marketing infrastructures and support services. The final section highlights the conclusions and recommendations.

2. Research methodology

The study was conducted using a Rapid Market Appraisal (RMA) approach, which is a method that offers a quick and effective means of learning about the main characteristics of the marketing system, mapping the supply chains, understanding constraints and opportunities, and generating information as a basis for designing follow-up research such as focused survey of value chain components and actors. RMA as an agricultural marketing research approach represents the contextual understanding of agricultural marketing systems and the application of *ad hoc* techniques; as well as correct adaptation of techniques by offsetting and to some extent overcoming the difficulties of carrying out research in developing countries (FAO, 1997). This approach can be useful when researchers want to gain a broad understanding of a commodity sub-sector in a relatively short time, with the goal of identifying system constraints in order to better target follow-up research and policy, financial, and technical innovation (Collinson *et al*, 2003). To meet the need for expansion and higher performance, RMA can play the role of identifying marketing problems, and evaluating practical means of improving marketing functions (FAO, 1997).

RMA was conducted mainly through informal interviews of key participants in live animal and meat value chains; extensive consultations with private, non-government and government sectors, field visits to physical facilities and major production regions (markets, export abattoirs, feedlot operators); and personal observations on the performance of marketing functions such as handling, transport and transaction activities related to live animals and meat marketing. In order to hold informal interviews, a list of questions (semi-structured informal interview guidelines) was developed for use during subsequent field work. This was used in interviewing different types of key informants and participants in the live animal and meat export value chains. Interviews were held with zonal and *woreda* offices of rural and pastoral/agro-pastoral development agents, cooperative promotions, quarantine station at Adama/Nazareth, ACDI/VOCA office at Yabello, all the four export abattoirs that were functional during the survey time, randomly selected four live animal exporters, and six feedlot operators at

Adama/Nazareth. Moreover, discussion was made with randomly obtained 30 traders, 40 producers, 20 brokers, and 4 livestock trading cooperatives in different major source markets.

In order to identify the major livestock market chains for further RMA, group discussion with experts in the sector and abattoir operators was made and the following livestock markets were identified and visited for this study: Ginir, Melka Oda and Sofumer in Bale Zone; Yabello, Dubuluq, Negelle and Moyale in Borena Zone; Metehara and Miesso in Central Rift Valley area; Bedesa and Babile in East Hararghe Zone; and Kemesse, Kombolcha, Degan and Bati in Wello Zone). Then the study mapped out flow diagrams of the supply chains focusing on live animals and meat export, showing how and where value is added and the strengths and weaknesses along the supply chains. It also outlined ways of improving efficiency in the chain. Since ACIDI/VOCA has made an extensive livestock value chain analysis in the Afar and Somali regions in 2006, markets in these regions were not visited for this study to avoid redundancy. To substantiate the information generated from the RMA, some quantitative data (such as time series price and livestock transaction) from the different governmental and non-governmental organizations (NGOs) at different levels (region, zone and *woreda*) were also collected and described.

3. Overview of livestock production and export marketing

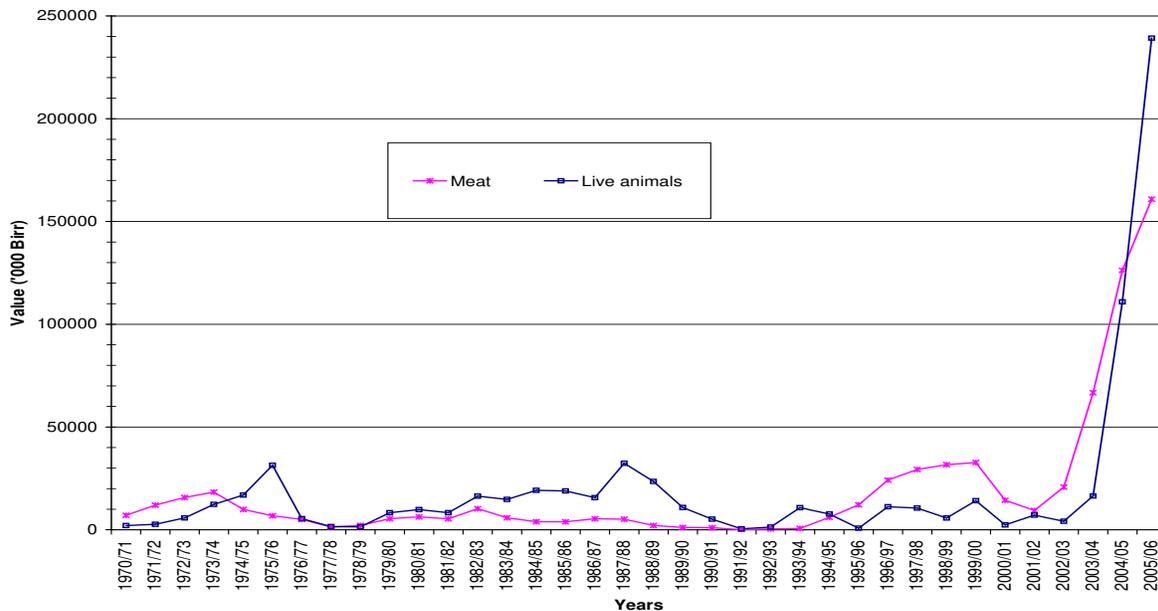
The diverse agro-climatic conditions of Ethiopia make it very suitable for the production of different kinds of livestock. Most of the livestock are produced by pastoralists, agro-pastoralists, and smallholder mixed crop–livestock farmers and sold to private entrepreneurs operating in a marketing chain involving collection, fattening and transportation up to terminal markets. National livestock statistics data collected at different times are not always easily directly comparable primarily because the entire country has never been covered in any survey or census. The extent of geographical area covered in various surveys or census were different due to various reasons. For example, the CSA 2003/04 survey report for Afar, Somali and Addis Ababa; the CSA 2004 survey report for Gambella and the CSA 2005/06 survey report for the rest of the regions estimated 43.23 million cattle, 29.64 million sheep, 25.85 million goats and 2.32 million camels in the country (CSA, 2004 and CSA, 2006). Cattle and sheep are the major livestock in highland areas and camels and goats are the prominent domestic animals in the pastoral lowlands below 1500 meter above sea level (masl) (Ayele *et al*, 2003). The predominantly highland (above 1500 masl) regions of Tigray, Amhara and Oromia also contain

pockets of lowland (areas below 1500 masl) and such lowland pockets may contain production systems and livestock populations which are slightly different from those found in the highland areas. On the other hand, there are mainly lowland regions such as Borena, SNNPR and Afar where pastoralists predominate. Thus, while pastoralists are usually located in lowlands, all lowland livestock producers, especially those in lowland pockets of highland regions, may not be pastoralists.

Livestock are kept for multiple purposes as sources of draft power, milk, meat, skin and hides. They are also the main sources of income and are closely linked to the social and cultural lives of the community. The number of livestock owned per household varies from location to location depending on the diverse agro-ecological conditions and factors like feed availability, disease condition and resource status of the farmers. In Ethiopia cattle, goats, sheep, camel and poultry, in order of magnitude, are used as resource base for meat production; however, the first three species are the most common. The annual growth of livestock is estimated at 1.2 percent for cattle, 1 percent for sheep, 0.5 percent for goats and 1.14 percent for camels while annual off take is estimated at 10 percent for cattle, 35 percent for sheep, 38 percent for goats and 6.5 percent for camels (Belachew and Jemberu, 2003).

In general, the Ethiopian export market for live animals and meat exhibited non-uniform pattern showing both ups and downs (Figure 3.1). This is particularly the case for the export of live animals, which showed a general downward trend. Increased domestic demand due to population growth and stagnant or declining production in the early 1990s might lead to major decrease in exports (Ayele *et al*, 2003). As of 1994/95, the share of meat export was exceeding earnings from live animal export. Earnings from meat export that reached the highest level (Birr 32.71 million or USD 3.94 million), which is about 4 percent of the annual export potential of the country in 1999/2000, has encountered a sharp fall during 2000/01, as a result of the ban on import by the Middle Eastern countries following incidence of RVF. Annual potential for export is estimated at 72,000 metric tons of meat, valued at USD 136 million (LMA, 2004). The four export abattoirs currently functional have annual slaughter capacity of 2.45 million shoats with a possibility of expansion to attain a maximum capacity of 4.5 million shoats (Jemberu, 2004). Since 2003, both live animal and meat export has been increasing rapidly from the earlier low and unstable levels (Figure 3.1).

Figure 3.1. Earnings from live animals and meat export ('000 Birr)



Source: Adapted from National Bank of Ethiopia data.

4. Supply hinterlands, characteristics, and seasonality of livestock traded

4.1. Supply hinterlands

Conventionally many livestock markets in Ethiopia are categorized into primary market, secondary market and terminal market. The basis of such classifications is mainly number of animals that attended the market per market day and the number of market participants in the market. In terms of number of animals, primary, secondary and terminal markets are those in which less than 500 heads, 500-1000 heads, and greater than 1000 heads of animals attend the market per day, respectively. In terms of market participants primary markets are those in which the main sellers are producers and the main buyers local assemblers and secondary markets are those in which the main sellers are local assemblers and main buyers are big traders. In terminal market the main sellers are traders and main buyers are butcheries and restaurants.

In Ethiopia, the pastoralist and agro-pastoralist areas such as Borena, Afar and Somali are considered the traditional source of livestock (Figure 4.1 and Table 4.1), supplying 95 percent of livestock destined for export market (Belachew and Jemberu, 2003). Among these major supply

areas, Borena Zone is the most important livestock supply area where almost all live animal and meat exporters are competing. Borena Zone is known for its high population of cattle, goat, camel and sheep, in their order of availability (Table A.2). In this zone, there are 13 livestock markets of different sizes, each connected with trucking or trekking routes (Figure A.1). There are six *woredas* in the Borena Zone, five markets are found in Yabello *woreda*, four markets in Dire *woreda* and the remaining four markets belong to each of the remaining *woreda*. The distribution of these markets across the *woredas* does not conform to the size of livestock available in the *woreda*. For example, Liben *woreda* which has the largest livestock population in the zone has only one market. The options for this *woreda* are either to use the Negelle market in the *woreda* or trek to Dubuluq market, the largest market in the Borena Zone which is about 290 km from Negelle or alternatively transport the animal directly to Modjo/Nazareth. Except the market at Moyale which meets every day but Sunday, the rest of the markets meet 1 to 2 days per week. This is a good opportunity for all market participants particularly for traders to take advantage of all the markets the whole week and fulfill their requirements. None of these markets have water and feed trough, a feature for most of the livestock market in Ethiopia. Except Harobeke, one of the big markets in Yabello, none of the markets have nearby water supply.

Figure 4.1 Live animal supply hinterlands for live animals and meat exports

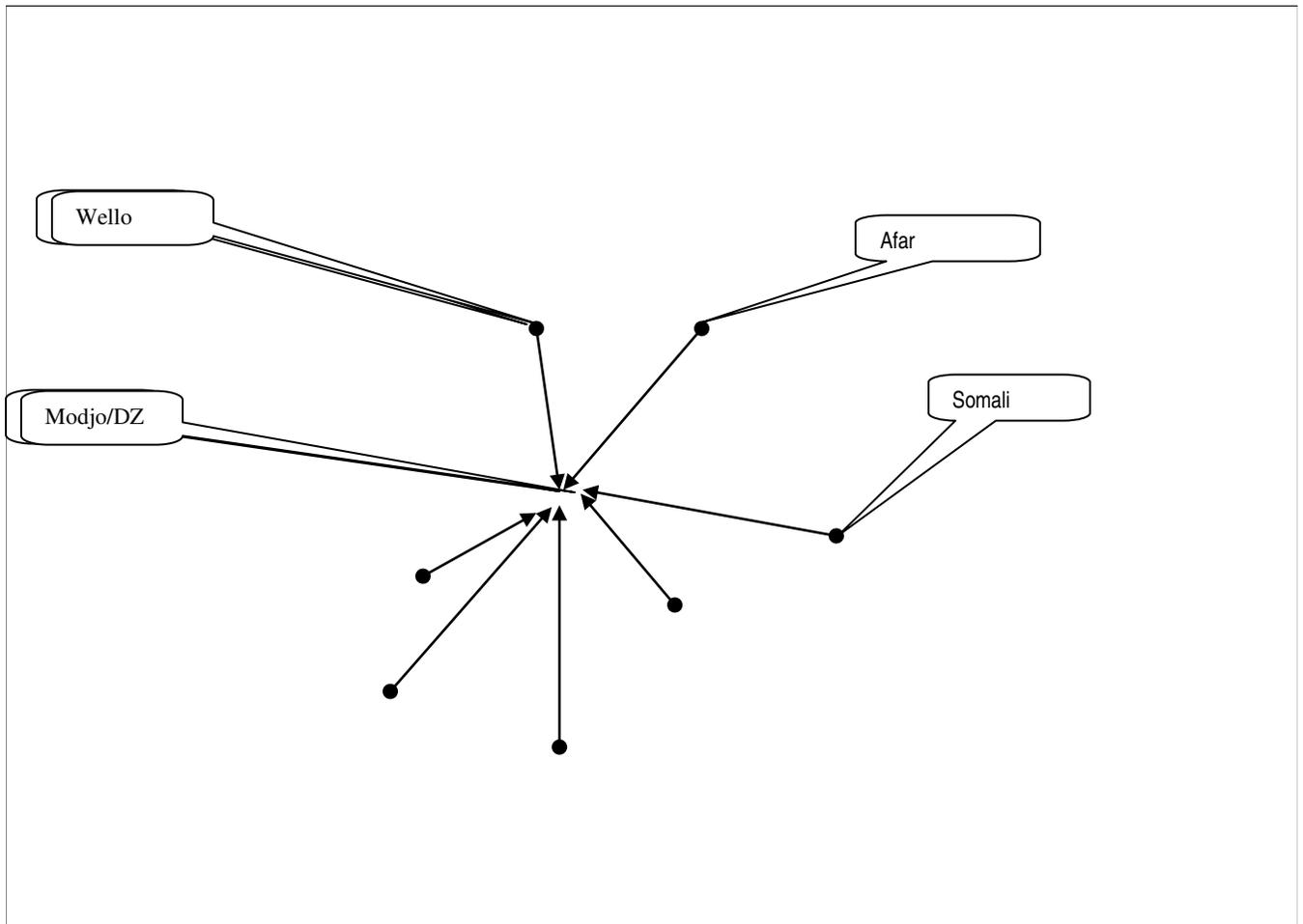


Table 4.1. Supply hinterlands of livestock for live animal and meat exports

Livestock	Locations
Cattle	Borena, Bale lowlands (Ginir, Melka-Oda), Wello (Raya, Kemesse), Somali (Cherete), Babile, Burka, Fedesse, Dire Dawa, Kulubi, Chelenko, Harar, Bedesa, Goro, Delo, Miesso, Metehara, Arsi, Mille
Sheep	Borena, Wello (Kemesse, Bati, Kombolcha), Arbaminch, Konso, Shashemene, Meki, Arsi (Kofele), Robe, Dodola, Ogaden, Elewha, Chifra, Mille, Dire Dawa, Babile, Jijiga, Metehara, Miesso, Gedamayetu, Endufo, Jimma
Goats	Borena, Ogaden, Bati, Shewa-Robi, Kemesse, Babile, Miesso, Metehara, Welayeta Sodo, Arbaminch, Konso, Shashemene, Meki, Gendeberet/Guder, Ogaden, Elewha, Chifra, Mille, Dire Dawa, Babile, Jijiga, Metehara, Miesso, Gedamayetu, Endufo, Jimma
Camels	Borena, Bale lowlands, Mille, Babile, Dire Dawa

Source: Own Survey, (2007).

