Field Trips, Findings, and Lessons from the CHAINS Research Project: Year One Activity Report

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Field Research Report

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

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Preface

This is one of a series of field research reports from the new "Climate-Induced Vulnerability and Pastoralist Livestock Marketing Chains in southern Ethiopia and northeastern Kenya (CHAINS)" project. The CHAINS project is part of the Adapting Livestock Systems to Climate Change (LCC), Collaborative Research Support Program based at Colorado State University and supported by AID Grant No. EEM-A-00-10-0001. It represents the first six months of field research by Dr. Dejene Negassa Debsu, a project post-doctoral research associate on the project who is based in Ethiopia. Dejene is an anthropologist who received his Ph.D in 2008 from the University of Kentucky. The CHAINS project works with several partners in Ethiopia, including the Institute of Development Studies, Addis Ababa University (AAU) and the International Livestock Research Institute (ILRI), and in Kenya, including Pwani College/Kenyatta University and ILRI. Its objectives are to: (1) understand the ways in which climate variability and change affect livestock marketing chains in southern Ethiopia and northeastern Kenya; (2) assess which social groups (for example, low-income pastoralists and small- and large-scale traders) benefit the most from different market chains; (3) examine the effects of increased market commercialization and climate variability on pastoral livelihoods and land use; and (4) recommend policy-based solutions to improve livestock markets and the benefits that low-income pastoralists and traders derive from them.

As part of the CHAINS project, Dr. Debsu has been involved with trader and household studies of Borana pastoralists that addresses local responses both to climate variability and emerging livestock markets. This field report highlights both the successes and challenges that he has faced in the field and provides some of the unedited excerpts from his detailed ethnographic interviews both with traders and pastoralists. Rather than wait several months or even years until these materials are published in a formal format or journal, we are making the materials available in a field research report series with only light editing. Enjoy!

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1. Introduction and Background

This collaborative research project on "Climate Variability, Pastoralism, and Commodity Chains in Semi- Arid and Arid Areas of Ethiopia and Kenya (CHAINS)" aims to understand two related questions:

1. how do pastoralists access and use markets to cope with climate variability, including the benefits/costs they derive from different market chains; and
2. What are the effects of climate variability/change on livestock markets themselves?

It also raises several specific questions for its long term research program such as the effect of climate variability on different market chains, benefits and costs for pastoralists associated with different market chains, decisions of herders to move or stay close to markets, the role of technology and institutional innovations in managing risks and accessing markets, and the relations between land use patterns and the effectiveness of rainfall patterns. These research questions apply both to Garissa (Kenya) and Borana (Ethiopia) research sites, with full cognizance of the problem of comparability between the two.

The questionnaire development for the household survey on the Ethiopian side started in June 1, 2012. Background work for the questionnaire development started long before this time. The research planning meetings and background notes set the stage for launching of the project and framed the scope of the questionnaire. The background note indicates that the purpose of the project is to learn about pastoralism, livestock trade, and climate variability. More specifically, it intends to understand the interactions between herd management, household access to different market channels, climatic factors, especially extreme weather events, and family welfare.

Earlier this year and in 2011 I have been involved in various background works for the project including participation in research planning meetings and several field visits to Borana, Adama, and Sululta, areas that are linked to the market chain. Borana is one of the research sites in southern Ethiopia and represents the production side on the market chain. Borana pastoralists pursue various risk management strategies, including mobility, to cope with droughts and other disasters, and it is important to understand how these strategies influence marketing needs of pastoralists.

It is also important to explore the integration of livestock producers to national and international markets. Adama is 100km east of Addis Ababa and located at an important junction on the market chain. Its favorable weather for feedlot operation, proximity to export channels, and access to fodder production areas makes it an important site on the market chain. Traders purchase bulls for fattening from Borana and truck them to Djibouti port for export.

Sululta, along with Sandafa, come into picture as a source of fodder supply for the feedlots and even pastoral areas during drought seasons. Licensed hay traders from Sululta sell their products to various customers ranging from private farmers to companies, livestock traders, and government offices to NGOs. Livestock traders need the fodder during trucking and transportation for export. Government offices and NGOs often buy hay from Sululta to

redistribute to pastoralists during drought years. Visits to the three sites provided an opportunity to understand the linkages between herders, traders, and fodder producers.

