Livestock Marketing Value Chains: Dynamics and Challenges

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PROJECT ON "CLIMATE-INDUCED VULNERABILITY AND PASTORALIST LIVESTOCK MARKETING CHAINS IN SOUTHERN ETHIOPIA AND NORTHEASTERN KENYA (CHAINS)"

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Introduction

Livestock trade is not a new business in pastoral areas of the Horn of Africa. The directions of animal flow, source and destination markets, market shed, and mode of operations have been changing and adjusting to demand, supply, prices, and socio-political and security conditions. The Borana pastoralists have been part of this long-existing livestock trade. Initially, trade was based on a barter system that connected the Borana to the Somali coasts. In the 1960s, the trade route changed from coastal to central Ethiopia, including the capital, Addis Ababa, and later to Moyale, when the livestock market was opened in the 1970s. The Moyale market that links southern Ethiopia to major livestock markets in Kenya, such as those in Nairobi (Little, 2005), had been the major livestock outlet for the Borana. The most dramatic changes in livestock trade in the Horn of Africa have taken place with the expansion of destination markets into the Middle East and North Africa. In the last 10 years alone, the number of source markets has increased, many new bush markets have emerged, and preexisting bush markets have been formalized and upgraded to primary and secondary markets with a number of facilities. The market sheds have expanded beyond traditional trading territories to include previously less accessible regions. In addition, the number of participants, volume, and value of transactions has increased significantly (see year 2 project reports). These changes are attributed to external as well as internal causes.

Externally, many development organizations and projects have been advocating for improved access to markets for smallholder pastoralists as a means to reduce poverty. Accordingly, millions of dollars have been invested in infrastructure development, including market yards. Establishment and expansion of feedlots have been promoted as means to add value and link pastoral producers to end users. The importance of this sector for internal revenue and foreign currency earnings has also attracted the attention of the government. Internally, pastoralists' self-sufficiency from livestock products has declined and the need to supplement household food consumption with grain purchases has increased overtime. Additionally, pastoralists' consumption behavior has changed; most rely on purchased food grains rather than meat and milk from their livestock. Pastoralists' consumption needs have also increased to cover clothes, medication, children's education, and tax payments. Many pastoralists seem convinced that involving themselves in livestock marketing helps diversify their economy into other businesses and reduce their risk to climate variability. Repeated herd crashes due to drought have taught pastoralists to prepare to some degree by selling livestock during favorable seasons. Pastoralists have started investing in other sectors, such as constructing houses in major towns like Yabello, thus diversifying their economy. However, the growth of market centers and facilities has not benefited all livestock marketing actors equally: climate variability, gender, and wealth are a few of the determining factors of asymmetric benefit distribution. In addition to education and location from market centers, the operation of livestock trade in the Horn is also influenced by socio-cultural and ethnic relations.

Ethnicity and language

Social, cultural, and religious backgrounds play crucial roles in developing trust and promoting livestock trade in East Africa (Little and Mahmoud, 2005), and Borana livestock trade also relies partly on such social and ethnic relations. Social bonds are critical to establish horizontal

working relation as well as vertical business links. Establishing business partners is one area where the importance of ethnic relations was revealed in Borana livestock trade. Of thirteen traders interviewed that established new business partners in the last year, twelve were Oromo and their partners too, while the thirteenth and his business partner were from the Burji ethnic group. Additionally, eight of the traders reported having more than one partner, but from the same ethnic group. Religion also plays significant role in accessing markets, interacting with customers, and facilitating the transaction. Therefore, Muslim traders in Moyale established trading partner mostly with Muslims, while traders around Yabello established partnerships primarily with members of their own religion. Similar socio-cultural backgrounds also influence how frequently people interact and discuss their business through shared social gathering places.

Since transaction is negotiated face to face with a *dalala* (broker) as an intermediary, speaking the same language is very important. It was reported earlier that 77.6% of the livestock traders were Oromo, while 98.6% of all traders reported using Oromo language as primary language of communication in livestock trade (year 2 project report). A common language creates sense of mutual identity and helps to develop trust, allowing individuals to discuss and negotiate without barriers. Furthermore, easily understandable proverbs and sayings are used among people speaking the same language to convince each other in the transaction.

Education

Education is an important component of business success and helps develops entrepreneurial capacity. Lack of education limits opportunities and performance of traders in the livestock business. Most livestock traders in Borana are either elementary school dropouts or have never gone to school. However, livestock trade is no longer a localized business; it requires creativity and fast adjustment to the changing demand and supply conditions. This is evident from interviews with traders of different educational backgrounds, with educated traders generally better-positioned than illiterate traders. One informant explained that educated traders make their own market assessments that enable them to forecast demand and supply conditions. “If I need to enter into contractual agreement, I should be able to read and understand the content of the agreement. This requires some level of education,” said an informant. The importance of education is reiterated by uneducated traders as well. Education becomes more crucial as one moves up the value chain, where interactions with people of diverse back ground are required. Activities further along the value chain also require understanding export rules, taxation, and other legal requirements that involve paper work. Less educated traders may have to delegate paper work to educated agents, adding another level of cost to the transaction. Despite the importance of education, access to education is often constrained for pastoralists’ children by a number of factors, including distance to school, inability to send children to school, the need for child labor, and lack of awareness by many pastoral parents.

Overview of changes and traders’ adaptive strategies in the last year

Traders ensure the continuity of their business by searching for alternative sources for supplies as well as new destinations for sales, albeit local when the cross border or international livestock

trade excludes certain categories of animals. Uncertainties in demand from destinations, security conditions in the region, and local and international socio-political circumstances means traders are always seeking out alternative sources and outlet markets. For example, the main market outlet for old cows and castrated bulls from southern Ethiopia had been Kenyan markets, such as Nairobi. Pastoralists want to sell old cows that are less resistant to long dry seasons or drought because experience shows that they are the first to be eliminated during climate-induced vulnerability. Furthermore, prolonged dry season is characterized by foot-and-mouth disease (FMD) outbreaks that deter the animals from walking and eating until they eventually succumb to death. In the last three years, cross border livestock trade to Kenya had been declining due to conflict in northern Kenya, until it completely stopped a year ago. This has caused concerns among pastoralists while it poses a threat to the livelihoods of many traders working in this region.

Consequentially, traders have had to search for alternative market routes and destinations that opened new opportunities to pastoralists as well as traders, redirecting the flow of animals from Kenya to Ethiopia. Guji and Gedeo in southern Ethiopia have become important destinations where small-scale fattening takes place to supply local markets. Traders forge relations with farmers, sharing profits after deducting all the expenses incurred to get the animals to the 'fattening centers' of the farmers. The farmers feed the animals for a set amount of months and then resell them. Traders will use opportunistic price drops due to lack of demand for such animals to make a profit. When the finishing of the fattening coincides with major religious holidays like Ethiopian Easter, traders make high profits. These animals are supplied to local butcheries and hotels. Similarly, young bulls less than three years old are trekked to Guji and areas in northwest Borana, such as Galana, where they are exchanged for bulls (2:1), or sold for cash to agro pastoralists who keep the young bulls either as a means of building a family herd or making profit from the fattening process. The traders hire the same people to trek the exchanged bulls to Harobake market. Traders make profit from the exchange and eventual sales of the bulls to feedlot operators. These value chains are serving as alternatives to cross-border trade for animals that are excluded from Middle East and North African export markets. Currently, it is old female camels that are trekked to Moyale for which there is no demand in Ethiopia. These camels are mostly consumed in Moyale towns.

Source markets also expand or shrink based on demand from different destinations. Currently, traders have expanded their market shed to include areas like Goraye in the southern tip of Ethiopia and other territories beyond the border to source sheep and goats needed by export abattoirs (slaughterhouses). With the temporary disruption of cross border trade to Kenya, the Ethiopian traders expanded their market shed beyond the national border into Kenya mainly for export sheep and goats, and to some extent camels and bulls. Increased demand from the export market has motivated many small traders to expand their operational territory.

Supplying reproductive animals to local producers is another means of making profit for some innovative traders. One of the traders reported transporting young female camels from Karayu (a pastoral community near Adama in central Ethiopia) to Borana. The trader buys female camels for cash and exchanges them for 13-15 sheep in Borana. This trader is responding to the demand created in Borana where camels are becoming an important drought coping species by utilizing the ever increasing bushy vegetation. The recent surge in camel prices is another driving force for camel adoption by the Borana. However, this strategy is accessible only to wealthy

pastoralists since very few pastoralists can afford to shrink small stock herds by such a number just to have a single camel.

Establishing business partners is another strategy employed by traders to strengthen the weak sides of their business operation. For instance, traders who lack holding ground may establish partnerships with pastoral traders to get access to communal grazing land, while others establish partnership to expand their market shed and manage risks. Access to communal grazing land helps traders use opportunistic price fall and availability of feed on the rangeland to keep young animals on the communal grazing land for certain months, during which the animals gain weight with minimum management costs. Establishing business partnerships increases the traders' bargaining power and benefits traders in the livestock marketing value chain. They share responsibilities of managing the animals, costs, and benefits. This also allows access to more source and destination markets. This is one of many other strategies used by traders in the livestock trading business to fulfil the demand of buyers and maximize their own profits.