Some exporters also indicated the availability of untapped areas in Borena Zone. For example, about 300 km away on the way from Negelle to Dollo, there is high goat population, which lacks access to the market mainly because of the poor road infrastructure, insecurity and unavailability of water and feed in the trekking route. Even though most traders believe the price differential is rewarding for the inward movement of animals, the infrastructural problems in this area are now encouraging informal cross-border animal trade movement. Recently, inward cross-border animal movement was also restricted because of the Rift Valley Fever diagnosed in Kenya. The movement of animals from the border area to the center of the country was blocked until the problem with the RVF was resolved. The major problem in the Borena area is the frequent clan conflict which influences the number of animals brought to the market. There is a need to strengthen the local conflict resolution mechanisms and keep law and order as much as possible.



Bale lowlands and Wello (Bati, Kemesse, Kombolcha and Raya) are also considered important sources for some live animal and meat exporters. According to Bale zonal agricultural office records, there are about 1.6 million cattle, 0.43 million goats, 0.21 million sheep and 0.13 million camels in the zone, which most traders complained are not well exploited sources, mainly because of poor road links to the center of the country where the export abattoirs are located. Under such situation, the current supply system is making use of traders operating in the area as agents to collect shoats for the abattoirs. However, group discussion with local traders in the Bale lowlands revealed that the stated system is not smoothly functioning for shoats market due to a number of reasons:

- The existence of communication gap between traders and the export abattoirs. Due to the occurrence of mismatch between the expression of demand by abattoirs and the time animals are collected from the primary markets and a relatively longer time needed to transport animals to the center, shoats from the Bale lowlands are usually left unexploited by the export market. Besides the supply shortage created, this has strong repercussion on the survival of small traders supplying shoats to Modjo, the marketing behavior of farmers, and the level of trust that different market participants could have developed.
- Dissemination of wrong and misleading information in the area from non-reliable sources. By the time this rapid market appraisal was conducted in Melka-Oda market (about 25 km from Ginir), a newly established livestock marketing cooperative was informed that all export abattoirs have stopped slaughtering shoats. Since this cooperative was very young (established only a month earlier) and had no other source of information, it directly disseminated the available information to the producers in its turn. As a result, a limited number of pastoralists came to Melka-Oda market with female shoats. However, the problem created in the export market was due to Rift Valley Fever diagnosed on the Kenyan shoats which decreased the demand for live animals. This kind of problem is because of the absolute dependence of producers on traders as a source of information. Traders that do not have strong relation with abattoirs might have gone bankrupt, which might have chased them out of the market as a result of reduced demand and price in their terminal market. These market agents irresponsibly distort the market information in the area and make benefit out of it. This suggests the need to establish a dependable market

information system that can put all market participants in equal bargaining position and make appropriate production and marketing decision.

With regard to cattle, Bale lowlands are also considered as source of supply for cattle (both for domestic and export markets). The major destinations for Bale cattle are Bale Robe and its surrounding, Hararghe highlands, and Dera and Adama/Nazareth. Bale Robe and the neighboring highlanders use aged Borena breed cows for slaughter purpose (for butcheries, wedding, and similar festivals). The other domestic market for Bale cattle is the demand from Hararghe



highlanders. Traders from Hararghe come to Melka-Oda and Seweina markets (Bale lowlands) and buy young bulls. These animals are trekked for about eight days to Hararghe and sold to farmers as replacement for draft purpose for certain time and for fattening later on. Borena breed cattle are also trekked to Dera and Adama/Nazareth to be fattened for three months and sold at Addis Ababa market for domestic consumption. The export market is also absorbing young bulls trekked from this area to Adama/Nazareth via Dera. Camels from Bale lowlands are also transported to Miesso usually by trucks. They are exported to the Egypt market via Port of Djibouti.



Wello area is one of the sources of exportable shoat and cattle as mentioned by few abattoirs and live animal exporters. The most important livestock markets in this case are Kemesse, Habru, Bati, Degan, Kombolcha, Senbete and Bora. These markets are located in the semi-pastoralist areas where framers are engaged in both crop and livestock production. The herd size in the semi-pastoralist areas is not as such large enough to ensure sustained supply of shoats. However, shoats from the Afar areas reach these markets through numerous small traders operating in the area. For instance, the largest livestock market in Wello, Bati market, is attracting pastoralists from as far away as four days round trip distance. Cattle sourced from these markets are also used for draft purpose in central Ethiopia. The Raya

Azebo breed cattle collected from Kemesse market are also used for live animal export. Live animal exporters, mainly SHAG international are collecting sheep and cattle from this area. Small traders use trucks to transport cattle from southern Wello to the Adama/Nazareth feedlots for domestic market consumption. Shoats collected from this area are used by export abattoirs or live animal exporters.

Metehara and Miesso markets are the two most important source markets for exportable livestock in the Central Rift Valley area where all types of animals are sold and where all types of market participants, except livestock trading cooperatives, operate. Metehara is a secondary market where small traders bring shoats from Afar and the surrounding primary markets. Abattoirs and live animal exporters purchase significant number of animals from Metehara. Though the export sector has its own segment in the shoats market, the central location of the market seems to intensify competition for cattle. In Metehara traders (collectors) buy shoats with visual estimation and hand them over to the abattoirs on live weight basis. Weight scale is not adopted in this market since producers have alternative buyers and need to negotiate rather than selling at fixed weight based prices. There was an intervention made by the local administration to open up small markets in each *kebele* so that abattoirs will buy directly from farmers without the involvement of any trader. But the knocked out market agents did some underground arrangements, which are not yet identified, so that the system failed without serving much.

Miesso market is also a secondary market that sourced livestock from the surrounding primary livestock markets, such as Bedesa, Chiro, Hirna, Beroda, Asebot, Kora and other markets in the neighboring Somali lowlands. In Miesso, there are two market days per week that operated in the different market centers. Monday market is an open market (has no fence and any other infrastructure) where only shoats are traded. Almost all the sellers coming to the Monday market are pastoralists from Somali regional state. On Tuesday, there is another fenced market (but it also has no other infrastructure) for all livestock species. Producers from both Oromia and Somali regions bring their animals to the Tuesday market. Conflict between Somali and Oromo pastoralists is the major reason behind the establishment of two separate livestock markets on consecutive days. In spite of the great potential as a source of shoats to the export abattoirs, Miesso market is not well exploited because of a number of reasons such as:

- *Limited number of abattoir agents operating in this market:* ELFORA is the dominant buyer in Miesso market. Modjo modern abattoir also has one trader representative.

Except some small traders, other abattoirs could not penetrate into this market. The availability of more number of buyers in this market could have encouraged more supply from the primary markets.

- *Lack of coordination and consultation among the major actors in the livestock market in Miesso area.* All stakeholders such as traders, the local administration, offices of rural and pastoral development, non-governmental organizations (NGOs), and export abattoirs could not come together and discuss on how to efficiently exploit the exportable livestock available in the area.
- *Similar to the Metehara market, the unit of transaction is another problem in Miesso.* Eye-ball estimation is used in buying and selling animals until it reaches to abattoir agents who purchased shoats using live weight based scales. There is high level of uncertainty among buyers and sellers in such non-uniform unit of transaction in the value chain. The resultant effect of such uncertain transaction ultimately goes to producers.

On the other hand, Miesso is located in a strategic location for livestock export via Djibouti since the railway is passing through the area and it has also a station at Miesso town. Some live animal exporters like SHAG are using this opportunity especially for cattle and camel. SHAG has a collection/waiting center at Miesso where it collects animals from Borena, Bale, and Wello, condition them, pass through the quarantine requirements and transport to the port using railway.

Babile, located in East Hararghe Zone, is a big livestock market where all types of livestock are traded. This market is serving both the formal and informal export channels. The formal (legal) export channel is the live animal export via Togwajale and Djibouti. Babile market also supplies significant number of shoats to the export abattoirs. The informal export channel is the smuggling of cattle and shoats through the Ethio-Somalia border to different countries. Babile market is characterized by clan based marketing system where Somali pastoralists take their animals in group and operate the transaction facilitated by brokers from their own clan. Brokers in this market have stronger power than any other markets mentioned in this study that producers totally rely on them to negotiate on their behalf. Babile municipality has issued identification cards to these brokers and they are in turn liable to a tax. It is possible to make use of brokers in this area as collectors of abattoirs after training them in business skill and ethical marketing practices. Like that of Miesso, Babile market is also serving pastoralists from two

regional states, Oromia and Somali. Export abattoirs used to have permanent purchasers at Babile market. However, none of the abattoirs has strong purchasing system in this market after the murder of ELFORA's purchaser by an unknown person.

At times of shortage, traders could collect animals (especially sheep) for export abattoirs from highland areas such as Jimma, Arbaminch, Welayeta-Sodo, Kofele and Shashemene and even from the potential (inaccessible) pastoral areas. However, most of the export abattoirs complain that highland animals, particularly sheep, are not suitable for export because of discoloration of meat/mutton before reaching to their customers. At times of high demand, however, some of them export highland mutton mixed with lowland animal carcass by using special chilling management techniques. On the other hand, live animal exporters found that highland sheep is well demanded in export markets, although they are not stress tolerant during transportation, a problem aggravated by lack of well equipped transportation and holding facility.

4.2. Characteristics of traded animals

Although there is no stringent quality requirement, in general shoat export market requires animals having the following characteristics: animals from lowland origin, male, well-fed young animals aged between 1 to 2 years and live weight of 13 to 45 kg. In all livestock markets, however, there is no objective standard for selling and buying animals, except measuring live weight of animals in some and visual observation of the animals in most of the markets. In such a situation, the purchase price of an animal will reflect not only the bargaining skills of both buyers and sellers but also the buyer's preference for the characteristics of the animal and the seller's willingness to sell, sometimes leading to transaction failure (Williams *et al*, 2006).

Annual shoat transaction records (from March 2006 to February 2007) by SORDU from two big markets, namely Yabello and Dubuluq in Borena Zone, indicated that shoats with different characteristics were supplied. During this period, of the total shoats, goats comprised about 78 percent while sheep comprised 22 percent (Table A.4). Of shoats supplied to the markets 55 percent was female (56 percent of goat and 53 percent of sheep) (Figures 4.2 and 4.3). This could be due to extensive purchases for restocking by different governmental and non-governmental initiatives to rehabilitate pastoralists that have lost their flock due to the recent drought. Various NGOs are providing revolving funds to groups of pastoralists in Borena area so

that higher number of female animals was collected from the market. Similar interventions of providing credit to farmers groups for fattening and breeding were going on in Amhara Region by the Amhara Credit and Saving Share Company. Given the fact that markets in Borena area are where export abattoirs and live animal exporters are the main buyers, higher proportion of female animals supplied to the markets may not mean that the markets are not fully supplying the type of animals (male animals) demanded by exporters. Because of the growing perceptions that female shoats have higher meat proportion and fat composition, the domestic market (individual consumers, restaurants and butchers) tend to prefer female to male shoats. In most of the cases, since exporters also provide higher prices for male shoats, in general, means less room for competition.

Based on visual observation on body condition and approximation of age of animals, male and female shoats are usually classified into four groups (Table A.4). Male shoats are grouped into: mature and castrated male shoa, adult but non-castrated shoa, young but non-castrated shoa and male lamb and kid; while female shoats are grouped into: mature and fattened sterile female shoa (Barren), ewe and adult she-goat, weaned young ewe and she-goat and female lamb and kid.

A fattened matured male castrated shoa, which is usually above the weight range required by the export abattoirs, is mostly taken up by the domestic market and it generates extremely higher price to the seller in visual assessment than the weight based price formation. For example, a fattened mature male castrated goat that weighs about 45 kg was sold at Ethiopian Birr 450 at Negelle Borena. Had it been sold through weight based measurement, it would have been sold at about Birr 270 (the price per kg of live weight was Birr 6). The domestic consumers need a fattened mature male castrated shoa because of its higher fat coverage and meat proportion than the non-castrated shoats. This type of shoa is usually supplied to the market during holidays like the New Year, Easter, Christmas and Ramadan.