The methods used to gather the background information were key informant interviews and literature reviews. In addition to insights gained from the field visits and participation in project planning workshops, the questionnaire preparation, therefore, benefitted from a survey of available literature (see Okondo and Dejene, 2012) on climate variability/change, pastoralist welfare and livestock marketing systems, with a special focus on Kenya and Ethiopia. Other similar questionnaires on pastoralism, climate change, and livestock marketing were also reviewed.

A more recent field visit (August 2012) to the Borana area was planned to pretest the household survey questionnaire and recruit enumerators. The trip was successful in achieving both objectives. Several potential ideas for the questionnaire modification were generated including the time it takes to complete the questionnaire. The field pretest substantially improved the quality of the survey questionnaire by allowing it to be tuned to the reality on the ground with regard to its sensitivity to local culture and relevance as well as understanding contexts and complexity of issues. Inputs by project team members further refined the contents of the questionnaire and its organization (see the final household survey questionnaire, Annex III).

The collaborative project involved several institutions and professionals to achieve its stated objectives. As a consultant on this project, I was hired to carry out several activities, and accomplishments during the period of June 1, 2012 to October 31, 2012 will be discussed below.

2. Activities from June 1, 2012 to October 31, 2012

Activities during this period include preparation of household survey questionnaire, field visits to Adama and Borana, and several meetings with project team members and MA students (Dr. Peter Little, Emory University, Dr. Carla Roncoli, Emory University, Dr. Workneh Negatu, Addis Ababa University, Dr. Waktole Tiki, ILRI, and two Graduate students from Addis Ababa University).

2.1. Discussions with Export Traders in Adama

A team consisting of Drs. Carla Roncoli, Waktole Tiki, and Dejene Negassa travelled to Adama July 24-25, 2012. The objective of the trip was to visit feedlots in Adama and interview feedlot operators and livestock exporters. Overall the team interviewed 3 operators in group or individually. Therefore, here I will highlight briefly information obtained from the three informants.

All of them are involved in the business as feedlot operators and exporters for more than seven years and share common experiences about the businesses. Each trader also has unique experiences, opportunities, and challenges that are interesting individually. Here only a summary of discussions with the export traders are presented, and individual cases are annexed to this report (see annex 1).

Traders buy bulls for export from different locations, but mainly from the Borana area such as Haro Bakke, Dubuluk, and Moyale. Some of them also buy from Bale in order to diversify their

animals. While dry weather is considered good for feedlot business, rainy, windy, and cold weather are believed to affect animal feeding and weight. In dry season animals take too much water and gain weight very quickly. Traders say bulls from Bale can easily adapt to cold weather when it is wet and cold in Adama. In general, export traders buy when it is dry in the central Ethiopia (September-June) because during rainy seasons the feedlot gets muddy and not conducive to keep animals in it. Also during rainy seasons it is too cold for the animals to gain weight. However, Borana bulls are much more preferred for their stature and ability to gain weight.

The traders have agents in Borana who make purchases for them. Their agents may not buy directly from producers, because there are middlemen or *dellalas*. When possible, however, they buy both from producers (pastoralists), brokers, and traders. Producers could be brokers and traders at the same time. The average purchase price reported by the traders is 6500-7000 birr per head from traders (July 2012).

Each trader has clients from different Middle Eastern countries such as Egypt, Yemen, Oman, Lebanon, Kuwait, and Saudi Arabia. In a few cases exporters may buy from one another if they have shortfalls in the number of animals requested by their foreign customers. Clients from foreign countries may have specifications based on animal age, color, and breed. For example, clients from Egypt require bulls that are less than 5 years old because, they say, their meat is very soft and demanded by many Egyptians. Similarly, those from Yemen specify for color (Yemenis want white color, but do not like black and big horn).

Apart from preferences by clients in the Middle East countries, national regulations also limit the kinds of animals traders can export. For example, traders can export only bulls and cannot export calves and female animals. The reason is to prevent reproductive and young animals from leaving the country.

Drought can affect livestock trade and animal supply to both domestic and international markets. However, it is not a drought in Ethiopia alone which affects global livestock market. Droughts in any part of the world could have effect on international market and determine the volume and direction of trade animal movement.