Diversifying business activities is another important occurrence among livestock traders. Since demand and supply fluctuates, traders need to seek alternative source of income. Hotel construction, shop keeping, farming, and operating flour mills are some of the businesses livestock traders have adopted or expanded in recent years. A diversified economy opens new employment opportunities for young and less educated pastoral children, which has contributed to outmigration from resource scarce pastoral production. These business sectors are also important for maintaining livestock marketing activities by providing services to market actors and generating finance that can be used in livestock marketing. For example, the expansion of hotels creates opportunities for more consumption of livestock products in the local markets (see Figure 1). Shifting the business from one category of animal to the other is also observed, and is based on financial capacity of the trader, expected profit margin, and presumed market risks.

Figure 1. Open butchery at Harobake livestock market.

Responding to seasonality of weather and prices is another timely adjustment made by the traders. Small traders that buy and sell immediately prefer seasons when demand from the destination market is high. If they are forced to keep the animals for longer periods than they are

expected, these small traders prefer the wet season to reduce feeding costs. Animal feed and working capital are limiting factors to keeping the animals for long periods. However, big traders who buy and feed the animals for a certain period of time prefer to buy from January to March because of feed scarcity in Borana and deteriorated body conditions of the animals that substantially reduce the prices. This period also coincides with the dry season in Adama, making feedlot management easy. The other preferred purchasing season lies during July to August in preparation for the Ramadan fasting season. In summary, the preferred purchasing season depends on the trader's mode of operation, weather conditions, type of livestock, and the seasonality of demand in the destination market.

The openings of Middle East markets have also influenced the management practices of pastoralists. For instance, importers from the Middle East mainly buy bulls between 3 to 7 years of age and exclude castrates of any age. In response to this demand many pastoralists and pastoralist traders said that they have abandoned castrating bulls. Before the opening of Middle East markets, Nairobi was the main livestock market for the Horn of Africa, which mainly buys fat castrates. As discussed earlier, cross border to Kenya has declined significantly. Furthermore, traders and pastoralists alike argue that castrating bulls at an early age impacts growth (size) and affects the demand and price it fetches. Therefore, it is more economical for the producers to sell bulls rather than castrate them. Castrating bulls increase management costs by extending the feeding period until the bulls qualify for the local butchery. First round CHAINS household survey data show that only 6.43% of the respondents own one or more castrates in the family herd, as opposed to 70% of respondents owning one or more uncastrated bulls.

Despite the complaint of declining livestock exports during the last Ethiopian fiscal year, some traders have increased the volume of their business transactions, their area of operation, and the number of agents with whom they work. For instance, trader no.1 (HK) expanded his supply markets to bush markets previously considered inaccessible and sourced young camels from Karayu. He also increased his number of agents from 28 to 48 during our field work in February 2014. Many of the agents are young pastoral traders based in different pastoral settlements that collect and assemble shoats. About 80% of his agents are based in remote pastoral settlements.HK gives a weighing scale and initial capital to the agents who travel within the pastoral settlement and collect the animals. According to HK, a higher proportion of the finance is from the agents themselves, which they are paid back after the animals are sold to abattoirs. In addition to expanding their market sheds, some traders have purchased medium level trucks, initiated hotel constructions in Yabello towns, or purchased 4wd pick-ups to travel from market to market. Other traders have abandoned the business, citing different causes ranging from exorbitant taxation to falling demand. In some cases, traders have gone bankrupt due to credit selling.

Expanding market shed: Dynamics and challenges

Increased demand for shoats and the relative ease of participating in small livestock trade has attracted many young traders to the sector. This increased competition among small traders has forced many of them to search for new source markets, expand their market shed, and diversify source markets. In addition to expanding the market shed to new territories, transactions now

take place at water points, in old and newly established bush markets, as well as in the pastoral settlements. This reduces transaction costs for both the buyer and seller. The seller benefits from reduced travel costs and is spared from trekking the animals to distant market centers. Pastoralists also worry about the deterioration of animal quality during long distance trekking, particularly during dry seasons. Demand for emaciated livestock is of course lower and selling prices are reduced. In addition, trekking unsold animals back home is an additional cost for the seller. The expansion of markets to water points and settlements is considered a solution to these problems. The buyer benefits from tax evasion and reduced buying prices. Small traders traveling to distant markets face less competition, at certain locations there may be a single buyer who decides the price of the animals. Of course, pastoralists are still free to sell or trek to other big markets.

During the dry season the need for cash increases for pastoralists to buy food for the household. This coincides with the season when animal feed is scarce, internal and external parasites damage the quality of the animals, and consequentially demand and prices fall while supply increases sharply. Since the household members must get food, pastoralists accept whatever price is offered. One of the pastoralists explained the need to sell the animals as, “the stomach does not give me time - I must eat and to get the food I must sell livestock.” “There are many other payments that are not invoiced for. To pay these, we sell cattle like we used to sell chicken”, says another respondent. This is an opportunity to many of the small traders to assemble the number of animals they need. These informal livestock markets are vulnerable to disruption; their remote locations make it difficult to transport animal feed or to transport the weak animals from these places to other markets. The markets are further disrupted by climate-induced vulnerabilities like severe droughts.

At most of the water points there are other supplemental activities, such as selling soap, sugar, tea leaves, soft drinks, etc. Individual traders initiate selling items most frequently used by pastoralists under tree shades or open space. After a while the necessity of storing items and avoiding frequent travel between the water points and settlement encourages the individuals to construct shops, tea rooms etc. This is observed at many of the water points, whether the water points are motorized water supply or traditional deep *tula* wells. Historically, establishment of markets at water points is known for attracting more settlements, such as the settlements that have grown into urban centers in Borana.

Change regarding cross-border livestock trade

Cross border livestock trade has been vital for pastoralists and traders living on the borderlands of southern Ethiopia and northern Kenya. Due to its importance, cross border livestock trade has attracted the attention of researchers (Little, 2003: Little and Mohamed, 2005) and has been under constant monitoring and surveillance by the governments for decades. This cross border trade has never been static; therefore, we tried to understand the dynamics of cross-border livestock trade in the past one year. The main changes reported were changes in the direction of animal flow and relaxation of border control by respective governments, specifically Ethiopia. During the first round of traders’ interviews, the direction of animal flow was selective; mutually exclusive categories of animals were traded in opposite directions. Accordingly, fat castrated bulls and cows as well as young bulls less than 3 years of age were trekked from southern

Ethiopia to Kenya. On the other hand, bulls between 3 and 7 years of age, male camels, and young male goats and sheep were trekked from Kenya to Ethiopia. However, during the second round of interviews it was revealed that trekking animals to Kenya had stopped and unidirectional movement to Ethiopia was reported by traders and pastoralists alike. Most of the animals crossing the border to Ethiopia soon enter the formal export channel to the Middle East (Little et al., forthcoming). This trade direction supplements the country's livestock marketing activities by supplying the livestock categories needed in formal trade. However, there are legal and security challenges until the animals enter the formal channel; informal cross border trade is often disrupted by conflict and insecurity, changing dynamically as the situations dictates.

From our interviews with traders, 20.75% of our respondents said that cross border livestock trade changed in the last one year while another 20.75% said there was no change. Other traders who did not respond 'yes' or 'no' lack information on the status of cross border trade because they operate around Yabello and Dubuluq, which are far from the border. Conflict and subsequent decline in demand and prices on the Kenyan side were the main causes of changes in the direction of animal flow.

The change in the direction of animal flow means many Ethiopian traders buy animals coming from across the border both from Moyale and Goraye areas. For instance, 52.8% of our respondents replied 'yes' to the question 'have you bought animals that originate from Moyale in the last one year', while 47.2% replied 'no'. Only a small proportion (5.7%) of our respondents operating around the border said that the animals were from Ethiopia. About 17% of respondents said that the animals were from Kenya, whereas 30.2% of the respondents said the animals were from Kenya as well as Ethiopia. A majority of the respondents buying the animals from Moyale (60%) said that they buy male animals (cattle, camels and shoats). It was also clear from the qualitative interviews that most of the animals coming from Kenya to Ethiopia are for live export via Adama or destined for export abattoirs based in Modjo/Bushoftu.

Even though government control of cross border livestock trade is said to have been relaxed in the last couple of years, there is no official approval of the activity. As a result, it still operates informally and is considered illegal by government officials. This means actors have to undertake a risky business trekking the animals through less secure regions with long value chains. As a result, transaction costs increase, final selling prices are inflated, and there are less benefits to producers due to the longer value chain.

There are a number of reasons why cross border livestock trade is important for people straddling international borders: geographical proximity, reduced bureaucracy in the absence of a documentation process to cross the border, and avoidance of tariff barriers and formal currency exchange that is often in short supply or non-existent at all. Most traders involved in cross border livestock trade in Borana are illiterate pastoralists who do not appreciate the documentations required for formal trade. They also lack the required education, and at best avoid the formal channel altogether.