A non-castrated adult male shoa, which is usually in the upper weight range required by the export abattoirs has a lower body fat cover than the castrated shoa, since they are serving as a sire, which makes them less preferred by the domestic consumers.

A non-castrated young male shoa which is in the early breeding age and which is characterized by low fat cover and lower meat proportion compared to the castrated and the adult

but non-castrated male shoat is not preferred by the domestic market. It is, however, the most chosen shoat type by the export abattoirs.

The youngest male/female shoat (lambs and kids), although usually in the lower weight range are, however, required by the exporters. Farmers also buy lambs and kids for replacement and rearing and supply them to the market at higher prices after a certain time.

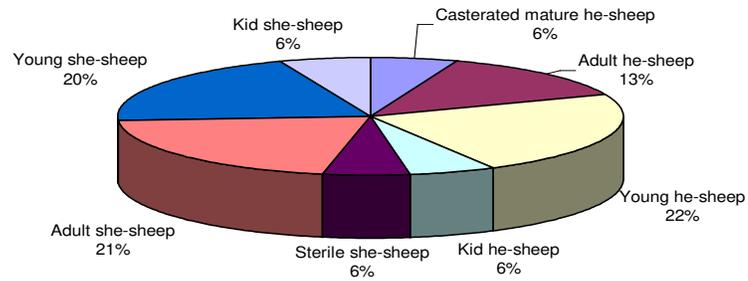
A fattened sterile female shoat: The domestic consumers prefer this type of shoats since they have a higher fat proportion than the non-sterile female shoats and have a higher carcass proportion than the male shoats. Exporters, however, do not buy sterile female shoats because of the regulation that prohibits export of female animals.

Ewe and adult she-goat: They are productive female shoats usually demanded for restocking if they are young and for meat if they are older in age.

A weaned young female shoat that did not start lambing is demanded solely by the domestic consumers either for restocking or meat.

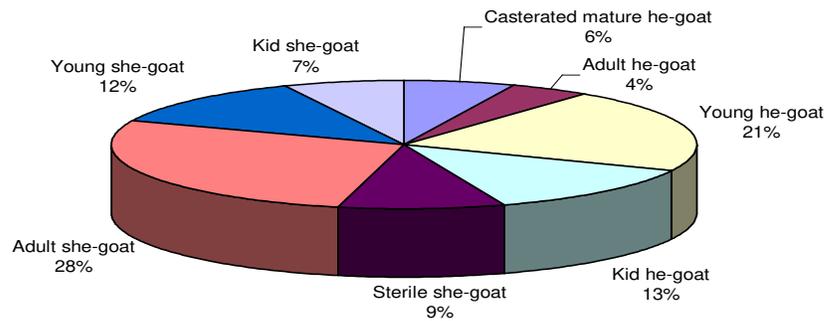
Of the male sheep supplied to export markets, adult ram and young ram contribute the largest share, 13 and 22 percent respectively (Figure 4.2); while of the male goat supplied to export market, young he-goat and kids take the largest share, 21 and 13 percent respectively (Figure 4.3). This reflects the export abattoirs need for younger male goats; and older male sheep categories.

Figure 4.2. Share of different types of sheep supplied at Yabello and Dubuluq markets (March 2006–February 2007)



Source: SORDU

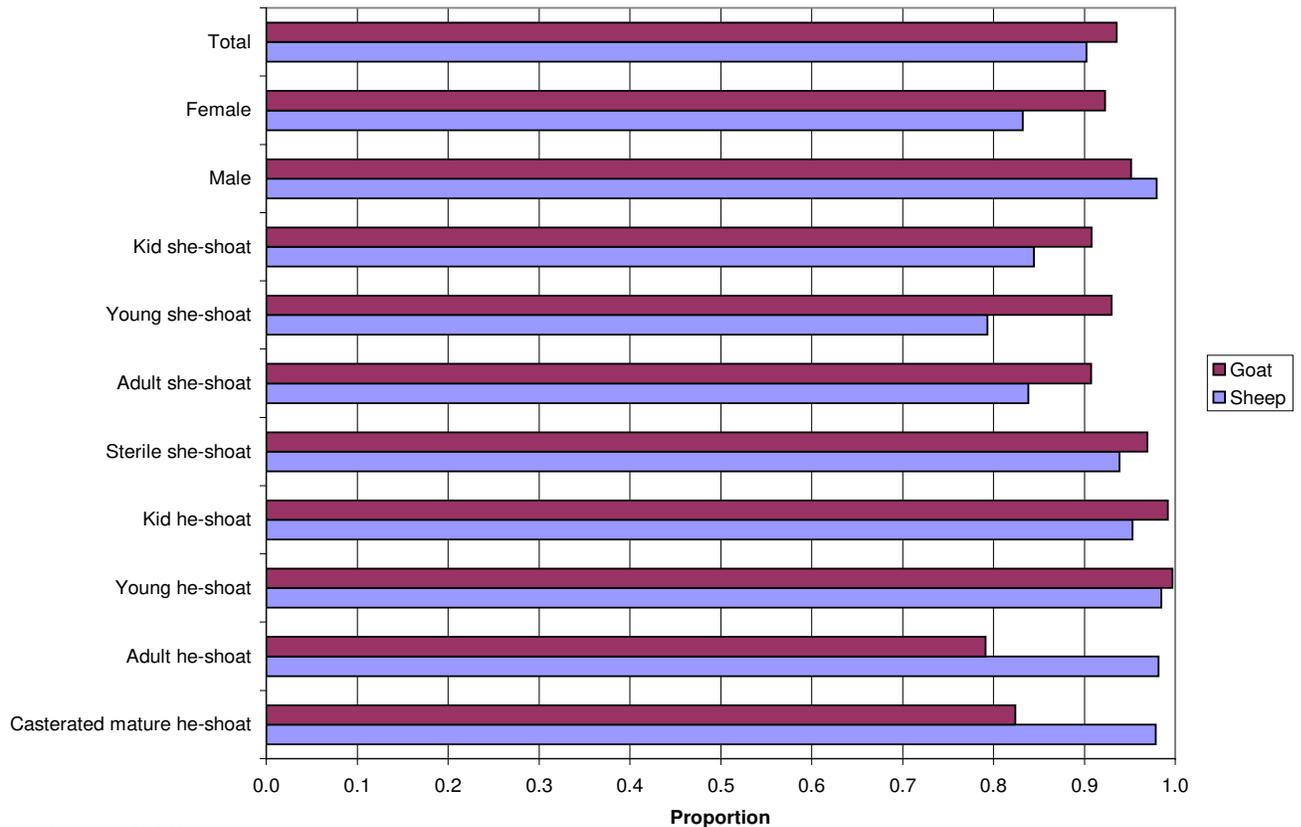
Figure 4.3. Share of different types of goat supplied at Yabello and Dubuluq markets (March 2006–February 2007)



Source: SORDU

According to a Southern Range Development Project (SORDU) time series data collected from Borena markets, although different categories of shoats are supplied to the markets, more than 90 percent of the supplied animals are sold in most of the cases (Figure 4.4). Data is collected through head counting animals entering and leaving the market in major market days. The proportion of sold shoats is high probably because the market might be operated by different type of market participants who purchased the animals for different purposes (abattoirs, farmers for restocking, and domestic consumers). Despite the relatively lower number of male shoats supplied to the market than that of female shoats, offtake of male shoats is rather higher compared to female shoats.

Figure 4.4. Proportion of shoats sold in Yabello and Dubuluq markets (March 2006–February 2007)



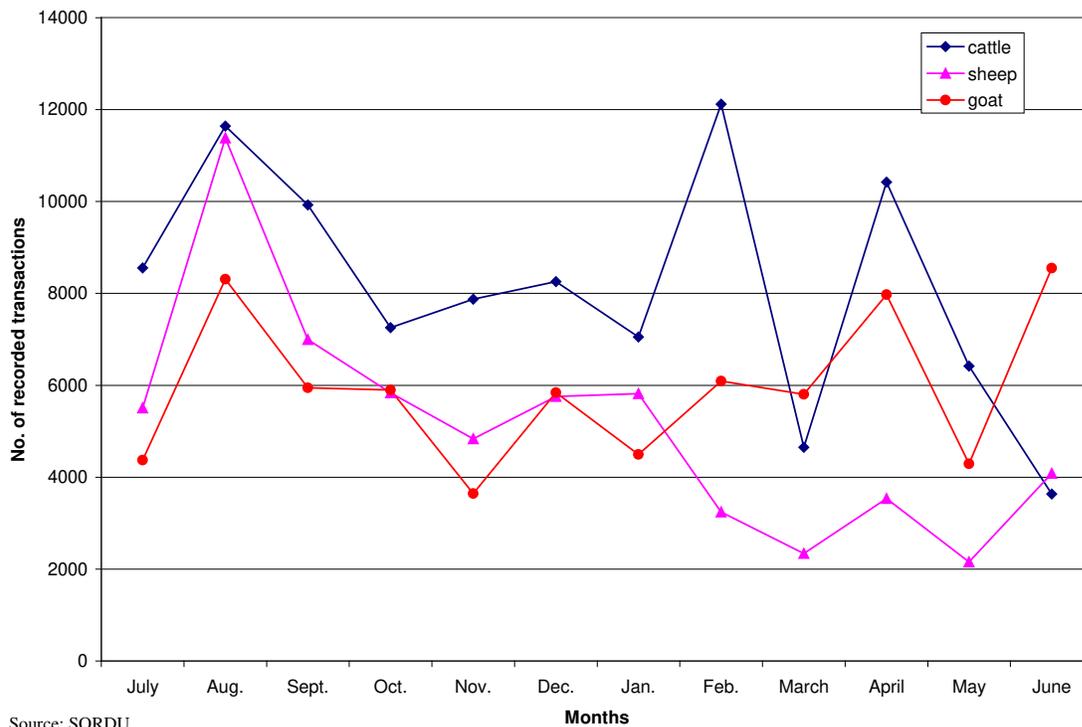
Source: SORDU

4.3. Seasonality of livestock flow

The livestock markets in most parts of the country are characterized by seasonality in low and prices of animals. Livestock transactions recorded at Borena Zone indicated that livestock

supply in the market does not have uniform pattern, where supply highly fluctuates from time to time (Figure 4.5). Overall, during the peak period, sales of animals were at least twice as high as in the off-peak period. In the pastoral lowland areas, a number of factors contribute to this phenomenon such as: seasonality of consumption demand (fasting and other ceremonial period) in domestic and export market, drought, disease out break, lack of information, availability of food aid, clan conflicts and others. The incidence of more than one of these factors is considered as complex issues affecting the decision to hold on or to sell livestock by the producers.

Figure 4.5. Livestock transactions from the rangeland area (July 2005–June 2006)



On the other hand, livestock prices have shown a seasonal pattern where prices are at peak during rainy season (June to September) and drops in the other months (Figure 4.6). This is basically because of low supply of animals to the market during rainy season as farmers are usually engaged in other farming activities at the time. Availability of good grazing pasture is also another factor contributing to low supply of animals during rainy seasons. Gezahegne *et al*, (2006) also indicated that input constraints like feed and water shortage could significantly affect the supply and sales of animals. Pastoralists want to keep as much animal as possible during

rainy season hoping that they will have animals of better condition at the end of the season. Pastoralists will also get ample amount of milk to feed themselves during the rainy season so that they do not have to look for other food sources that necessitates the sell of their animals. Seasonality in prices is also driven by seasonality in demand. Gezahegne *et al*, (2006) noted that prices depend mainly on supply and demand, which is heavily influenced by the season of the year and the occurrence of religious and cultural festivals on the one hand, and occurrence of drought or other weather shocks on the other.

Figure 4.6. Seasonality of prices for different types of shoat, 2006



Source: SORDU (2006).