Traders say there are favorable seasons both for animal sales and purchases. The months of February-June are favorable to make purchases because during this season there is a shortage of pasture in Somalia and Somalis supply in large numbers to the Middle East markets, which also affects domestic livestock markets. The unfavorable season to purchase animals is September to November when short rains make grasses to grow and fewer households in Borana are willing to sell their animals. A favorable season for export trade, especially for sheep and goats, is during Muslim holidays such as Ramadan.

Drought can be both a risk and an opportunity for livestock traders. Some of the traders said it is more favorable to purchase animals in drought seasons, even though animals are weak and death rate is high during this season. For example, trader 1 made more profit during the 2011 drought than normal period. However, pastoralists moved away from markets and brought animals only after they became weak.

On the other hand, traders 2 and 3 say traders do not benefit from drought situation, even though prices fall significantly during this time. This is because of several reasons:

a) There are significant deaths of trade animals in drought seasons;
b) Emaciated animals take longer time to gain weight which increases feed cost;
c) The capacities of feedlots determine purchase volumes.

However, traders can increase their purchase volumes without necessarily increasing their capital because of the lower prices. There are also opportunities during droughts for traders to buy livestock from producers on credit. For example, some of the traders reported that during the 2011 drought they obtained animals on credit and paid the credit after selling their animals. They may also sell their animals on credit, mostly to Ethiopian exporters, and receive what is known as dry checks. The latter practice has a risk of encountering default, and the government banned it, especially for export trade, to avoid delays in foreign exchange earnings. Other risks exporters face include animal disease, theft and death during transportation.

The feedlots visited have different capacities, but generally have facilities such as water, store, and isolation feedlot place for sick animals, and scale for weighing animals. Feedlot operators keep the animals 2-3 months in the feedlot before they ship them for export. Any delay beyond this time frame would cause extra cost to the operators. On the average they spend 30-45 birr per bull per day on feed, 20-30 birr for camels, and 4 birr for sheep. They truck water for the animals in addition to the water pump facility they own, and this costs them 0.25-2.5 birr per head (2 birr for camels, 2.5 for bulls, and 0.25 for sheep on average).The camels, however, are not for fattening. They use the feedlots only as a resting ground for camels.

Feedlot operators use cotton seed, flour residues, grains, hay, and crop straws as animal feed. They obtain hay from Sandafa and Sululta area, *teff* straw from around Adama, and other feed from flour mill factories such as residues of nigerseed and cotton seed. The main resource constrains operators reported include water, pasture, and quarantine service problems. Traders argue that the absence of quarantine service in Ethiopia is affecting their business. According to them, the quarantine service in Djibouti rejects export animals without sufficient reasons and exposes traders to unnecessary expenses. Diseases that mostly affect their animals include LSD and FMD.

The traders do not own holding ground or pastureland for the bulls they buy in the Borana area. However, they often find ways to access community *kalo*. For example, trader 2 pays 10 birr per head per month to keep his animals at Dubuluk ranch.

2.2. Discussions with Local Traders (*Dallalas*) and Market Observations in Borana

A team that consisted of Drs. Workneh Negatu, Waktole Tiki, and Dejene Negassa planned the field trip to Borana to accomplish the following activities:

a) To pretest the questionnaire in the field and make final changes to it;
b) To recruit enumerators for the household survey;
c) To make market observations.

As a team we travelled to Borana on 5/08/12 (Aug. 5, 2012) and stayed at Hagaremariam (Bule Hora) overnight because we had flat tire. The next morning we traveled to Yabello and visited

Pastoralist Development Office and interviewed Mr. Lemma Ajema, head of market and trade development department, to learn about livestock market in the zone. In addition to interviews with Lemma, two visits were made to Dubuluk, one on a market day and another on a non-market day.

Informal discussions were conducted with Dubuluk municipality workers and some brokers regarding the situation of livestock markets in the area. On 7/08/12 the team travelled to Dida Hara to pretest the household questionnaire and, on the same day, contacted the manager and an employee of SOS, an NGO, to help recruit enumerators. The team (Workneh and Dejene) made a second visit to Dida Hara on 9/08/12 to do more survey questionnaire pretest.