A current concern of Ethiopian officials and some traders based in Adama is not cross border trade with Kenya, but with the Somali republic. According to our sources, most young animals that are banned from the formal export channel leave the country via Togo Wuch'ale and other border towns in eastern Ethiopia. According to informants from Adama, this cross border trade

has multiple impacts: it depletes the young animals without any value addition, the country loses foreign currency earnings, and it competes for the same destination market. This concern is reiterated by some government officials.

Challenges

Livestock marketing value chains from Borana to different destination markets operate under multiple challenges. Some of the challenges were reported in earlier research, but they have continued to pose threats to livestock marketing value chains in the last year.

Informal Credit operation

Livestock marketing value chains from Borana to the Middle East partly operate on credit. The source of credit varies from pastoral sellers, to advances transferred from Arab importers, to Ethiopian feedlot operators' bank accounts. However, the easiest and most inexpensive sources of credit are traders in the lower level of the value chain. Credit taken from traders in the lower level of the value chain is cheap and bears less accountability. It lacks legally binding and enforceable contractual agreements, and does not involve formalities such as paper work and collateral requirements. The transaction is based on trust rather than a formally written agreement; therefore it threatens the business operation of many small traders. An informant explained the dilemma of credit operation as, "if I ignore credit selling, I do not sell, if I sell on credit, I will not get the money. What can I do?" (BH, interviewed at Harobake market, November 10, 2013).

On the other hand, competition among many small traders is said to have exposed the sellers to credit risks. Many of the traders say that they cannot refuse credit selling because the buyers have many options (i.e. buying from other competitors), so traders know it is risky but continue to sell on credit. During the second round of interviews, 82.7% of traders reported selling on credit while 35.8% reported buying on credit. From the credit sellers, 62.8% have encountered default, the amount ranging from 960 to 2 million birr with a mean amount of 311,709 birr (see Table 1). Of concern is our finding that the percentage of traders buying as well as selling on credit has increased since the first round of interviews. The percentage of traders who have encountered default also increased from 39.5% during the first round of interviews to 62.8% during the second round.

Table 1. Credit defaulters, amount (birr) in the second round of interviews

	N	Minimum	Maximum	Mean	Std. Deviation
Amount lost (in Birrs)	27	960	2000000	311709.3	545477
Times defaulted	27	1	6	1.2	0.97
Number of defaulters	27	1	5	1.3	0.92

The defaulters are based in Adama, Addis Ababa, Moyale, Yabello, and other towns. Unlike small scale operators of Moyale traders, the Adama traders owe Borana traders hundreds of thousands of birr. The risk of credit operation may vary by the species of animals the trader sells. For instance, key informants say that cattle trade is riskier because the bulls stay in the feedlot for more than 90 days. The more the credit money stays with the buyer, the riskier it is. On the other hand, camel traders are few in number but have the finance to run the business and ask for credit less frequently than cattle traders. According to one informant, the stay of camels in Adama is also short, so traders are more likely to have their money quickly returned. Another informant claims that he shifted from cattle to camel trade as a means of avoiding credit selling. Recovering credit money from export abattoirs is also relatively easy; however, suppliers to abattoirs may create problems for small traders.

Lack of formal financial institutions, inability to fulfil bank collateral requirements, lack of awareness, fear of the legal consequences of borrowing from banks, and easy access to informal sources of credit from small traders are a few of the factors that lead to informal credit transactions. Since informal credit sources are vital for the operation of livestock marketing value chains, developing legally binding contractual agreements that benefit both parties is crucial. The contractual agreement must specify duties and responsibilities of both parties, type of animals, age group, and timeframe for collection and transportation, payment procedures, permanent addresses of parties entering the contract, and consequences of failing to fulfill the commitments entered into the contract. This may reduce uncertainty for small traders while it ensures the supply for big traders.[1] Moreover, facilitating the provision of finances from formal financial institutions to value chain actors and creating a mechanism for holding defaulters accountable are important measures that need to be taken for the smooth operation of the livestock marketing value chain. Finally, awareness creation among the small traders regarding the requirement and importance of contractual agreement and legal procedures is important.

Conflict

The Horn of Africa triangle, an area that connects Ethiopia, Somalia, and Kenya, is one of the conflict-prone areas in the region. There have been cases when minor disagreements have led to escalations of conflict. Rebuilding peaceful co-existence and business operation after every conflict takes a long time, and the precarious peace negotiations in most cases deteriorate again with the occurrence of another conflict. In the last year alone, at least three main ethnic conflicts hit the region, disrupting the operation of livestock marketing, albeit temporarily. Free movement of people and animals from the opposing ethnic groups were restricted during and after the conflict. Conflict causes disruption of market routes, constrains movement of people and livestock, increases insecurity, and halts traders from traveling to the markets. These conflicts sent shockwaves across the region, increasing suspicions among the members of different ethnic groups and among different communities straddling the international border that often rely on cross border livestock trade.

[1] This suggestion requires further study and probably training for traders and pastoralists (awareness creation regarding the need for contractual agreement, legal rights and enforcement procedures, etc.).

Pastoralists in this region rely on cross border livestock trade, despite the frequent changes in the direction of animal flow. However, conflict deters movement in any direction, affecting the livelihoods of pastoralists and many other market actors, including traders, brokers, transporters, laborers, etc. This has been the case in northern Kenya and southern Ethiopia due to the ethnic conflict between Gabra and Borana. Local traders agree that the conflict substantially reduced the number of shoats crossing into Ethiopia for eventual export. During our visit to Goraye in 2013 and 2014, traders said that the conflict created a shortage of exportable small livestock and they could not fulfil exporters' demand. This was because few traders who forged relations with Gabra on the Kenyan side could cross the border and buy goats/sheep. Those traders who have been crossing the border carry limited amounts of money for security reasons and hence buy few animals. The conflict also disrupted cross border livestock trade to Kenya for castrates and old cows. This would have been disastrous to pastoralists had it been a drought year when resource sharing across the border and cross border trade become indispensable.

Even though negotiation and resource sharing have been part of the pastoralists' risk management strategy, sporadic conflicts have disrupted the resource sharing agreements. A pastoralist explains the impact of conflict as: "it is disruption of everything. You abandon farmland, no access to grazing and water points. It kills people. It disrupts movement and trade. It is source of starvation. It increases suspicion and mistrust among interdependent communities and individuals." Benefits pastoralists could reap from favorable weather in the last two years have also been partly thwarted by conflicts in the Middle East and North Africa that have affected the overall livestock and export livestock performances in Ethiopia.

Additionally, there is a grazing conflict that occurs among pastoralists or pastoralists and traders. During the second round of interviews with traders we tried to understand the status and frequency of conflict on grazing land. From the interviews, 30.2% of the traders reported encountering conflict over grazing land. Since most of the traders rely on communal grazing for the market animals, it is common to encounter resource conflict with pastoralists living around major markets or on the trekking routes to major markets.

Unpredictable demand

Despite traders' effort to adjust to the dynamics of livestock marketing value chains, they still face many challenges, including demand and price fluctuations. Data from the Institute of Meat and Dairy Technology show that the Ethiopian export for bulls and beef declined in the last two Ethiopian fiscal years. While experts from the institute present illegal cross border trade as the main cause of decline, traders in Borana argue that the decline is mainly due to the increased competition from other countries like India, Pakistan, and Kenya.

Furthermore, rising prices of Borana bulls is cited as a contributing factor for some Arab importers to shift to other countries. There are a number of reasons for the increased prices: long value chains, inappropriate and expensive transport systems, expensive feed and feeding system in the feedlots, among others. The use of small and medium trucks inflates the cost of transport per animal. As trucks may not find goods for return trips, transporters usually charge traders for the round trip. The opening of feedlots at Matahara (east of Adama town) also increased the distance from Borana to feedlots, and thus the cost of transport. Poorly repaired road networks also contributes to the inflation of transport cost. Low education levels among the traders was

mentioned as another contributing factor, contributing to unsystematic feedlot management hence increasing the cost of operation which creates higher selling prices. Double or triple taxation also plays its role in inflating the price. Trekking the bulls from one market to another and paying herders until the animal is sold increases management cost. Brokerage fees and labour constitute other costs involved in livestock marketing.

Earlier studies point to the nature of market organization, weak local market institutions, and poor infrastructural development and service provision at the market as impeding factors that impact livestock prices received by producers (Barrett et al., 2006:74). The increased costs along the value chain reduce Ethiopian exporters' competitiveness in the international market. The meat prices in the country also create a misperception among traders; although butcheries in Ethiopia slaughter old and fat animals that are not needed for export, the meat prices are extraordinarily expensive. One of the traders claimed, "There are times when meat prices are the same at Cairo and Harobake (Yabello) markets." Many traders failed to mention an important point: quality of the animals. The problem is that price in Ethiopia is less responsive to quality. Regarding competition in the international market, Ethiopia could have benefited from the organic nature of the product. However, as another respondent remarked, the limited promotion of the Borana bulls in the international market has limited the possibility of penetrating other markets. No action has been taken to improve the quality and increase competiveness of the Borana livestock in the international market. However, one of the exporters did stress this as a major problem.