5. Live animal and meat export value chains

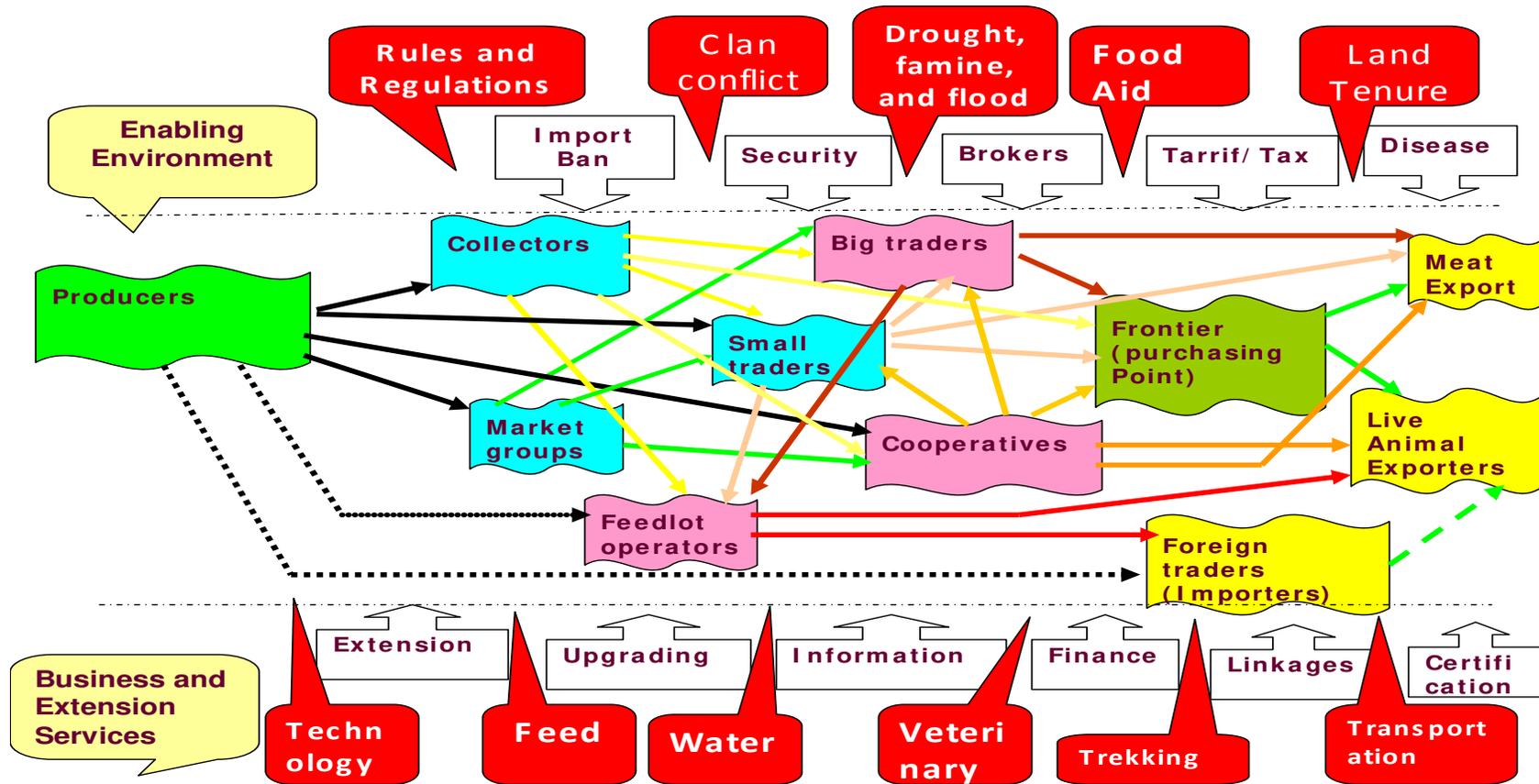
The export market is relatively old but highly variable depending on production condition of the country, change in consumer preferences and greater demand for high quality products with adequate guarantees of food safety (Ayele *et al*, 2003). The livestock market is structured so that the marketable livestock from the major producing areas reaches to the final consumer or end-user passing through complex channels along the supply chains involving various actors including producers, middlemen, livestock trading cooperatives, traders, live animal and meat exporters. Using the initial results from the rapid market survey linking live animal and meat exporters with secondary and primary markets, the generalized supply chains and marketing channels for live animal and meat export is depicted in Figure 5.1. Detailed descriptions of the supply chains for the major market routes considered in this study are presented in Figures A.2–A.5.

A supply chain is the series of interlinking steps that determine the nature, character and value of a product at the time of receipt by the consumer. Value chain analysis is very effective in tracing product flows, showing the value adding stages, identifying key actors and the relationships with other actors in the chain (Hubert, 2005). Typically, a simple agricultural supply chain might include the different market participants and their linkages, enabling business environment, and business and extension service providers (Mike and Allison, 2005). The export livestock marketing chain actors for cattle, shoat and camels are those who transact a particular product as it moves along the chain from the primary producers to the end users: producers, middlemen, traders, live animal and meat exporters. The enabling factors for live animal and meat export market business environment are the critical factors and trends that are shaping the market chain environment and operating conditions which are generated by structures and institutions (policies and regulations) that are beyond the direct control of the market participants. Inputs and other services from other enterprises or service provider organizations are provided for all the participants in the chain which will allow the actors to grow and maintain their competitiveness in the supply chain.

Most of the export abattoirs and live animal exporters collect animals either through their own purchasing agent assigned in major livestock markets or through other small and large scale traders. Some times livestock trading cooperatives are also directly supplying animals to the exporters. Exporters' purchasing agents in turn collect animals either from collectors, small

traders, livestock trading cooperatives, farmer groups or directly from producers. Producers have the option of selling their animals to the collectors in their village, small traders, and livestock trading cooperatives or directly to the exporters. Some farmers also form groups and supply animals to the market.

Figure 5.1. Generalized live animals and meat export market chain



Other than the domestic channel, foreign national live animal exporters-importers collect animals directly from the producers or collectors in most of the livestock markets using licensed Ethiopian traders. This channel is now considered as the most expanding and competing channel for the live animal and meat exporters. One of the special features of livestock marketing system in most of the livestock markets is the involvement of brokers/middlemen in every segment of the marketing chain, to provide the service of matching buyers and sellers and facilitate the transaction. The volume of flows, transaction cost, price transmission, and efficiency of the different market actors in each channel requires detail study. The roles of each livestock marketing chain participants and a description of their relationship and transactions with other participants in the chain are described below.

5.1. Market participants

Producers: These are pastoralists, semi-pastoralists and farmers producing shoat, cattle and camel. Although these are the main source of marketed livestock, they are located in the rural areas where access to the market is very difficult. Marketing information for the producers is very scarce. Producers usually depend on previous weeks market information or if available, the information which they get from the nearby livestock markets. The marketing behavior of producers varies from place to place. Pastoralists consider larger herd size as symbols of prestige. Sales of live animals are taken as a last resort and animals are generally sold when the producers face financial shortage and drought. Considering the shift from traditional to market oriented livestock production system, some development initiatives that address some critical problems of livestock producers like water, health and similar social problems are taking place in some areas in Borena, Afar and Somali. Attempts have been made to organize producers into groups by different non-governmental and governmental organizations especially in Borena area. These groups have been provided with different type of training especially in areas of business skill development. However, livestock producers in other potential livestock production areas such as Bale Zone seem abandoned.

Collectors: These are important market agents collecting animals from their locality and remote markets; and supply usually to big and small-scale traders and sometimes to livestock trading cooperatives. Collectors reach remote pastoral areas around borders and collect animals in pastoralists temporary residences or central watering points where they can get large number

of producers. In most cases, these actors are independent operators who use their local knowledge and social relationships to collect animals from the surrounding and other remote areas. To some extent, traders often place orders with trusted collectors. Once the desired or available quantity of animal has been collected, the collectors deliver the animals to their buyers. Collectors are usually constrained with financial capacity that limits their scale of operation. Based on the developed personal trust, some collectors often receive cash advances from their buyers to fund their activities. The basis of the trust is usually some sort of family relationships or clan belongingness. Acquaintance with knowledge about the locality and trust is an important aspect for marketing agents in improving livestock supply chain responsiveness. Trust facilitates more efficient and effective relationships, directly affecting the results obtained, and hence the satisfaction achieved (Handfield and Bechtel, 2002). Although collectors typically act independently, they may also operate as agents for traders on a fixed-fee or commission basis. In cases when they operate with the traders' money, the commission for their services is Birr 0.25–1.00 per kg live weight, in most of the cases.

The locations where collectors usually meet pastoralists in remote areas indicate lack of access to market by the producers and indicate the need to open up new primary markets. In these inaccessible rural areas, they also serve as a means to transmit market information from the center to the pastoralists. In the process, however, there is a possibility of distorting information by these agents. They may distort market information according to the interest of their source and their own benefit. Thus, designing and implementing dependable information dissemination mechanisms is essential in order to develop significant levels of trust and cooperation among producers and other market actors in the remote areas.

Feedlot operators: Most of the feedlot operators are available at Adama/Nazareth and Dera areas with their main role of fattening cattle for different markets. As part of SPS requirements and according to the rules and regulations of animal quarantine, fattening is operated after providing the cattle with necessary vaccines and medication. They use cattle of different age groups and breed types according to the demands and the type of their customers. Older animals (more than four years old) and some times of highland origin are fattened for domestic market (slaughterhouses) while young bulls (three to four years old) and usually of lowland origin are kept for export market. At times of high demand, some exporters buy young

bulls that have finished their quarantine requirements from feedlot operators at Adama/Nazareth or Dera.

The feedlot operators are collecting cattle either from Dera and Adama/Nazareth markets or from the main source markets. They use Borena markets as the main source market because of accessible transportation, relative lower cattle prices and their preference for cattle sourced from these areas due to fast growing, large body size, efficiency in feed conversion and adaptation to harsh environments. According to the discussion with some feedlot owners at Dubuluq market, Borena breed is generally preferred for fattening and have superior quality than those coming from other areas such as Bale lowlands.

Big traders: These are those market participants permanently operating in the live animal and meat value chain usually known by purchasing large number of animals from different sources and supply to their customers. They are few in number compared to small traders. One or two big traders are operating in a certain area serving as agents of abattoirs. They usually divide the markets among each other to reduce competition in the market. In Wello area for example, two big traders have divided the shoat market among themselves so that a trader serving the same abattoir do not compete with similar agent. Big livestock traders have several smaller agents collecting livestock from the primary markets and producers' villages. They use their own capital and usually extend funds to their collectors mostly based on personal trust. Big traders pay commission to their collectors based on their agreement at the beginning of the market day or when providing money to their agents. They collect shoats from accessible markets using vehicles. Animals from remote areas are trekked to the collection center of these traders.

Big traders usually have permanent buyers (abattoirs or live animal exporters). They are larger in number than exporters and they have a capacity to absorb losses in cases of livestock mortality and considerable live weight losses during transportation. At times when the abattoirs postpone their purchase orders, these traders can keep shoats for about a week or longer. Most big traders are indigenous to the area they operate and they have long experience in the business that they mostly control the market in their respective operation areas. Such traders in Bale area mostly collect animals (especially shoats) from their operation areas and communicate with abattoirs for transportation facility. They use the vehicles of their customers to transport shoats to

Modjo. Those operating in Borena area hand over animals to purchasers of abattoirs working at respective purchase points in their area.

Medium/small traders: Although medium traders are large in number relative to big traders, the volume of their purchases is smaller than that of big traders. Since they buy smaller number of animals at a time, they have very limited number of collectors from the primary markets. Medium traders have smaller operating capital as a result of which they collect limited number of animals on a weekly or biweekly basis and transport them directly to abattoirs using rented vehicles than waiting for the abattoirs trucks (from Bale lowlands). In some other places like Borena, these traders used abattoirs' collection point as selling outlets. They also serve as supplier to the big traders in the secondary and terminal markets. Medium/small-scale traders do not have strong trade relationship with specific abattoirs. As a result, they do not have precise market information like that of big traders. The information disseminated through such agents some times misleads the producers.

Cooperatives: Livestock trading cooperatives are organized in pastoralist and semi-pastoralist areas based on the good will of their members who are residents in specific market areas. They work using operating capital obtained from members contribution. As a result, they usually try to deny other traders entry into primary markets where they are operating. Livestock trading cooperatives mostly operate in the shoats market due to its low financial requirement relative to cattle and camel. They buy animals from their area (from both members and non-members) using spring balances and sell them to big traders or purchasers of abattoirs in areas where they have purchasing stations.

Livestock trading cooperatives have several problems such as shortage of operating capital, lack of training on entrepreneurship skills, narrowly focused organizational setup, transparent management system, lack of market information, dependence on a single exporter, and involvement of their leaders in their own livestock trading. Since livestock trading cooperatives are organized by members that do not have equal level of business skill, most of them lack an entrepreneurship skill to be able to compete in the market with individual traders. This could be developed through training and experience. Most of the livestock trading cooperatives in Yabello and Moyale area are well trained through different initiatives by NGOs operating in the areas. However, those in Bale and Negelle Borena did not get this sort of capacity building trainings. Thus, there is a need to provide business skill training to all livestock

trading cooperatives. Such training can have significant impact in the community where members of some of the cooperatives (around Negelle Borena) are entirely women. Women can transfer their knowledge and skill to their children and their environment.

The financial constraint and problem of limited access to information are cross-cutting among the livestock trading cooperatives. Those cooperatives that have managed to overcome their financial problem have limited source of information because they mostly rely on one exporter as a source of information and selling outlet. This means their operation ends up by the time this exporter faces a problem in the market. A good example is Liben livestock trading cooperative in Negelle Borena, which started cattle and shoats trading only with ELFORA. However, ELFORA suddenly stopped exporting cattle due to the problem it had from the importers (a ban by the Egyptian market). Liben also totally stopped buying cattle since it has business relation only with ELFORA. Similarly, they also buy shoats as long as their single customer is in operation. According to the discussion with a member of this cooperative, they could not sell to other buyers (like LUNA) since its representative is not willing to buy from traders in the secondary market and they do not have access to the central market. This indicates that cooperatives have limited access to information and they have a problem in seeking potential customers.



Livestock trading cooperatives are established only to operate as a forward linkage of producers to potential buyers. They do not work as a backward links of input suppliers to producers. They simply collect livestock either from primary markets or collectors operating in these markets. Livestock trading cooperatives do not have any role in improving the production system. However, it was possible to organize livestock trading cooperatives to work in areas of livestock collection and input provision in order to ensure sustainable supply of market preferred animals. They also could have a significant role in raising the awareness of producers about market oriented production.

Brokers: These are those market agents that serve as mediators between buyers and sellers in the livestock market. They usually link buyers with sellers and moderate negotiations

and enforce the terms of exchange by paying buyers money to sellers. Brokers are not as such active in Bale livestock markets. However, buyers have to pay Birr 10/head of cattle as a broker's fee whether they are mediated by a broker or not. This is taken as an assurance for a buyer that a seller will take a responsibility of finding the animal in case if it is lost during trekking. There is a different story in the Borena cattle and camel markets. They intentionally create a communication gap between buyers and sellers (producers) and arbitrate them in the way they need. After the two parties come to agreement, they take the money from buyers and pay a deducted amount to the sellers. This is taking the opportunity of being well familiar in the area, and a speaker of a local language.