Weather conditions in Borana have a significant impact on pastoralists' bargaining power and selling prices at source markets, which in turn impact the selling prices at the destination market. Feedlot operators prefer buying bulls during feed shortages in Borana when pastoralists have a limited ability to negotiate. On the other hand, buying fat animals that do not gain much weight during the three months stay in the feedlot is considered a loss for the feedlot operators. Therefore, feedlot operators prefer to buy slim but healthy animals that can gain weight during the feeding process. However, weather conditions in Borana have been favorable in the last two years, meaning pastoralists have been less compelled to accept low prices. There was also not a major price drop at source markets due to climate variability. When buying prices remain high it may necessitate other means of reducing operational costs, such as shortening the feeding period. Interestingly, many feedlot operators have not shown efforts to reduce their operational and transaction costs. They generally operate in a similar manner and incur similar costs. As a result, feedlot operators focus on utilizing opportunities created by climatic variability that reduce pastoralists' bargaining power; there are very few feedlot operators who adjust their operation as the situation compels them. Additional costs incurred by feedlot operators include rejection of some animals from export, vaccinations, medication, and transporting water. There are also the initial investment costs of establishing the feedlot facilities: fences, storage, water and electric system installations, etc.

Shifting demand across species and age groups within the same species is another challenge faced by many traders, especially small traders like those in Borana. When the demand shifts away from one category of animal, a large trader who ordered a livestock assemblage may not receive the animals, because the transaction is based either on verbal agreement or mobile communication without binding contractual agreement. Once their limited working capital is tied up with the animals from which the demand shifted away; traders either sell on credit to avoid

feeding and management costs, or stay out of business as access to formal financial source requires a guarantor or collateral. Even though many traders prefer informal trading due to less bureaucracy, the risk associated with informal transactions creates categories of people who are always at risk, who are less affected by risk, or who benefit from the operation.

Tax

Livestock marketing generates a considerable amount of taxes, which in turn provokes complaints from traders for various reasons. On the one hand, the complaints emanate from a lack of understanding regarding the importance of paying taxes. Only few traders acknowledged that the tax money can be used to develop infrastructure needed for improving livestock marketing. On the other hand, lack of uniformity regarding taxation procedures, amount paid, and implementation anomalies have contributed to the negative attitude developed by traders towards tax and tax officials. As a result, taxation is considered a constraint to livestock marketing. This concern varies for feedlot operators in Adama and small traders in Borana.

The Adama feedlot operators are concerned about value-added tax (VAT) and the need to install a cash registry. Feedlot operators supplying the local butchers are expected to collect 15% VAT of their sales, which they argue forces local butchers to buy from unlicensed traders who are not registered and cannot be traced by tax officials (MT, Adama 2014). Feedlot operators exporting bulls are exempt from the VAT, but obliged to pay income tax. According to informants, VAT requirements are forcing some local traders out of the business. In addition, operating the cash registry requires a certain level of education that many of the feedlot operators lack, which forces them to employ accountants.

The concern of small traders in Borana is not the requirement of the VAT, but repeated taxation on unsold animals incurred by trekking the same unsold animal again to the same market or to different markets in the same zone. The amount of tax per animal varies from market to market, and trekking to different markets means paying tax for each market visit. Pastoralists also complain about paying taxes on unsold animal. Some pastoralists reported borrowing money to pay taxes. One of the pastoralists explains the problem as, “you take the animal to solve your problem. When the animal is not sold, you borrow money to pay tax. Therefore, you come home with additional problem.”

For the tax collectors, there is no uniformity regarding the amount collected and who should pay. For instance, there are different amounts paid in different markets in Borana. In some of the markets, individuals can negotiate to be spared from taxation on unsold animal, while it is a must at other places. This may require tax officials to assess the problem and issue regulations that benefit the producers and traders, while still generating the required amount of taxes from the sector.

Livestock marketing constraints

Every pastoralist and trader interviewed agreed that access to livestock markets has increased. Pastoralists agree that they have increased their offtake rate in the last few years, yet the market

is not to their highest satisfaction. During our second round survey, we asked pastoralists to rate the primary constraints they face in selling livestock. Accordingly, the majority (77.6%) rated low prices as the major constraint they face in selling livestock (Table 2). In addition to falling livestock prices, fluctuations of demand and prices are said to have constrained livestock marketing. Distance to market centers is another major constraint pastoralists listed, as well as high taxation, low demand, and lack of transportation.

Table 2. Constraints faced by respondents in selling livestock

Constraints	Frequency	Valid Percent	Cumulative Percent
Low price	97	77.6	77.6
Markets are distant	18	14.4	92
Low demand	2	1.6	93.6
High taxation	1	0.8	94.4
Transport constraint	3	2.4	96.8
Labor Shortage	1	0.8	97.6
No problem	3	2.4	100
Total	125	100	

Adama traders interviewed in October 2014 agreed that there is fluctuation in demand and supply. However, they do not agree with the claim of dropping prices by pastoralists. These traders said that there were cases of demand rising sharply and hiking prices temporarily that does not reflect the general trend of livestock prices. Unfortunately, such unusual price hiking is used as standard by pastoralists to gauge subsequent prices because they expect linear increments, not fluctuations. As one trader explained, this is not always the case in a globalized world. Furthermore, traders in Adama say that livestock price increases in Borana are not the result of increased demand at destination, but a sign of supply scarcity. Supply is influenced by family cash needs, climate variability, and availability of marketable animal and animal feed. As pastoralists' primary production objective is not the market, there is not a sustainable supply of livestock.

Facilities/Inputs

Smooth operation of livestock marketing value chains depends on the availability of facilities and inputs along different levels of the value chain. Full access to and utilization of these resources, however, is often far from reality. In the following section, I will present some of the important facilities and inputs used by Borana livestock marketing value chain actors, and the constraints they face in accessing these resources.

Feedlot, Animal holding ground, and grazing lands

High prevalence of contagious diseases like FMD and the 'disease free zone' concept have been major barriers to African producers. The alternative approach was what is known as the

'commodity based approach' (Rich et al, 2009), which focuses on how the product was produced rather than the region where it is produced. It was on the basis of this latter approach that feedlots have been established to prepare Ethiopian livestock for export, with partial traceability and certification. This approach increased Ethiopia's access to Middle Eastern markets, enhancing livestock offtake from pastoral areas. However, this approach is less reliable, as evidenced by the uncertainties posed by importing countries, such as the recent undeclared ban of camel imports from the Horn of Africa by the Saudi government. Despite these constraints, the feedlot approach remains as the main gateway to Middle Eastern markets, at least for the coming couple of years. Traders are now requesting for another facility, animal holding grounds, as the main link to the feedlots. Even though many traders consider feedlots as animal holding ground, others believe that there is a need to have a separate place where they can keep the animals while arranging transport or which they can use to facilitate recovery from climate-induced shocks.[2]

Ownership of animal holding grounds located closer to major markets is significant to the business operations of traders, reducing transaction costs they could incur while arranging transportation to Adama. During climate-induced vulnerability, traders owning animal holding grounds have better chances of transporting animal feed and facilitate recovery. Despite this importance, only 24.5% of our respondents reported owning animal holding grounds. The size of the holding grounds varies from 0.04 to 10 ha. The smallest size is a residential compound that small traders consider as a holding ground, while the largest refers to leased or appropriated land from communal grazing land. Many of these holding grounds are places where the animals stay during the night and are released to communal grazing land, private pasture reserve, or leased pasture reserve during the day.

In addition to animal holding ground, animal feed is another major input for livestock marketing value chains. Since commercialized livestock feed is expensive and in short supply, traders have to find their own ways of tackling this challenge. Of the traders surveyed, 86% responded they use communal grazing land as a source of feed for the marketing animals. Therefore, availability of pasture on communal grazing land remains vital for livestock marketing activities and attachment of traders to pastoral areas as well. Many of the traders also undertake pastoralism, a means that also allow them access to communal grazing land. The majority of our respondents (88.75%) practice pastoralism that makes their access to communal grazing easier. Some of the traders are very rich pastoralists, owning hundreds of cattle. In addition, 8 of them own male camel, while 14 reported owning female camel. The majority (41 of the 47) of pastoral traders own female cattle and 37 of them own bulls of varying number, from 1 to 100. The mean bull and female cattle ownership of traders is 11 and 28, respectively. This is what a pastoralist in the middle wealth group claims to have.

Some traders have their own pasture reserve while others lease the use right of the reserved pasture or rely on crop residue, either purchased or from their own family farm. Of the traders surveyed, 34% reported owning their own kalo, while 47.2% said they have leased grazing land

[2] During the first year, animal holding grounds and feedlots were used interchangeably. In this report, animal holding grounds are treated separately due to repeated requests from traders in Borana to have their own animal holding ground that may not fulfill the requirement for feedlot, but can be used as a place where the animals are kept temporarily.

from private owners. The amount of money paid for the leased grazing land varied from 200 to 13,400 birr, and mean value of 2,872 birr. About 50% of traders who own private kalo are small traders who combine farming, pastoralism and livestock trade. Most of the kalo have been established in the last 15 years. Only 7.5% of the respondents reported having *kalo* prior to 2000, and 55.5% of them reported establishing the *kalo* after 2007. Traders were also asked to report the use of *kalo*; about 33% of them said that they use the *kalo* to graze marketing animals, while 28% said that they use it for family herds as well as marketing animals (see Table 3). Household surveys also showed that there are few households (8.66%) owning private *kalo* while 96.7% of the household reported having *kalo* at the community level. The main use of communal *kalo* is for family herds that cannot move far away in search of pasture. However, the trend is changing; all of the family herds are concentrated in *kalo* during severe droughts, depleting the resource and often causing overgrazing. The size of communal kalo also varies from community to community.

Figures 2A and B. Figure 2A is community *kalo* and Figure 2B is private *kalo*. *Kalo* at the community level is large in size, often covering hundreds of hectares, while private *kalo* is small in size and fenced to protect crops from animals. Land outside the fence is for communal grazing.

Shortage of animal feed can be a critical issue around major market centers and along trekking routes. The communal grazing lands around major markets like Harobake and Dubuluq have been sources of grass for marketing animals. A deviation in normal patterns creates scarcity and prompt use of other means to help the animal survive, such as leasing private kalo. However, pasture land from private owners for lease is also in short supply. If trucking arrangement takes a long time, traders move the bulls far into the pastoral areas where they can lease kalo or negotiate access to communal grazing land. Some traders complain that this weakens the bulls and further delays transportation to Adama.

Table 3. Current use of kalo

Used	Frequency	Percent	Cumulative Percent
For family herd	5	27.8	27.8
For marketing animals	6	33.3	61.1
Both	5	27.8	88.9
Others	2	11.1	100
Total	18	100	

During group discussion with informants in mid-2014, many traders and pastoralists described scarcity of animal feed as one of the major problems they face. Despite recognizing the widespread problem of animal feed scarcity, traders and pastoralists were not taking any proactive measure. Only a few traders mentioned that they were watchful of the situation and prepared to act if needed, either to stop buying animals or transport hay as usual. A few traders owning family herds also said that they have started selling some of the animals as a precautionary measure to reduce the number of animals that require feeding[3]. Most pastoralists we talked to say that they were not selling the animals with the anticipation of drought. According to these informants, they knew that animal feed was in short supply; however, they were waiting for what the future brings rather than taking individual actions.

Animal feed production in pastoralist areas is constrained by multiple factors: increased bush encroachment, expansion of settlement, expansion of farm land and private grazing land, land and soil degradation, increased invasion of other less palatable species, and shortage of rain.
Currently, animal feed is in short supply throughout Ethiopia. This shortage has sparked a price hike in the country. Informants agree that demand of animal feed has increased in the last five years while production has stagnated, inflating prices. This feed price is reflected in every livestock product, including milk and milk products. Not only is there scarcity of supply, but the dominant feed lacks in quality and important nutrients (SB, April 2014). Earlier reports confirm that the cost of animal feed is the main challenge to Ethiopian livestock marketing that reduces the country's competitiveness in the Middle Eastern markets (Rich et al., 2009). This study estimates the feed cost to be between 33-42% of the breakeven value of the final product, making the sector as less competitive.

[3] An informant told me that he sold six family herds and will sell all the rest before the worst comes. This trader said, "*akaayiin lama hingubattu,"* literally meaning you do not roast the same grain twice, meaning, he will not repeat the mistake he made during the 2011 drought in which he lost about 180 cattle.

Some traders are considering establishing ranches in the lowland areas as an alternative to the hiking feed prices in the highlands. One of the traders explains the importance of transforming the Ethiopian livestock sector through ranches as:

> If ranch is allowed, we will improve the production, increase country's foreign currency earning and increase destocking prior to drought that saves thousands of pastoral herds. We now deal with remnants of drought, cattle that stunted and require long period of feeding and treatment in the feedlot. This increased operational costs of the feedlot operators and hence selling prices. The ranch can provide selected heifers to pastoralists as well. On the other hand, we are competing with dairy producers for the scarce livestock feed. This impacted on the milk supply as well as prices. Most of the children are growing without drinking milk. As a result, their growth is abnormal. You can see how thin and weak our children look like (SB, April 2014).

Despite this ambitious proposal, the lowland communal grazing land is already dwindling due to private cultivation, land degradation, soil erosion, bush encroachment, and overgrazing. Under the current conditions, slicing more land from communal use is a dangerous move for the pastoralists. The ambitious traders however, suggest that a holistic approach to environmental management can improve the quantity and quality of available water and pasture resources that can accommodate the interests of traders and pastoralists.

Some traders openly criticize the intention of the government to expand livestock export without improving production, including improved animal feed. A trader says, "Our government wants to export animal it does produce" (MT, Adama, 2014). Improving production by improving quantity and quality of animal feed is therefore vital. Tackling animal diseases is equally important in improving production.

Animal disease

Improving Ethiopian livestock production and its acceptance on the international market requires sound livestock health services and control of major and prevalent diseases. Despite the increased access to veterinary drugs by pastoralists, the quality and type they need is still limited. There are few young veterinarians in Yabello diagnostic laboratory, but these young professionals lack the resources (finances, vehicles, etc.) to travel in pastoral areas and assist pastoralists. In Borana, pastoralists purchase drugs like any other commodity and inject sick animals without any clinical examination of the disease. The same drug is used to treat different diseases because there is no professional veterinarian prescribing the drugs. Furthermore, the drugs are stored without proper handling precautions. About 94% of pastoralist respondents had bought veterinary drugs during the one-year period between the two rounds of interviews. Of the households interviewed, 92% bought drugs for tick removal, while 18% bought drugs for treating trypanosomiasis. Although pastoralists agree that many of the diseases have been controlled in the last three decades, there are many other diseases that need more attentions.

The seriousness of these diseases is evidenced by death reports from respondents. For instance, 44.9% of households and 54.7% of traders lost one or more animals between the first and second

round interviews. Shoats account for 61% of the loss for pastoralists, while cattle and camels account for 24.7% and 12.3% respectively. Pastoralists say that *sirgo* (coenuruses) is the main causes of death among the goats. Accordingly, 34% of the deaths were reported to have been caused by *sirgo* (coenuruses), followed by *sombessa* (contagious bovine/caprine pleuropneumonia) and *qandho* (fever), each accounting for 10% of the deaths. Information from key informants, however, describes FMD as the main constraint the pastoralists face, particularly during dry seasons. This disease prevents the victim from being trekked to water and pasture points or market centers. Earlier research identified FMD as the main barrier to livestock marketing in Africa (Rufael et al, 2008).

Transport

Type and availability of transport plays a significant role in livestock marketing value chains. To move from the source market in Borana to Adama, trekking on foot, trucking, or a combination of the two are used. The maximum trucking distance was reported to be 700 km, while the maximum trekking distance reported was 240 km. Both means of transport have their own advantages and disadvantages. The cost per head varies from 3 birr for short distance trekking to 350 birr for long distance trucking. Although more expensive, trucking helps to get the animal to the destination quickly and reduces the energy demand placed on the animals. The main challenge is finding appropriate trucks to transport the animals, as availability of trucks is limited. Arranging for transportation from Borana to Adama may take weeks. This increases management costs, particularly during dry seasons when animal feed is scarce.

Trekking is cheaper and does not require waiting for a long time to arrange transportation. Trekkers are always available and start trekking soon after livestock purchase and assemblage. The animals also arrive at the destination together, unlike using a series of trucks that may be weeks apart from one another. The disadvantages are that the animals lose body weight and the overall time it takes to arrive at the destination is greater. This means working capital is tied up during the transportation and recovery process. Selection of trekking route and trekker are important in livestock trading. The trekker is required to feed the animals on the trekking route. Communal grazing land is used along the trekking routes and around the major markets until they are sold, depending on the demand and price conditions. As a means to get access to the communal grazing land on the way to market and after arrival, traders hire trekkers mostly from the destination or from the region crossed on the way to the next market place.

Livestock marketing

In the last couple of years, there has been strong conviction that increased access to livestock markets reduces poverty (Little et al, 2010). The demand for livestock products also increased in the last couple of years due to urbanization, population growth, opening of Middle East markets, and increased income level (UAIID-Ethiopia, 2013). The increased demand seems welcomed by pastoralist producers by supplying the required livestock to the market. In our second round survey, we tried to understand the involvement of pastoralists in livestock marketing. Accordingly, 81% of our respondents reported selling at least one animal during 1 year period

preceding the interview while 18% bought one or more animals during the same period. More pastoralists participated in selling than buying. During this period, 338 sales were reported, cattle sale accounting for about 46.5% and shoats for about 46.4%. Camels account for 3.8% of the sales (Table 4). Contrary to 3.8% of the sale, camel purchase constitutes 8.8% of the total purchase of pastoralists during the same period, probably indication of pastoralists' inclination to increase the proportion of camels in the herd. The purchase also targeted relatively young animals. Sales are higher during dry season (December to March). Majority of the purchase was from producers while the sale was more diverse. Buyers include *dalala*, local traders, and exporters. Pastoralists sell animals to fulfill their household consumption needs: including purchase of food for the family (51.6%) clothes (23.6%), medication (7.8%), and children education. Earlier research works in the region also reported similar reasons why pastoralists sell livestock (see Barrett et al. 2006).The purchase was mainly for breeding (67.6%). Trading constitutes 17.6% of the purchase (Table 5).