The role of brokers in the shoats market is attracting more number of sellers to respective buyers with whom they have agreed beforehand. They become very active at times when two or more buyers are operating in one market. In doing so, they are paid a certain amount of money per head of animals they have brought to the buyer. This ranges from Birr 1–2 /head in most of the cases. Since the price per kg live weight is fixed, brokers do not deal with prices. It is up to the buyer to provide a certain amount of premium payment above the weight based price. Buyers most of the time pay 5–10 birr in addition to the calculated weight based payment to attract more sellers.

Exporters: These are exporters of live animal and meat to different countries through the formal channel. Live animals are exported to Egypt (camel), Yemen (cattle, camel and sheep), Saudi Arabia, and Jordan (Table A.3). Meat is exported mainly to the Middle East countries (shoats' meat) and Congo Brazzaville (beef). Ethiopia has a comparative advantage in exporting chilled meat to the Middle East because of its geographical proximity to the region and the cheaper air transportation from Addis Ababa to these countries compared to the transportation cost from other countries like India and Australia. Exporters are few in number compared to traders in the market. They collect export animals from secondary markets (from big and small traders, livestock trading cooperatives, collectors and producers). The number of these actors in the live animal export sector is increasing from time to time. Some importers from Yemen and Djibouti are now trying to involve in purchasing animals from the domestic market and exporting the same to their country. For this purpose, they use the export license of Ethiopian exporters who will be paid commission on the number of animals to be exported. They also rent barns at Adama/Nazareth and pass their animal through the quarantine process. Usually, these

foreign exporters-importers collect animals directly from the source markets through brokers and sometimes they purchase animals from feedlots. Their operation at the source market has raised objection from cattle traders who collect cattle from the source market and hand it over to the feedlots at Adama/Nazareth. They complain that these exporters-importers need to buy at the terminal markets (from feedlots at Adama/Nazareth) rather than coming to source markets.

5.2. Market operation

There are three livestock marketing outlets in the country: the domestic channel, the formal live animal and meat export channel and the informal cross-boarder live animal trade. The level of competition for livestock among these channels is not clearly known. Even though analysis of competition requires in depth study of the operations of these channels, currently there is alternate ideas about competition among the different actors in the livestock marketing chain. This issue must be considered by referring to the different marketing factors such as the type of animals traded, the location, the type of channel, season, etc. In this study, type of animals is taken as a reference to describe issues related to market operation and competition.

5.2.1. Cattle

As far as cattle are concerned, domestic market is mostly dependent on cattle originated from the highlands while the export market is dependent on the lowlands which supply young and hornless animals. Still most argue that the current high price of the domestic meat price is due to the presence of high foreign and domestic demand for cattle. Others on the other side disagree with this idea and argue that the high price of the domestic meat market is due to monopolistic competition resulting from high entry barriers to the domestic cattle markets, particularly at the terminal markets. There are dominant market participants powerful enough to stifle competition or engage in unethical marketing practices.

In some markets, the demand for young Borena bulls, because of the beefy type conformation of these animals, by both Hararghe highlands farmers for fattening and replacement and export abattoirs may be the cause for competition. . Competition for young bulls between small domestic traders from Hararghe and those collecting for the export market escalates the price in the market. However, the domestic demand is usually seasonal in nature that export traders do not as such confront stiff competition unless there is a different demand

from feedlot operators in Dera and Adama/Nazareth. On the other hand, competition among live animal exporters and export abattoirs is low because of the differences in demand for cattle between these channels. The comparable current high price for cattle in the formal channel is an important factor for inward movement of animals and hence reducing competition between informal and formal export channels.

The current high price of livestock in the domestic market can also be related to the change in the trend on grain price in the country. It is a very well understood fact that Ethiopian farmers sell their animals when they fail to cover their cash need from their crop enterprises. In such cases, farmers are forced to sell their animals in special seasons of the year to repay their debt (input loan, tax, and other contributions) and to buy food for their household. These days, however, grain price has escalated enabling framers to obtain a reasonably higher amount of cash that can cover their needs with smaller amount of grain brought to the market. This has got multiple advantages for our subsistence farmers. In the first place, they do not exhaust their food stock to obtain a small amount of cash. Second, they do not go for food purchases since their crops are of better value and are not wasted at harvest. Third, they also reserve their livestock for different reasons one of which might be to wait for better prices. As a result, farmers have got better bargaining power than it was earlier. With this market scenario, livestock price is keeping on increasing.

5.2.2. Shoats

Like a cattle market, there are two types of buyers in the shoats market too: exporters and domestic consumers. However, competition is stronger among exporters than between domestic consumers and exporters since they are focusing on different segments of the product. Export abattoirs do have association and they try to fix market price (which is not officially known). However, this agreement does not work in the market. Every abattoir operator acts in a way that enables itself to collect larger number of animals. In a market where most exporters operated, some of the operators try to provide a price higher than the agreed up on price for the specific type of animal, which most of them said is higher than the market clearing price that brings a question on the profitability of the business under such a scenario. Fierce competition is usually observed between ELFORA and other abattoir agents. ELFORA tries to dominate in most of northern and eastern markets. However, its price is determined at higher management level that it

cannot change the earlier set price during marketing operation. Taking this advantage, buyers for other abattoirs automatically communicate with their respective managers and increase price thereby taking control of the market. This sort of competition is an advantage for pastoralists and small traders at large. Small traders that collect animals from distant primary markets hold their animals until the competition among their potential buyers reach the maximum possible price and hand over to the one that pays them better. Under such a case those who stick to the agreed upon price may not be able to get the required number of animal and hence face shortage of animals.

Like cattle, the comparable current high price for shoats in the formal channel is an important factor for inward movement of animals and hence reducing competition between informal and formal export channel. Here, because of their demand for young shoats, competition among export abattoirs and live animal exporters is usually expected in most markets. On the other hand, the domestic and export market demand for shoats is more or less different in that domestic consumers need female shoats compared to male because of the perceived carcass taste and higher fat accumulation needed by domestic consumers. Hotels and restaurant owners indicate that female shoats have higher meat proportion compared to male shoats. More over, domestic consumers demand bigger shoats (fattened matured male castrated shoats) especially during festivals.

5.2.3. Camels

In Ethiopia, camel is a lowland animal available in the pastoral and agro-pastoral areas, whose demand for domestic consumption is lower than the export demand. Some formal live animal exporters indicated high competition with the informal channel because of the high price of camel in the informal channel (for instance, average price of camel at Borena is Birr 4000 while it is Birr 4800 in Somalia) and limited market for the formal channel (because the end user market demands camels from Somalia, Sudan and Djibouti).

6. Marketing infrastructure and support services

6.1. Market information system

This is a system needed to disseminate up-to-date market information to keep all livestock market participants at the same level of access for market information (price, time specific demands, quality information, etc). This enables all market participants to make well informed decision in making transactions. In livestock marketing system, however, information is held as a private property and not equally shared among the different participants in the value chain and usually lacks trickle down effect. In this case, those that have the power to dictate the terms particularly those in the higher end of the chain act only in their own interests. This forces farmers who do not have countervailing economic power to also act in their own interests. The quality and quantity requirement demanded by the end-user does not properly go down to the lower ends of the chain.

Conversely, information about livestock production and associated cultural practices is not clearly understood at the higher ends of the chain. There is no significant investment in the relationship; rather the relationship in the market is based on mistrust. In this type of relationship, for the most part, farmers are considered as input suppliers rather than strategic partners in the value chains. The goal of the production system is only to satisfy producer's own deficit, without giving much emphasis to meet the market demand and ensure sustainable supply of livestock to the market. This results in unpredictable quantity and quality of products destined for different internal and export markets and less remunerative prices for producers (Jabbar and Benin, 2004). It also limits the development of value addition by various participants such as producers, traders and processors.

As indicated above, market actors in the lower ends of the chain (producers and collectors) are usually far from up-to-date market information. A practical example in this regard is a disinformation about recent export ban as a result of Rift Valley Fever reported in Kenya. Farmers in Bale lowlands were misinformed that all export abattoirs are closed due to unknown reasons while that of Borena pastoralists were told that the shoat market is banned by the Arab countries due to the war the Union of Islamic Courts in Somalia declared on Ethiopia. The disaster created by brokers in Borena and Bale markets is the result of poor market information

system that does not let producers to get access to information about what is happening in the terminal markets.

6.2. Road network

Road is one of a very important infrastructure in the livestock marketing system. The type of road connecting an area determines the type of buyers that can get access to its market. It also affects the profitability of most of the participants in the livestock market. The Borena area is connected to the center/terminal markets with asphalt road passing from Addis Ababa via Awassa and Yabello to Moyale. The most significant secondary livestock markets like Dubuluq, Mega, and Yabello are located on this asphalt road. There are also a number of primary and secondary markets located in 25 km radius from this road. This enables exporters to easily transport animals to their quarantines or abattoirs at relatively lower cost of transportation and very minimum level of weight loss and mortality rates relative to inaccessible areas. Still there are potential areas considered as sources of shoat but remained unexploited due to lack of road network. Shoats collected from extreme lowland markets such as Telltale have reached the abattoirs in few days time and get slaughtered before they are affected by the environmental change which other wise can lead them either to emaciate or die.



Bale lowlands, however, are connected to the center of the country by a very rough gravel road which is very difficult to frequently penetrate and transport livestock for the export market. Truck owners charge very exorbitant price to load animals from such areas. The trucks supplied by the export abattoirs are not enough to transport animals from these areas. The roughness of the road and the associated high maintenance cost, time and fuel consumption of the vehicles compel the abattoirs to offer priority to other supply markets (Borena, Afar, Somali and Wello). As a result, shoats collected from Bale lowlands at Ginir and Goro have to wait longer time in traders' hands. Though there is a chance of weight gain in the mean time, shoats collected from extreme lowlands die when they are kept at higher altitudes, and always put the

traders at financial risk. Asphalt road construction recently started in Bale area indicates the opening of opportunities for both livestock exporters and the pastoralists in the near future. The proximity of the area to the center relative to other pastoralist areas makes it cheaper and faster to reach and exploit the resources in Bale lowlands once the asphalt road is constructed.

6.3. Market centers

Market centers and their associated infrastructures are important factors that have to be considered in the move to increase the supply of livestock for both domestic and export markets. Due to the wider geographical location of pastoralists, some important sources of livestock are very far from market centers. Pastoralists from the border areas need to travel for a week or more to reach these market areas. This influences the marketing behavior of pastoralists that they either have to keep their animals unsold or they have to go to nearby informal markets in the neighboring countries. In order to attract such resources to the central markets, there is a need to thoroughly assess these remote areas and open up primary markets with at least dry weather roads connecting them to secondary markets.

Pastoralists located far from market centers also have problems of basic supplies like sugar, cloths, other foodstuffs and industrial products. Making such items available in remote pastoral areas, by opening new markets in remote areas, would increase their demand for cash thereby encouraging them to sell more animals and hence increase supply of livestock to the export market. The potential areas for this sort of intervention exist in Somali lowlands bordering Bale, Borena and in Somali region itself. Opening up new markets needs assessing the number of primary markets available in major pastoralist areas, their distance from the border and the neighboring markets, and similar socio-economic issues and decide the exact locations up on which it is possible to open new market centers. The most important consideration, however, is the importance of water points where most pastoralists come together. Collectors of shoats usually use water points as bush markets to get the required number of animals.

6.4. Waiting centers/holding ground

The Ethiopian pastoralist farming system stretches from mid altitude areas (2200 masl) to extremely lowland areas (600 masl) with mean annual temperature of 19 to 35°C, respectively. Not all animals taken from these areas adapt to the weather conditions in the Ethiopian Central

Rift Valley where the abattoirs are located. Shoats collected from extreme lowlands like the Ethio-Kenyan border and the lowlands of Somali regional state mostly fail to adapt to mid altitude areas unless they are slaughtered upon arrival to the abattoirs. But in cases when traders have to hold them for a certain time, the mortality rate is very high since they could not stand the environmental change. This indicates the importance of having holding grounds in extreme lowland areas like Moyale to keep reserve stock for peak demand periods. Seasonal supply shortages and other circumstances (such as clan conflict) that drive shortages may coincide with very high demand period from the importing countries. Thus, holding reserve stock in low and mid altitude areas will buffer such conditions. Having holding grounds in different locations can also serve to resolve problems created as a result of communication gap between abattoirs and traders from remote markets. Shoats purchased in excess of exporter's demand can be kept as reserve stock while traders keep on buying from source markets. This helps to avoid the extra effort needed to re-inform producers to bring animals to the market after they are told to stop for a certain time. This means, holding grounds can help to properly match demands with supply.

Unlike Borena area where traders can keep livestock with farmers or ranches for a certain time at rent, it is difficult to do so in Bale. Since the area is more of agro-pastoralist and land is being used for crop cultivation, it becomes difficult to get holding grounds. Although it is not easy to transfer land, the government has to think of establishing some holding grounds or smaller ranches that could be the property of pastoralist cooperatives who rent the areas to traders, or fattening animals on their own. This needs prompt action since the mid altitude areas are being changed to intensive crop cultivation and the population is pushing down wards to the bushes suitable for ranches.