Table 4. Types of animal sold since last interview (by species)

Type Sold	Frequency	Percent	Cumulative Percent
Male Camels	10	3	3
Female Camels	3	0.9	3.8
Bull Cattle	60	17.8	21.6
Ox	24	7.1	28.7
Cows	70	20.7	49.4
Heifer	13	3.8	53.3
Goats	92	27.2	80.5
Sheep	65	19.2	99.7
Donkey	1	0.3	100
Total	338	100	

Table 5. Reason for purchasing the animal

Reason	Frequency	Percent	Cumulative Percent
Breeding	23	67.6	67.6
Milk	2	5.9	73.5
Trading	6	17.6	91.2
Transporting goods	3	8.8	100
Total	34	100	

There is a difference in reporting between pastoralist sellers and traders regarding prices. For instance, pastoralists reported a minimum price for heifers to be 400 birr, while the same was reported as 2,500 birr by traders. Similarly, the minimum price reported by pastoralists for bulls was 1,800 birr (Table 6), while traders reported buying the same for 2,250 birr (Table 7). Even though this may not reflect actual price differences, a number of factors may contribute to differences in reporting. Fist, traders tend to overestimate the buying prices. Similarly, pastoralists may underreport the selling prices. The presence of other actors between traders and pastoralists also inflates the price at which traders buy.

Table 6. Livestock sold and prices received in the last one year (in birr)

Type of animal	N	Minimum	Maximum	Mean	Std. Deviation
Bulls	57	1800	9000	4741	1996
Cows	70	500	8000	3238	1620
Oxen	24	1800	8200	4834	2068
Heifers	13	400	4000	2053	931
Male camels	10	5000	17000	8900	4408
Female camels	3	3000	12850	6283	5687
Goats	92	80	1400	434	192
Sheep	64	200	1020	438	140

Source: CHAINS Household Survey, 2014.

Traders reported a 7% growth in profits for bulls between 3-6 years old, slightly greater profit than reported in the first round of interviews. Goat traders also reported approximately 7% profit during the second round of interviews (Table 7). The slight increase in profits may be due to reporting bias among traders, being more suspicious of the research during the first round of interviews and later developing more confidence in researchers to keep information confidential from government officials.

Table 7. Average prices paid and received by traders during the 6 months operation period

Type of Animal	N	Minimum	Maximum	Mean	Std. Deviation
Price Paid					
Bulls> 6 years	7	5800	8500	7685.71	970.3
Bulls 3- 6 years	19	4000	8500	5928.68	1154.89
Bulls <3 years	7	2250	4400	3235.71	830
Fertile cows	2	5300	6000	5650.	494.97
Old/infertile cows	3	650	7000	3883.3	3176.6
Heifers	5	2500	4500	3660	867.76
Male camels	10	5500	16000	11744.4	2944.85
Female camels	3	9000	12000	10266.67	1553.49
Goats	29	500	1600	818.41	251.23
Sheep	21	500	1200	854.86	203.16
Price Received					
Bulls > 6 years	7	6000	9500	8071.43	1116.12
Bulls 3- 6 years	20	4300	8600	6339.75	1116.89
Bulls <3 years	6	2450	5000	3925	860.1
Fertile cows	2	5400	6500	5950	777.82
Heifers	5	2900	6500	4280	1439.44
Old/infertile cows	3	4200	7300	6166.67	1709.78
Male camels	10	5600	16200	12238	3118.5
Female camels	3	9850	12500	10783.33	1488.56
Goats	29	550	1650	876.10	255
Sheep	21	520	1250	910.52	205.51

Source: Trader interviews, CHAINS Project, 2013/14

Climate variability and livestock marketing: Asymmetric benefit

Developing effective and efficient market organization and livestock marketing value chains has attracted the attention of academics and development workers alike (Ufford and Zaal, 2004). The main debate has been how to develop a market-driven rural development strategy that utilizes value chain analysis to connect smallholder producers to end users via a channel that operates properly (FAO, 2012).

Well-functioning livestock marketing value chains have been equated with poverty reduction, enabling pastoralists to cope with the climatic induced vulnerability through increased offtake and providing a means of earning foreign currency for the government (USAID-Ethiopia, 2013). Consequently, NGOs, bilateral donor organizations, and government institutions have been investing in developing market infrastructures, such as livestock market centers. The private sector has been encouraged to invest in feedlots and abattoirs as a means to link pastoralist producers to consumers elsewhere. Livestock marketing centers have been expanded to previously inaccessible regions, attracting many actors including traders, transporters, and laborers. Pastoralists have been integrated into the international markets through livestock marketing value chains. However, in most cases, benefits drawn from livestock marketing value chains are skewed along certain socioeconomic lines. This asymmetric benefit becomes more distinct during abnormal periods – such as climate variability that disproportionately affects the vulnerable social groups.

Climate variability results in shortage of animal feed and water. This in turn causes emaciation and death of livestock. Therefore, pastoralists are forced to sell at substantially reduced prices. In general, the critical drought period coincides with few buyers in the market; buyers either do not have enough money or are not ready to utilize the opportunities that favor buyers. The worst result is a large loss of livestock to death. Unfortunately, drought frequency and severity in pastoral areas in the Horn of Africa has been on the rise, while pastoralists' indigenous coping strategies have been declining (Oba, 2001, Tiki et al., 2013). Such opposing events put pastoral production and pastoral livelihoods in precarious situations. During drought, animal feed is in short supply, disease prevalence increases, and animal body condition deteriorates, forcing pastoralists into a disadvantaged position.

After two years of relatively favorable rains since the 2011 drought, the region was again on the verge of experiencing another disaster during August-September 2014. The main rains that were expected from March to May partially failed. The rainfall distribution was also uneven across the region and was insufficient to enable the growth of the required vegetation. Few plots produced crops, while many failed partially or completely. Wilted maize was seen on most of the crop fields with limited forage value (Figure 3).

Figure 3. Crop failure due to lack of rain, June 2014

Many pastoralists around Didahara and Yabello moved their herds as early as June to the eastern part of the zone, to areas such as Borbor, Dhas, Madhacho, Soda, and Erdar, where rainfall was relatively better and the population less dense. In early August 2014, pastoralists around Soda said that they negotiated with the herders who came to their place and convinced them to migrate further to Gorile because the pasture was depleted earlier than expected. This left many of the herders in a precarious situation with very limited alternatives. In late September 2014, Borana pastoralists were transporting hay from Sululta, about 600 km from Yabello. Transporting this bulky commodity using medium level trucks – which are not appropriate to transport such a commodity – is a desperate attempt and economically unviable. However, it was the best available option at the time. Results from household surveys which were conducted before the main rainfall in 2014 partially reveal the concern of pastoralists; about 43% of interviewees characterized the climatic situation as mild or severe drought during the survey (Table 8). This survey was conducted in January and early March, prior to the season when the main rainfall was expected. Even though it was not yet time for rain to arrive during the second half of the survey (early March), the deteriorated environmental conditions coupled with feed scarcity seemed to be the main reasons for pastoralists to report drought and prolonged dry seasons.

Table 8. Characterize the situation that best describes the climatic situation of this area since the last interview (household survey)

Climatic Situation	Frequency	Percent	Cumulative Percent
Favorable rainfall after prolonged drought	54	42.9	42.9
Mild drought	39	31	73.9
Prolonged dry season	11	8.7	82.6
Severe (prolonged) drought	4	3.2	85.8
Favorable rainfall several years running	12	9.5	95.3
Favorable rainfall throughout the year	3	2.4	97.6
An increase of temperature/ # of hot days	3	2.4	100
Total	126	100	

Pastoralists do not have dry season reserve or drought fallback areas. As a result, a minor rainfall deviation from normal causes major concern. This misfortune of pastoralists is not without benefit to other actors in the livestock marketing value chain. There are two categories benefiting from such abnormal conditions: rich livestock traders and hay traders in the highland areas. During my visit to Adama and Sululta in early October this year, traders in Adama said they were aware that the condition in Borana was not good. However, they had not started purchasing animals. They said that brining weak animals to rain in Adama causes death of the animals. Furthermore, traders said that the price had not yet dropped. The Sululta hay traders said that they are selling hay to institutions and private traders transporting it to Borana. The price of a bale of hay jumped from 40-45 birr to 55-60 birr at Sululta within weeks. Fortunately, Borana pastoralists were relieved from the looming disaster by the arrival of rain in October.

Such climate induced vulnerability increases the bargaining power of livestock traders, while demands as well as prices of hay rise sharply. Both conditions disfavor pastoralists. Therefore, when there is drought in Borana, pastoralists are exposed to environmental as well as market risks. Not only do these risks temporarily diminish their bargaining power, they also deplete herders' asset bases; herders sell many emaciated livestock to both fulfill family needs and attempt to reduce the impact of drought on the herd. Dry season is the worst period in pastoral areas. For the Borana pastoralists, December to March always presents challenges; milk production is at its lowest level, feed availability dwindles, and pastoralists suffer from food shortage. These combined pressures result in distress sales that benefits traders in the higher levels of the value chains at the expense of producers. There are many other risks that pastoralists encounter (see Table 9).

Table 9. What are the shocks that have affected your household since the last interview?

Type of Shock	Frequency	Percent	Cumulative Percent
Prolonged dry season	29	22.5	22.5
Drought	14	10.9	33.4
Flood	3	2.3	35.6
Fire outbreak	3	2.3	37.9
Conflict	2	1.6	39.5
Theft	2	1.6	41.1
Shortage of rainfall	2	1.6	42.6
No shocks	74	57.4	100
Total	127	100	

Pastoralists employ different coping strategies to preserve the lives of people and animals. Selling the animals and purchasing food are the main strategies of pastoralists to fill their food gap. In addition to selling animals and purchasing food, pastoralists participate in cash for work, reduce the number of meals they consume, reduce their daily food intake, and share food with relatives in order to cope during scarcity. Pastoralists may also cut tree leaves and collect grasses for livestock to consume during feed scarcity. Of the respondents surveyed, 38% have sold livestock to purchase food for the family, while 12.7% have participated in cash for work as a coping strategy during food shortage (Table 10).

Table 10. Coping strategies against food insecurity

Coping Strategy	Frequency	Percent	Cumulative Percent
Sold animals to buy food	21	38.2	38.2
Reduce number of meals per day	9	16.4	54.6
Reduce amount of meal per day	8	14.5	69.1
Sent some HH members to relatives/friends	4	7.3	76.5
Received food aid	4	7.3	83.8
Participated in food/cash-for-work	7	12.7	96.4
Migrated to earn wage	2	3.6	100
Total	55	100	

New adaptations by pastoralists

Pastoralists are adapting to the scarcity of animal feed and increased bush encroachment in different ways. In recent years, tree leaves have been increasingly used to feed calves, cattle and small stocks. As a result, pastoralists have to make differentiations between trees that have forage value for cattle, camels, and shoats. Some of the trees are used by all species, while others are used by one or more species. These innovative approaches may necessitate redefining bush encroachment, differentiating trees that are economically and ecologically valuable from invasive and non-palatable species. For agro-pastoralists, crop residue is another important source of livestock feed. Storing and using crop residue during the dry season has become an important coping strategy for feed deficit. Therefore, crop production is now an important source of food for people, a means of income generation, and a source of animal feed. Unfortunately, crop production is also dependent on availability and amount of rainfall.

Individuals get access to farm land through bush clearing, negotiations with local elders, or from *kebele* (pastoral association) administration. Once acquired, fencing the land is common with the pretext of protecting the crop from intruders. Fencing entitles the individuals to decide their own land use (cultivation or pasture reserve). However, access to farm land depends on the availability of male labor. Some widows reported a loss of farm land due to death or sickness of husbands and consequential lack of male labour. Others lost their farm land to the restructuring of settlements in recent years that forced many pastoralists to settle along rows. Ownership of bulls for plowing is also important for farming. Increased farming and the importance of bulls in farming has resulted in the modification of *dabare*, or assistance from friends and relatives.

The concept of *dabare* refers to the temporary transfer of reproductive animals from wealthy to needy members of the society. The receiver uses the milk while taking care of the cow and calves. The ownership of the cow and calves remains that of the supporter. With the introduction of farming and its role in coping with climate variability and food insecurity, *dabare* has included the temporary transfer of bulls for plowing. Moreover, donkeys are also given as *dabare* animals, mainly to help families with shortages of female labor fetch water from distant places. By modifying the old coping strategies at community as well as household levels, pastoralists are trying to adapt to the variable climate and dwindling resource base of the region. Of course, mobility is still the core coping strategy to climate variability.

Many pastoralists still move their herds in search of pasture and water, modifying the mode and patterns of mobility to fit into the prevailing governance and ecological conditions. Some of the strategies used by pastoralists include moving the whole family to better areas and settling with the host community, or moving the herd to join it with the herd of their relatives who are in the better pastured areas. Under the latter condition the herd is treated as part of the herd of the host. Herd mobility is not without cost to the pastoralists.

When faced with conflicting choices regarding market access and herd mobility, pastoralists must attempt to predict which choice will result in the best outcome, or at least the less damaging outcome. For instance, during the 2011 drought, many pastoralists reported migrating near Konso, a region with relatively better forage but a higher prevalence of tsetse fly. Most of our key informants in Dikale and Kancharo reported losing livestock to diseases during this period. Some regret that the better option would have been to sell. However, the timing of the sales also matters. If pastoralists sell some of the animals before a drought worsens, the money could be used to buy feed for the other animals, a strategy that is used by a few rich pastoralists. Compared to losing a higher proportion of the herd to drought, selling some livestock is seen as a better option by many. Therefore, distance from the market and timing of herd migration are important points to be considered before making decisions about herd mobility. Additionally, moving Livestock can have other unforeseen consequences. Temporary differences in pasture availability may attract herders from different directions who make their own independent resource assessment and mobility decisions. The concentration of herds may result in fast depletion of meagre resources and environmental degradation that aggravate animal deaths (see Nkedianye, et al. 2011).

In addition to mobility induced by harsh environmental conditions, pastoralists also practice the more routine herd mobility, locally known as *foora*. *Foora* is a practice where pastoral herds and the family split into two, with able men moving with the able herd to remote grazing areas, while women, children, and the elderly remain around the base settlement. From our second round of interviews, we found that 36% of the respondents still practice *foora* mobility. Different reasons were listed by pastoralists who have stopped *foora* migration. A majority of the pastoralists mentioned small herd size as a reason why they have stopped *foora*. Splitting the herd and family labor requires viable herd sizes that can support the two groups separately.

Shifting species

Even though the Borana are predominantly cattle pastoralists, camels and goats are becoming the most common species owned at the household level. Camels are preferred for their ability to resist drought, adapt to local vegetation conditions, provide more milk over long periods of time, and fetch better prices, if sold. Furthermore, camels can be used as pack animals to fetch water, transport household items during mobility and grain to and from markets. Some pastoralists consider camels as more valuable assets than cattle. A pastoralist explains the growing importance of camels as:

> Borana bank is camel. It fetches good amount of money, gives better milk, resists drought, and give birth to calves that again fetch good price. It also fits to the current Borana ecology. However, owning camel is accessible to rich or middle

wealth group only. The drought of 1980s evidenced the importance of camel in Borana. Families owning camel survived the drought. Others driving hundreds of cattle succumbed to it.

Most of our respondents agree that camel has become a very important species in Borana. But they agree that camels are too expensive for the majority of poor pastoralists. A camel calf can be as expensive as or more expensive than a mature bull. Another reason why camel ownership is limited to a few pastoralists is that it has no cultural and ritual attribution in Borana. Therefore, it is not given as bride wealth, *dabare and busa gonofa*[4] that could increase the number of camel owners. Furthermore, due to cultural reason, some clans do not eat camel products and are not encouraged to own camels. Ecology is also a limiting factor for camel ownership within Borana. Camels do not browse all trees; they have their own vegetation preferences: *hammessa (*commiphora spp*), dheekaa (*grewia tenax*), haroressa (*grewia bicolor*),* and *dabobessa (*rhus natalensis*)* are among the best forage trees for camels. These trees are abundant around Surupha, Dhadim, Muyate and Dharito, but scarce in places like Dikale and Kancharo. Consequently, few pastoralists own camel from the Dikale and Kancharo pastoral associations (PAs). Pastoralists who own many camels at Dikale, for instance, migrate to Muyate and Dharito where the preferred trees are abundantly available. Lack of camel management skills by the Borana was also cited as a factor contributing to the limited adoption of camels. Borana know how to treat cattle, but many pastoralists said that they lost camels to unknown diseases that killed the camels suddenly. A death of a camel is a huge loss to the pastoralists given its high value. Therefore, pure pastoralists do not risk selling the few cattle they have in exchange for camels. The preferred strategy is to have camel in addition to the herd, rather than as the core of the family herd.