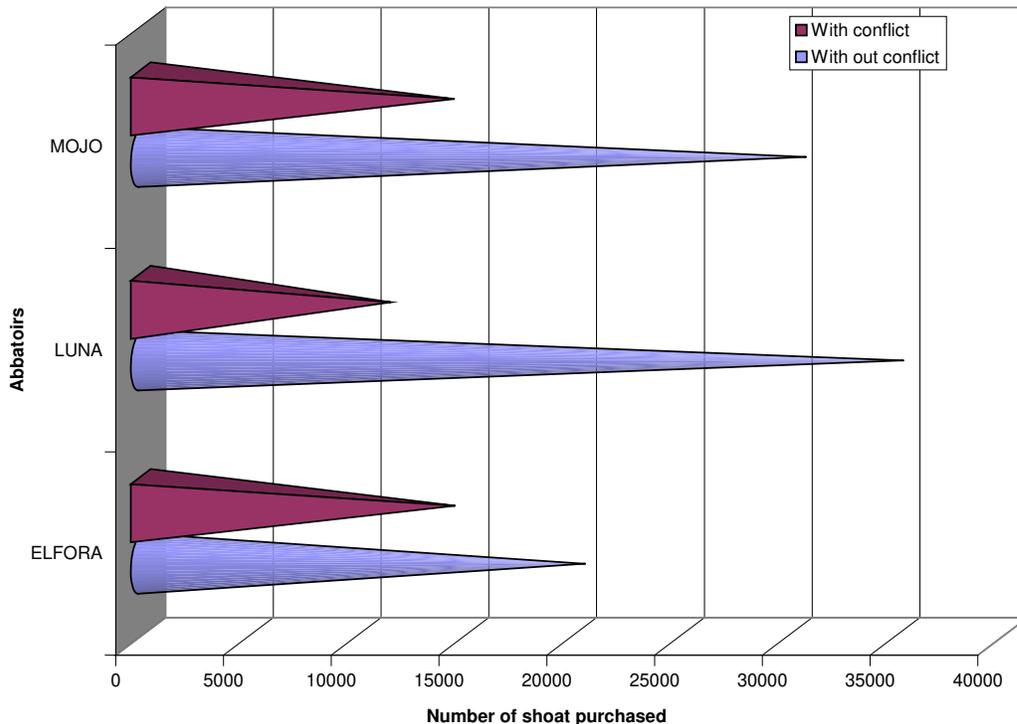
6.5. Non-infrastructural factors influencing livestock supply chains

6.5.1. Clan conflicts

The Ethiopian pastoralist community is composed of several clans and ethnic groups. These groups compete for limited land and water resources. Conflicts arise as a result of competition for resources and some other reasons. The problems in such pastoralist areas are directly manifested in the livestock markets. Whenever there is clan conflict in the area, the market is disrupted and the number of animals brought to markets decreases. Buyers on the other side feel insecure and consider the market as unreliable supply sources. Figure 6.1 indicates the

consequences of clan conflict on the number of animals purchased by export abattoirs. Group discussions during the study period revealed that there was a clan conflict between July to October 2006 in Borena area. In order to show the intensity of clan conflict, livestock transaction recorded from markets in the rangeland area when there was a clan conflict (that is from July to December 2006) are compared with livestock transaction recorded in the same area for similar period of time in 2005 when there was no clan conflict (that is from July to December 2005). In this particular case, there was a substantial supply shortage, reaching as low as 50 percent compared to the normal period.

Figure 6.1. Comparison of livestock transaction with conflict (July to December 2006) and without conflict period (July to December 2005)



Source: SORDU (2006).

The government understands the problem caused by clan conflicts. Thus, the regional governments have established a structure to resolve conflicts between ethnic groups and support the traditional structures (council of elders) resolving inter-regional clan conflicts. The problem due to clan conflict is pronounced because the conflict areas are the major sources of export

animals (especially shoats) and serious shortages of livestock happen in the market whenever the conflict coincides with times of high demand for livestock by the exporters. What is suggested is still strengthening the traditional conflict resolution systems, establishing the holding grounds in extreme lowland areas and getting a reasonably large number of animals and collecting reserve stock that can be used whenever the problems arise.

6.5.2. Purchasing practices of abattoirs

The purchasing system of abattoirs should be organized in such a way that it can attract as many livestock sellers as possible in the market. Despite the reported supply shortage by abattoirs, representatives of some abattoirs at source markets were found to be discriminating against some of the sellers. This implies, the system is sometimes selective in its operation and creates unequal chance for potential sellers in the market. At Negelle Borena, for example, representative of LUNA was not buying from livestock trading cooperatives. But cooperatives in this area are stronger relative to other supply areas and can collect considerable number of animals as long as they can get a dependable buyer. Similar problem was observed at Miesso market with representative of Modjo modern abattoir. These actions would narrow the supply channel and eventually reduce the number of animals brought to the export market. Thus, abattoirs need to monitor their purchasing systems and take corrective actions every time.

Practically, most abattoirs have a purchasing point at Yabello. They also have big trader representatives in other markets, who supply directly to the abattoirs. It may not be necessary to have permanent purchasers at every market because of cost and other factors. However, the presence of all abattoirs in major supply markets would increase the number of collectors and also number of animals brought to different markets. Domination of one market by a single buyer some times discourages and/or damages collectors in those markets since they may not have alternative outlets during critical times. The case in point is the eastern route (Metehara, Miesso) where the major buyer is ELFORA. Modjo modern has one big trader as a representative collector while Luna and HELIMEX do not have visible representatives except small traders supplying directly to the abattoirs. Because of the discriminatory action of the Modjo representative, most of the sellers rely on ELFORA as their only marketing outlet. Being a dominant buyer in the market, ELFORA is a price maker and does not consider the damages on its collectors.

On the other hand, abattoirs' purchasing system in most livestock markets is also characterized by frequent fluctuation in prices and in acceptable live weight range after they forwarded order to their suppliers. The following problems were observed in most markets; particularly at Borena markets and resolved through the discussion between abattoirs and their collectors. However, these problems are clearly visible in other markets like Miesso.

- *Change in price after collectors are given the order to collect animals at a certain price.* If there is a reduction in price in the export market after collectors are ordered to buy at a certain price, collectors would loose the difference between the earlier and the new price. This discourages collectors and also destructs the level of trust in the market. No one is encouraged to collect large number of animals in such unpredictable and highly risky market environment. As a result, abattoirs may not be able to get the number of animals they need in their channel. Thus, abattoirs discussed the issue and resolved it in Borena market. Every collector reports the number of animals he has in stock when ever there is a price change and payment will be based on the agreed upon price for registered number of animals. However, this problem is left unresolved in Metehara and Miesso markets.
- *Change in order of weight range after collectors are ordered to collect animals of specific weight range.* Abattoirs need animals of different weight range depending on the order from their customers. Changes in the demand for different weight ranges should also be communicated to collectors in the same way as price changes. Collectors should not be left with the animals they have collected in cases of changes.

6.5.3. Lack of standardized unit of transaction in shoats markets

There are two ways of assessing the weight of shoats purchased in the market: using the weighing scale as in the case of Borena and Bale markets and visual assessment of body condition as in the case of Metehara, Miesso, Babile, and Wello markets. However, abattoirs and their representatives hand over shoats using weighing scales in all markets. This means, there is non-uniform system of transaction in shots supply chain. In a system where animals are collected from the market using visual estimation and sold to the abattoirs by weight scale, traders who collect the animal and supply to the exporters are not certain about their profit margin. They have to negotiate and cut down price in the source market in order to ensure their profit. Collectors operating in such uncertain system always try to keep their risk to the minimum level by

operating at smaller scale which is eventually manifested as a supply shortage in the destination market. Producers would be the final losers since every trader wants to avert risk. Such system does not encourage pastoralists to supply more animals to the export targeted markets. After all those who buy using eye ball estimation are small traders that would hand over to the abattoir agents on weighing scale.



Thus, it would be imperative to establish uniform systems of transaction in the livestock markets.

Different mechanisms could be used to standardize units of transaction in the shoat market. One of the options is to organize buyers (traders and collectors) in group so that every body will get training about the benefits of having a standard unit of measurement. This could be best implemented during the seasons where there is good market price after a certain level of awareness creation is made in the market. Experience sharing tours could also be organized for traders and pastoralists to Borena lowlands where shoats' transaction is made using a weighing scale at all market levels.

6.5.4. Lack of consultation/coordination forum among market participants

Market is an institution involving different actors (agents) at several levels with different roles. Every market agent has its important role that justifies its presence in the system. Coordinated and smooth functioning of the market enhances the volume of trade and the benefit that different participants and the economy can drive from the market. In a market where there is high level of mistrust among the participants, i.e. where every body wants to make exorbitant profit at the expense of others, producers will never be encouraged to produce more since they will be the ones worst affected. Unstable and non-ethical market environment will deter an effort to increase supply of exportable animals from the source areas. Thus, in livestock market where different actors including pastoralists interact, there is a need to create forums of consultation and establishing a team work to bring together producers, traders, abattoirs, and the public sector, so that every body in the domain would have a clear understanding and contribute to the smooth functioning of the supply chains.

Here, the main objective to establish team working approach is to mobilize the combined power of the different stakeholders into a powerful reciprocated relationship that brings a significant contribution to the sustainable development of all the stakeholders. This creates an opportunity for:

- improving returns through choosing the chain that is most efficient and provides best margins;
- forming strategic partnerships and alliances with other players in the supply chain that can offer synergistic contributions to the partnership and could add value to the supply chain.

These marketing tools enable all who have a stake in the supply chain to:

- reduce costs of buying and/or selling livestock;
- reduce risk exposure;
- enhance access to credit;
- increase supply chain information flow;
- ensure closer quality specifications and product traceability;
- ensure market access;
- increase flexibility in responding to customer needs; and
- enhance operating efficiency.

Particularly, for producers in the fringe production areas, coordinated marketing arrangements ensure access to buyers without incurring substantial search costs when animals are ready for harvest. Abattoirs are also favored to source more consistent and better quality of animals. The substantial horizontal contractual growth among shoat producers suggests that horizontal linkages enable large production operations to get larger. In order to strengthen this approach, appropriate type of capacity building initiatives can be designed targeting ethical and systematic livestock marketing environment. Different NGOs formed consultation forum in some Borena areas. However, other areas like Bale, Metehara and Miesso need more effort to improve the marketing situation despite their difference in availability of basic infrastructures.

6.5.5. Weakness in understanding the existing social structure

Pastoralist communities are composed of clan based social organization. Most of the activities of these communities are linked to their clan structure. For example, the Somali pastoralists that are available all along the eastern lowland areas of the country have a clearly visible clan based marketing behavior. They take their livestock to the market collectively in groups (whose members are from one clan) and hand over the animals to a broker that belongs to their clan. This broker is the one who has better market information relative to individual producers and he is also a price maker. No other broker (non-member of the clan) can mediate the transaction of their livestock in the market. Brokers in this case act as representatives of their clan in the market. Understanding this sort of social structures and their marketing behavior is imperative in the effort made to boost exportable livestock supply to the market. In the case of the above mentioned example, the most important opportunity is to train brokers of different clans and use them as collectors for exporters.

6.5.6. Lack of livestock market extension service

In most areas where major livestock markets are available, the agricultural extension system is not well informed about the export market. In fact the extension system is not as such active to provide appropriate support to producers about production of livestock for export markets. For instance, pastoralist and rural development agents in Bale, South Wello, and Kemesse were found to have weak communication with the livestock market supplying to the export market. Rather they informally know that animals collected from their area are exported to the Middle East. But they did not have any information about who bought the animals, what quality parameters do buyers consider, the time they bought, and their purchasing system. The changes brought in the marketing behavior of farmers/pastoralists is therefore, attributed to the market. Better market price has attracted producers and forced them to provide animals of required quality so far. But, can we expect sustainable supply of livestock without proper livestock development extension intervention? Market focused livestock extension service is needed in order to assist production of better quality livestock required in the market. The extension system can also help in improving the marketing behavior of farmers.

Creating linkage between the extension system and livestock supply chains for the export market and building the capacity of the system is the most important step in the effort to boost

the sustainable quantity and quality of livestock supplied to the market. Extension agents need to get market based training in order to provide well informed advices to the producers.

6.5.7. Limited research and development effort

There is lack of scientific evidence about the problem of meat discoloration in Ethiopia, a problem widely associated with highland shoats. Surprisingly, whether the problem of highland animal meat discoloration is due to breed, environment, management or post slaughtering technical consideration is not yet clearly known by the exporters. However, studies indicated that the problem of meat discoloration is not solely associated with animals of specific locality, but it has a global concern, focusing on management practices required for slaughtered animals (Source: An Amharic article obtained from Livestock Marketing Authority Bulletin, Volume 3, No. 5). Clearly, this brings another researchable question to the attention of research and development practitioners of the country so as to exploit the untapped resources of the highland areas.

There is little or no research output to increase productivity of shoat in major livestock production areas. Increasing productivity would imply increasing shoat meat production which could be made possible from increasing the number of shoats in areas where these animals are appropriate species. Increasing productivity depends on:

- increasing reproductive efficiency through selection and crossbreeding;
- improving the genetic potential for growth; and
- improving nutrition and management practices to improve reproductive rate, kid survival, and rate and composition of growth (Glimp, 1995).

7. Conclusions and recommendations

Currently, almost all export abattoirs are complaining about shortage of shoat supply for export market. Some of them were even unable to meet the already requested quantity by their customers, let alone searching new market for shoat meat. However, rather than shortage of supply of shoats for export abattoirs, matching exporters' demand with market supply is a major observed problem. Most export abattoirs lack information about the expected production levels and potential availability of shoat supplies in the major livestock markets, clearly indicating the need for concerned agencies in Ethiopia to make such information timely available to the exporters. Lack of this information makes it very difficult for exporters to tap market opportunities by entering into future contracts and hence forcing them to delay contractual commitments until the animal reaches at their disposal. The orders from export abattoirs could not get timely responses due to problems of poor road infrastructure in Bale and some Borena areas, clan conflicts which sometimes disrupt markets in Borena and other pastoral areas, poor market information in all supply areas, and the time lag needed to inform and collect animals from remote pastoralist areas.