Mobile phones

The importance of mobile phones in livestock marketing was described in the earlier reports. During the second round of interviews, traders reiterated the importance of mobile phones for their business. Accordingly, 73.6% of traders interviewed rated 'discussing market related activities, including prices, supply and demand' as the primary use of mobile phones. Only 13.2% rated 'discussing family issue' as their primary use of mobile phones. In general, 88.7% of our respondents use mobile phones to discuss livestock marketing related issues, while 84.9% use mobile phones to discuss family issues, although these were not necessarily ranked as the primary use of mobile phones. Clearly mobile phones play multiple roles, from facilitating livestock marketing to connecting traders to their families and friends, to joining traders with the herders who take care of marketing animals and the family herds in remote pastoral areas. Mobile phones facilitate information exchange regarding security issues and resource availability. An informant in Moyale described the importance of mobile phone as, "*Mucaa ergamtu dansaa arganne*", or, "we got a nice messenger who takes messages to the target quickly" (DG, December 28, 2014). Mobile phones have shortened the distance between family members and traders, traders and herders, and traders and traders. Traders also use mobile

[4] *Dabare* is a temporary transfer of reproductive animals to the needy. The receiver is entitled to use the milk while taking care of the animal. Of course *dabare* is now extended to include non-reproductive animals, for instance borrowing bulls for ploughing. *Busa gonofa* is a gift from clan member to the needy.

phones to call pastoralists and discuss the availability of livestock for sale. About 52% of the traders said they call pastoralists directly and discuss whether the pastoralists have marketable animals.

Some of the traders said that buying mobile airtime or paying for information is an investment for future gain. One of the traders explained this as, "*Dhibbi namaan, kumni lafaan baratu kasara hinqabu"*, meaning hundreds you spend to be introduced to people or thousands you pay to learn about a place you do not know is not a cost; it is a price paid for new and important information. However, the improved technology is not without cost to others. The fast information exchange assists the traders that are vertically, linked but sometimes a sudden demand shift affects many small traders who buy and wait for the next market. Small traders may be in remote areas with no mobile network, and may not get timely information. When the demand shifts from one category of livestock to another, the small traders may be forced to keep the animals or sell on credit. Therefore, those who get demand information decide whether to receive the animals from the small traders or not, illustrating how mobile phones are important in market decision making.

Use of mobile phones is increasing in pastoral areas as well. In the last year, 29 pastoralist households reported buying a new mobile phone. Some of the households bought a mobile phone for the first time, while others bought an additional phone or a replacement for a lost phone. Despite 16 households reported losing their mobile phone in the last one year, the number of households not owning a mobile phone declined from 61 during the first round of interviews (2012/13), to 51 during the second round of interviews (January to March 2014). Only one household reported owning four mobiles phones during the first round of interviews, while four households reported owning four mobile phones during the second round of interviews.

Pastoralists were asked to rank the primary reason they use mobile phone. Accordingly, 38.5% of them ranked communicating with family members as primary use of mobile phone while 29% ranked accessing livestock marketing information as primary use of mobile phone. Obtaining weather information (15.4%) and getting information on water and pasture (15.4%) were reported by other respondents as primary reasons the pastoralists use mobile phones. Mobile phones are one of the easiest technologies for non-literate society to adopt, albeit the use is limited. From our group discussion and key informants interviews, we found that everybody wants to own mobile phones, but they are constrained by a number of factors: lack of money to buy mobile phone, inability to pay for airtime, remoteness from battery recharging centers, and lack of network coverage. Pastoralists try to overcome the problem of network coverage by travelling to places where there is network coverage. Those who are lucky hang their mobile phone on windows or tree branches where network is spotted (Figure 4).

Figure 4. Mobile phone hangs on window where network coverage is spotted.

Herd dynamics

Birth, death, purchase, sale, and slaughter are the main reasons for changes in herd size in pastoral societies. In the last one year, respondents reported 230 births and 157 animal deaths. From the survey data, 81% of the households in our sample have sold one or more animals between the first and second rounds of interviews. While 338 heads of livestock were reported to have been sold, only 25 new heads of livestock were purchased (HH survey, 2014, CHAINS project). The data reveal that death and sale are the two main causes of herd reduction, while birth is an important factor increasing the herd size of the pastoralists. Borrowing, lending, and slaughter are other factors contributing to herd dynamics, but not significant. Only 21 households slaughtered livestock for household consumption. Of these, only three households slaughtered more than one animal. This may be due to poverty or a shift in household food consumption from animal products to other sources, or a combination of the two.

We asked respondents to report the ideal herd size for a family in each of three broad wealth categories. In other words, the attempt was to understand the wealth status of the respondent household with regard to what they perceived as poor, middle, and wealthy. Accordingly, an average of 95 heads of cattle is needed to be considered rich in Borana, while the poor own approximately 7 cattle or less (see Annex I). Camel ownership seems more prestigious; an average of 15 heads of camel ownership places individuals in the rich wealth category. When asked where they fit into this categorization, only 1.6% of our respondents were in the rich category, while 53.5% were in the middle wealth category, and 44.9% were poor. Of course this categorization is crude and based on individual perception.

Live animal marketing proclamation

In an effort to improve livestock marketing value chains and fairly benefit value chain actors, the government of Ethiopia has recently enacted a Live Animal Marketing Proclamation. Most of the

provisions in this proclamation are general, and the detail is expected to emerge in the regulations and directives pending approval by the council of ministers. The early stage of implementation, however, started with aggressive action against a few traders perceived to be illegal. It involved confiscation of about 300 heads of cattle at the Awash checkpoint in eastern Ethiopia. This sparked disagreements not only between traders and Ministry of Trade but also between the Ministry of Trade and the Revenues and Customs Authority.

The Revenues and Customs Authority, mandated with administering and auctioning confiscated properties, refused to accept the confiscated animals, citing the absence of legal ground for confiscation. After imprisonment of the traders and legal wrangling, about 180 bulls were returned to their owners. The rest were sold at open auction, but available information reveals that the legal battle did not end until early November 2014. According to informants, some of the owners are licensed traders and have the right to transport the animals within the country. Informants further explained that animals can be considered illegal only within 15 km of the international border. The public relations officer of the Ministry of Trade said that the animals were confiscated on the basis of the new proclamation. Article 12(4) of Proclamation 819/2014 requires a transport permit to move animals from place to place. However, nothing has been done to raise awareness about the content of the proclamation, nor detail guidelines issued. One of the traders said “I have not delegated the Ministry of Trade to sell my property. It has no legal mandate either”. The government crackdown on what is considered illegal trade is to boost the legal export.

Another concern regarding this new proclamation is the designation of markets and definition of actors at each market level. This proclamation classifies markets as primary and secondary and specifies buyers and sellers at each market. Transactions outside of the designated markets is considered a criminal act. The main concern of some of the big traders is not market designation, but definition of actors. This new proclamation prohibits transactions between actors of equal level. For instance, in the secondary market, an exporter cannot buy from another exporter.

Conclusion and policy implications

The importance of livestock marketing value chains to private actors and the government, and the challenges the sector is currently facing, are highlighted in this report. The informal credit operations that impoverish many small traders and pastoralists need to be addressed. This mode of transaction presents a dilemma of whether to ban it or allow it operates. Banning informal credit operations seems less practical given its significance to marketing activities in the absence of formal financial sources. It is one of the most important sources, if not the main source, of finance, without which livestock trade may collapse. Therefore, there is a need to back the operation and protect sectoral actors with legally binding contractual agreements enforceable by local and federal courts.

Smooth operation of the livestock value chain is also dependent upon the proper operation of feedlots. As discussed, the feedlots have multiple operational, financial, and facility challenges. A lot is needed from feedlot operators and government institutions to improve the operation and attract more importers. In addition to improving infrastructure (e.g.water supply), access to animal feed is also vital. Further, feedlot operators need to be trained to meet international

standards, and should have the entrepreneurial capacity that is needed in the fast changing business world. Access to international markets must be supported by changing ‘business as usual’ and improving the quality and volume of livestock supplied. Most of the value chain actors lack the concept of competitiveness in the livestock marketing value chains. There is a need to create awareness regarding the value addition and operation of the market. Insecurity, climate induced vulnerability, and livestock diseases are interlinked in exposing pastoral producers to market and environmental/climatic risks. Therefore, a holistic approach is needed to solve problems along the livestock value chain promote the livestock market.

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Annex I: Herd ownership, hypothetical for different wealth categories

Type of animal	Wealth Category	N	Minimum	Maximum	Mean	Std. Deviation
Cattle	Rich household	127	10	300	95.58	60.429
	Middle HHs	125	7	153	44.33	28.643
	Poor HHs	127	0	40	6.69	6.735
Camel	Rich HHs	127	0	200	15.02	20.053
	Middle HHs	125	0	26	6.39	5.537
	Poor HHs	127	0	5	0.43	0.914
Goats	Rich HHs	127	8	240	63.56	48.880
	Middle HHs	125	4	110	30.74	23.362
	Poor HHs	127	1	30	6.04	4.978
Sheep	Rich HHs	127	4	250	47.14	41.600
	Middle HHs	125	2	105	21.97	16.895
	Poor HHs	127	0	30	4.54	4.882
Pack animals	Rich HHs	127	0	34	6.60	5.509
	Middle HHs	125	0	12	3.09	2.106
	Poor HHs	127	0	4	0.38	0.616