A number of challenges in the structure and functioning of the livestock marketing system are associated with supply shortages of shoats. These are summarized below:

- Initially the supply derived from non-market oriented livestock production system involving several highly dispersed small farmers, pastoralists and agro-pastoralists mostly in remote areas that supply non-homogenous types to local markets.
- There is lack of a well-coordinated livestock supply chain that links many producers and buyers. The supply is distributed through complex channel of marketing chains that involve a number of intermediaries and marketing agents, causing the system to be less efficient.
- Problems in the acquisition system of abattoirs: Single or no purchasers of abattoirs in some markets. It may not be justified to establish permanent purchasing points in every supply areas. However, it is possible to establish strong relationship with a number of traders as representatives in each supply market. Reliance of an abattoir on a single representative in one market creates a monopoly position for him/her that some unwanted

marketing practices which may discourage more supply to the export market might be observed. Thus, it is advised to have more than one representative in a given market.

- Lack of monitoring mechanism: Abattoirs need to establish a mechanism to monitor their purchasing system regularly. Because of the dynamic nature of markets, it is important to frequently monitor and evaluate the system in terms of the following questions: How the agents are buying? From whom they are buying? Which potential collector is abandoned in the system and why? From where do they buy? Which areas are uncovered? This would enable the concerned bodies to take corrective actions at the right time.
- Problem of access to some supply areas like Bale Zone
 - a. **Road network:** Access to a given supply area is determined by its road network. Bale Zone and some areas in Borena (area on the way from Negelle to Dollo) have a wealth of shoat resources. However, they are not well exploited yet because of the poor road infrastructure connecting them to secondary markets.
 - b. **Transportation facility:** It was indicated by some live animal exporters that highland sheep are highly demanded by their customers at the other end of the chain. However, highland sheep do not have heat tolerance capacity to stand the hot weather condition in the export route. They need well equipped transportation (air conditioned) facility and feeding system along the export route.
- Lack of reliable sources of livestock market information: There is no efficient mechanism for delivering market information to the producers and traders at local markets on issues related to seasonal prices, demand, and quality requirements in different markets. Both traders and brokers want to hide information from the higher level markets to their own advantage. Apart from price information, producers need to be informed about different aspects of livestock production, marketing, and emergency aspects like weather change and disease outbreak.
- Interrupted purchasing system (lack of continuous purchase system regardless of the signals from importers): The current shoats purchasing system is indicating a sort of fluctuation in the volume of shoats purchased/collected from source areas depending on the demand from importers. However, it is not easy to pick the required quantity and quality of animals in a market that is constrained by different factors within a short span

of time. An overlap of major events like clan conflicts in supply areas with high demand from importers creates tension in the livestock markets.

- Lack of holding grounds to keep reserve stock for some seasonal shortfalls: This is the most important factor that prohibited continuous purchases of shoats. Due to the diverse nature of the country's agro-ecological conditions, it is not possible to establish only one holding ground around the center of the country and keep shoats from extreme lowland to mid altitude areas for a long time. Shoats from extreme lowlands cannot adapt to higher altitudes that makes mortality rate very high. This indicates the absence of holding grounds in different parts of the country (supply areas) representing different agro-climatic conditions. However, abattoirs complain the problem of land tenure to establish such facilities.
- Lack of new primary markets in remote pastoralist areas: Pastoralist areas around the border of the country especially in the Somali regional state neighboring Bale and Borena zones have problem of market access. They have to travel as long as eight days to sell their animals and buy basic supplies. There is lack of market centers in which pastoralists around the border can get basic supplies and also sell their animals.
- Treating similar problems observed across the major supply areas accordingly: Some problems observed in the shoats' market value chain have been identified step by step in major supply areas like Borena, which export abattoirs have successfully resolved. These problems were left unrecognized in some other markets like Miesso. Abattoirs should not wait until the problem destructs the actors in the supply chain and affect the quality and quantity of animals collected from respective areas.
- Frequent clan conflicts in pastoral areas resulting in supply shortages in the major markets: The Ethiopian pastoral system consists of different ethnic groups having their own clan sub-divisions. Conflicts frequently arise between different ethnic groups and clans within specific ethnic group. The time when the conflicts can happen is not predictable. It can happen when the export market is in a peak demand period from its customers. Such conflicts result in supply shortage in livestock markets.
- Limited effort for coordinating value chain structures: In livestock marketing, the system operates without partnership and linkages — an alliance in which different market agents in the value chains (from producers to processors) agree to work together and commit

themselves for a common goal, share the risks as well as the benefits, review and revise the relationship and agreement regularly.

- Creation of demand for highland livestock in the export market: This is practically associated with lack of knowledge about problems of meat discoloration which prevent the exploitation of highland shoats.
- Low technological output (improved breeds and associated animal husbandry practices) to increase productivity of shoat in major livestock production areas.
- Lack of unified system of grades and standards in the livestock marketing system.

The potential to increase livestock production in Ethiopia is enormous. This study finds an abundant lack of an efficient and effective livestock marketing system that is responsive to domestic and international market signals. Technical and policy support is needed to help transform the dominant traditional livestock marketing systems into collaborative marketing system that engage producers and all other market actors involved in the supply chains.

Based on the foregoing discussions, a series of recommendations were identified and are presented below:

- Establishing purchase points or purchase representatives in supply markets
 - ❖ Purchase representatives should be more than one in a given market
 - ❖ Exporters need to regularly monitor their purchase systems
- Strengthening the transportation link in areas with problems of road infrastructure
- Establishing efficient and accessible market information system
- Establishing holding grounds in lowlands and carrying out uninterrupted livestock purchases to maintain sustainable and adequate livestock supply
- Establishing primary livestock and commodity markets in remote pastoral areas that will increase both the cash demand of the pastoralists and market access for their livestock
- Strengthening the local conflict resolution institutions and enforcing government rules and regulations
- Upgrading the marketing/management skills of livestock producers and their cooperatives
- Recognizing and exploiting the traditional clan based livestock marketing systems through improving the marketing skills of brokers (as is the case in Babile and others) and encouraging them to actively participate in the supply chains

- Framing participatory market supply chains. New forms of value chain coordination that provokes interest and trust to facilitate collaboration and linkages among appropriate actors in the supply chains. It provides techniques that ensure particular production, processing and marketing practices and procedures to enhance sustainable supply of quality product, safety and credence for consumers.
- Developing and adopting a unified livestock pricing system in the supply chain such as auction system, which is a mechanism where floor price is decided based on the available market price and bidders are invited to offer their prices based on the pre-set rules of game.
- Implementing uniform pricing system, developing standardized units of measurements for the animals traded (like body weight, heart girth, animal height, age, etc); price will be set based on the developed standards, and bidders will compute accordingly.
- Developing and disseminating research output which helps to increase productivity through improving reproductive efficiency and improving nutrition and management practices.
- Developing and disseminating research output on slaughter management and chilling techniques for highland shoats. New opportunities could be created through introducing appropriate management techniques for the exploitation of highland shoats, an untapped resource left because of the problem of meat discoloration.
- Conducting a detailed live animal and meat export value chain analysis focusing on:
 - ❖ efficiency of the different channels and value chains,
 - ❖ distribution of transaction costs,
 - ❖ market shares and volume of flows across channels,
 - ❖ marketing margins across channels,
 - ❖ price shares to producers from the final price,
 - ❖ the role of agents and social capital in livestock marketing.

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Annexes

Tables and Figures

Table A.1. Quantity and gross value of official Ethiopian livestock and meat export

Year		Value of exports (in thousands Birr)		Quantity of exports (in metric tons)	
Gregorian Calendar	Ethiopian Calendar	Meat	Live animals	Meat	Live animals
1970/71	1963	7,043	2,043	6,020	2,013
1971/72	1964	11,981	2,661	8,271	2,412
1972/73	1965	15,697	5,771	10,941	4,650
1973/74	1966	18,325	12,342	18,385	10,891
1974/75	1967	9,894	16,885	5,121	10,569
1975/76	1968	6,804	31,370	2,717	21,073
1976/77	1969	5,027	5,395	3,528	2,174
1977/78	1970	1,296	1,542	948	445
1978/79	1971	2,135	1,436	820	583
1979/80	1972	5,407	8,317	2,017	2,991
1980/81	1973	6,310	9,800	2,288	3,547
1981/82	1974	5,324	8,296	1,434	2,776
1982/83	1975	10,249	16,344	3,106	5,331
1983/84	1976	5,869	14,780	2,832	4,686
1984/85	1977	3,922	19,173	953	6,635
1985/86	1978	3,866	18,908	1,147	7,353
1986/87	1979	5,370	15,646	1,458	5,012
1987/88	1980	5,142	32,357	1,726	14,056
1988/89	1981	2,089	23,539	584	13,558
1989/90	1982	1,149	10,821	229	4,258
1990/91	1983	1,015	5,169	268	2,195
1991/92	1984	18	467	3	124
1992/93	1985	418	1,322	40	312
1993/94	1986	672	10,757	49	2,407
1994/95	1987	6,073	7,655	440	771
1995/96	1988	12,169	770	950	183
1996/97	1989	24,175	11,201	1,716	1,305
1997/98	1990	29,340	10,562	1,529	1,324
1998/99	1991	31,644	5,724	2,078	919
1999/00	1992	32,708	14,137	1,977	1,766
2000/01	1993	14,366	2,360	870	214
2001/02	1994	9,423	7,132	662	166
2002/03	1995	20,781	4,129	1,722	607
2003/04	1996	66,676	16,454	4,007	3,141
2004/05	1997	126,254	110,915	7,274	9,126
2005/06	1998	160,842	239,240		

Source: National Bank of Ethiopia (various reports).

Table A.2. Estimated livestock population of Borena and Guji Zones (Project target *woredas* only)

No.	Name of <i>Woreda</i>	Cattle	Goats	Sheep	Camel	Mule	Donkey	Horse	Chicken
1	Yabello	143,633	77823	21,611	11,233	359	2,237	200	32,823
2	Dire	460,897	132,246	62,088	45,340	2,785	12,777	3,331	
3	Telltale	127,188	40,000	15,000	44,000	610	1,533	21	2,000
4	Arero	274,489	95,112	42,670	1,005	170	5,444	56	36,759
5	Moyale	35,000	12,820	3,467	4,808	60	1,925	20	8,167
6	Liben	466,895	472,906	183,311	366,170	-	-	-	472,906
	Total	1,508,102	830,907	328,147	472,556	3,984	23,916	3,628	580,655

Source: Zonal Rural and Agricultural Development Office (ZRADO).

Table A.3. Exported livestock product

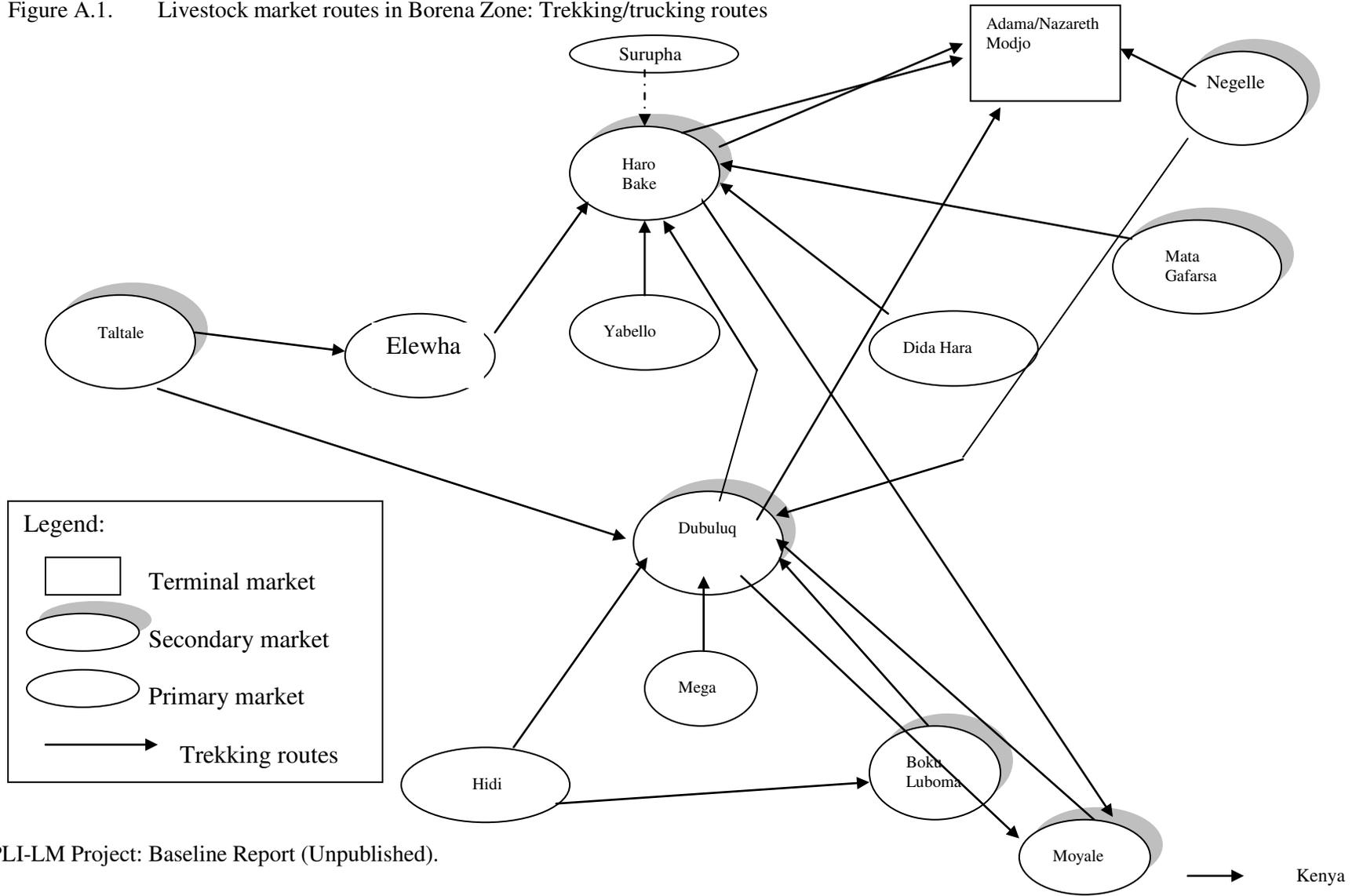
Destination	Meat product	Live animals
Yemen	Mutton, veal, beef, goat flesh	Shoat, cattle
United Arab Emirates	Mutton, veal, gat flesh	Shoat
Saudi Arabia	Mutton, goat flesh, camel flesh	
Sudan		Cattle
Egypt		Camels
Congo	Beef	

Table A.4. Some characteristics of recorded shoat transactions in main markets at Borena Zone, March 2006–February 2007

Sex	Type of animal	Sheep			Goat			Total		
		Supplied	Sold	% sold	Supplied	Sold	% sold	Supplied	Sold	% sold
Male	Castrated shoat	793	776	97.9	2,982	2,457	82.4	3,775	3,233	85.6
	Adult non-castrated shoat	1,911	1,876	98.2	2,128	1,684	79.1	4,039	3,560	88.1
	Young non-castrated shoat	3,271	3,221	98.5	10,439	10,406	99.7	13,710	13,627	99.4
	Lamb and kid	789	752	95.3	6,168	6,117	99.2	6,957	6,869	98.7
Male total		6,764	6,625	97.9	21,717	20,664	95.2	28,481	27,289	95.8
Female	Sterile shoat	796	747	93.8	4,528	4,388	96.9	5,324	5,135	96.5
	Ewe and adult she-goat	2,978	2,496	83.8	13,504	12,251	90.7	16,482	14,747	89.5
	Weaned ewe and she-goat	2,885	2,289	79.3	6,035	5,612	93.0	8,920	7,901	88.6
	Lamb and kid	837	707	84.5	3,223	2,926	90.8	4,060	3,633	89.5
Female total		7,496	6,239	83.2	27,290	25,177	92.3	34,786	31,416	90.3
Total		14,260	12,864	90.2	49,007	45,841	93.5	63,267	58,705	92.8

Source: SORDU (2006).

Figure A.1. Livestock market routes in Borena Zone: Trekking/trucking routes



Source: PLI-LM Project: Baseline Report (Unpublished).

Figure A.2. Borena route live animals and meat export market chain

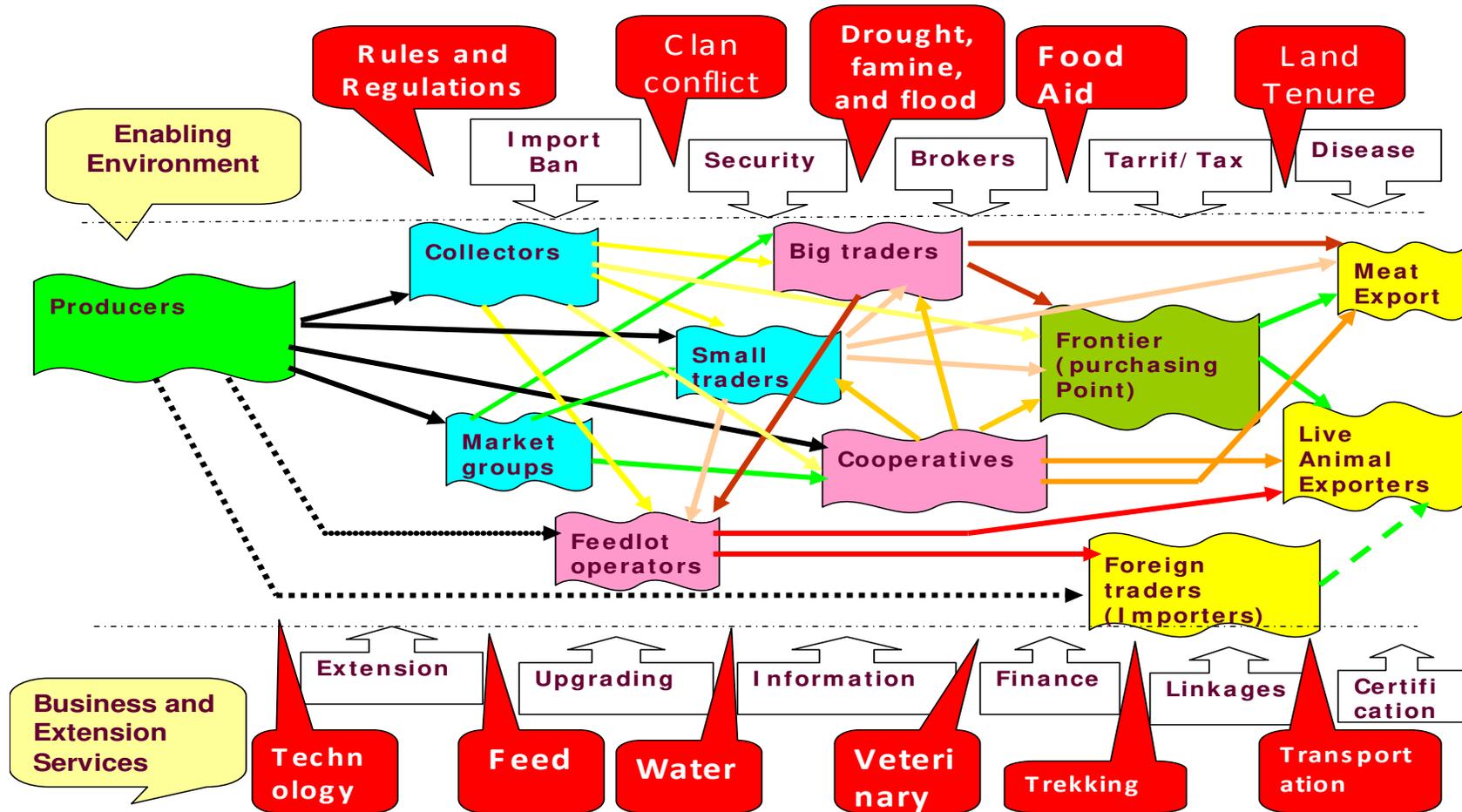


Figure A.3. Bale route live animals and meat export market chain

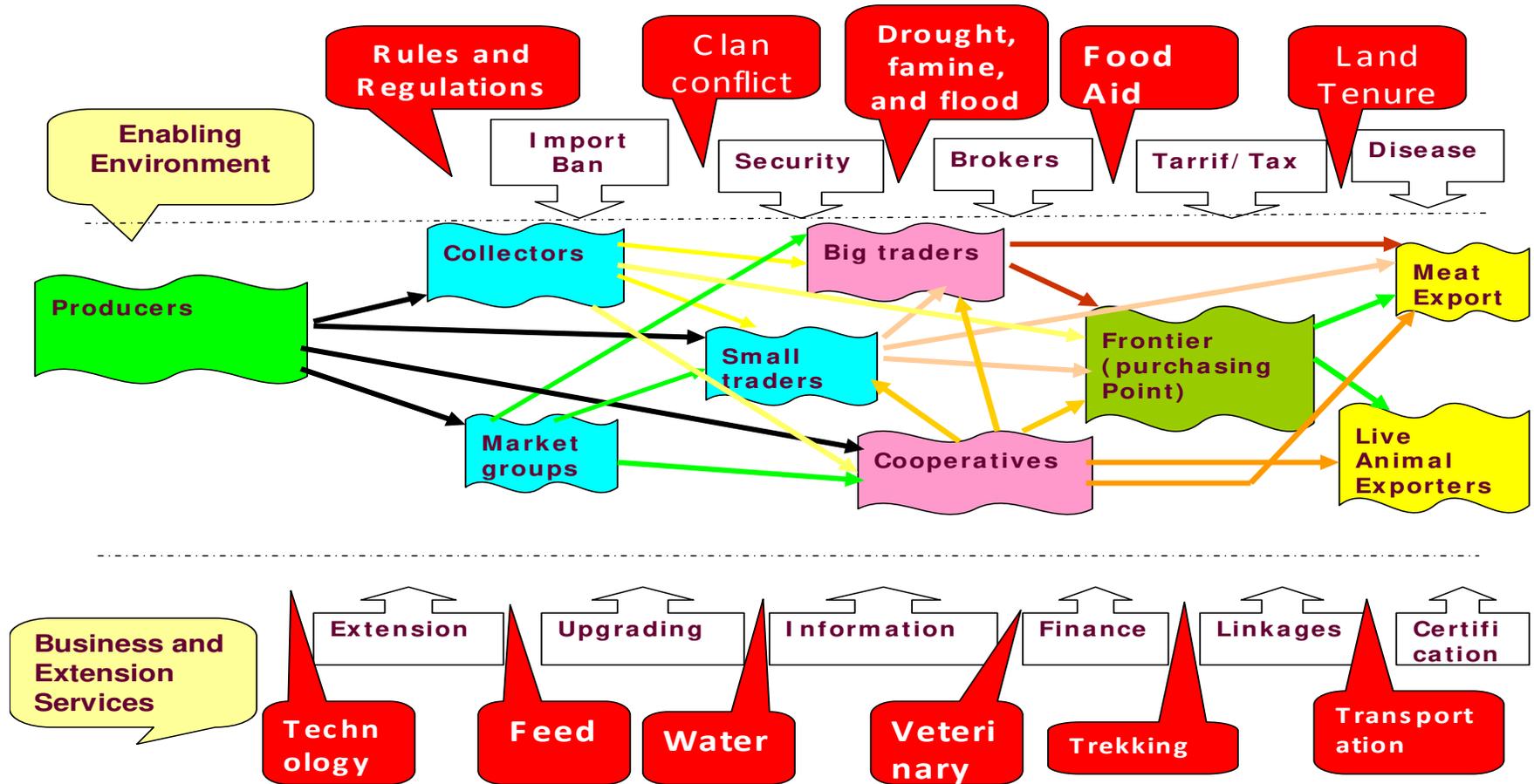


Figure A 4. Metehara and Miesso route live animals and meat export market chain

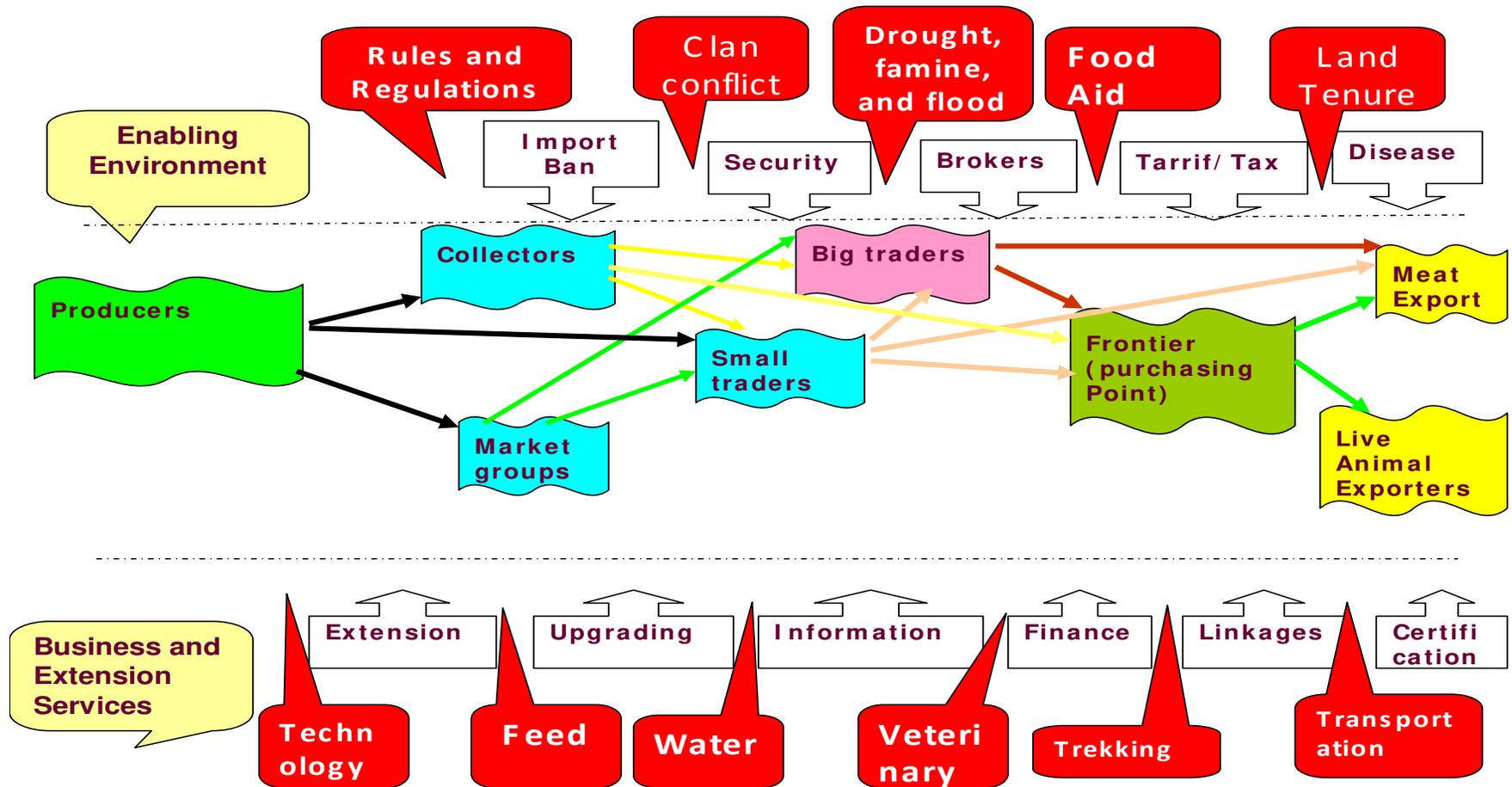


Figure A.5. Wello route live animals and meat export market chain