Having scheduled a meeting for 9/08/12 with SOS staff, on 8/08/12 we travelled to Dubuluk to find traders on a non-market day. The team assumed that traders would be available on non-market days for relaxed discussions. Unfortunately we were told that there are no local traders in the area and many of the traders come from outside Dubuluk area. Therefore, we had to contact brokers (*delallas*) to learn about trading activities in the area.

It was not possible to pretest the questionnaire with *delallas* since it was prepared for traders. However, some useful information was obtained from the informal discussions with them. For example, broker A, said he had been in the business for over fifteen years in addition to herding. He receives commissions from traders, but does not receive from sellers. He reported that the past three market days were disrupted due to the conflict in Moyale and has not been returned to its normal state yet.

The conflict between the two groups ensued in July over administrative positions. Administratively, Moyale town is split between the Somali and Oromia Regional States and there is a frequent conflict between the Borana and the Garre groups mostly over land ownership, administrative positions, regional borders, and use of common infrastructures like schools and water points.

On the next market day, 10 August 2012, our observations confirmed broker A's report that the market has not been normalized. There were a few cattle, goats, and camels in the market as well as very few local traders. Especially camels that normally were supplied to the market from Moyale were exceptionally very few in the market.

There were virtually no traders from outside the zone and, as a result, livestock prices were very low. Bulls that normally were sold for 7000 and 8000 were sold 1000 to 2000 birr lower. The reasons given were security situations and the fact that feedlots in Adama were not cleared. Some informal discussions with producers also show that this kind of price fluctuation regularly occurs depending on whether or not feedlots in Adama are cleared. This means, there were heavy rains in Adama and many of the feedlots were flooded and so were taking few animals. Moreover, if exporters cannot find foreign buyers they keep their animals longer than usual, which would affect prices and purchase volumes in Borana.

2.3. Discussions with Pastoralists (Livestock Producers) in Borana

Three household heads were interviewed in order to pretest the household questionnaire: KG, JG, and MH. The questionnaire was tested on these three households at Damabal Sadeen PA, a neighboring PA to Dida Hara (now known as Dikale). The three questionnaires took 2-3 hours each to complete them. It might take longer when the survey will be conducted by relatively less experienced enumerators. The pretest, however, was not done in Dillo woreda due to security reasons.

The interviews generated useful information on pastoralism, livestock trade, and climate variability in addition to serving as a pretest for the survey questionnaire. The informants share common livelihood and face similar environmental risks. They also follow more or less similar, if not identical, paths in their response to the risks they face. The three informants and their family members show religious diversity ranging from traditional to Islam to Christianity and have different asset portfolios.

Table 1: Demographic Characteristics and Land Ownership of Selected Households

Livestock Producers	Family size	Religion	Landholding	
			Farming	Pasture
KG	9	traditional	-	-
JG	7	Islam	2/3rd ha	1/3rd ha
MH	6	traditional	½ ha	-

The households manage different species of livestock, including camels, cattle, sheep and goats. In addition, one of the households also owns animals that it does not manage (3 male cattle, 10 female cattle, 6 male sheep, 10 female sheep, 1 male goat, and 5 female goats). He loaned them out because they are too many for him to manage by himself.

Table 2: Current and Past Asset Portfolios of Selected Households

a) Current

Livestock Producers	Livestock Assets			
	Camels	Cattle	Sheep	Goats
KG	1	13	15	7
JG	0	20	8	5
MH	0	7	5	8

b) Five Years Ago

Livestock Producers	Livestock Assets			
	Camels	Cattle	Sheep	Goats
KG	7	25	30	15
JG	5	80	25	35
MH	0	16	7	12

Compared to five years ago, the households own less animal assets. Frequent droughts, sale of animals for various household needs, and insufficient pasture and water are responsible for the household herd decline. Households are not sure about future changes that they will make to their livestock herd. They leave future changes to chance. They say if there will be increases, that is due to natural birth and if decreases, it is due to death or sale. Therefore, there will not be any planned change to their herds, which are already small. As a result of small herd size and permanent settlement of *foora* areas, one household stopped going to satellite camps with its livestock.

The remaining households continue to go to *foora* with their livestock regardless of the declining herd size. The nearest *foora* to them is 15km while the furthest one is 25km. However, as explained by one of the informants, the distinction between *foora* and *warra* is not simple. There is a rangeland use type that is different both from *foora* and *warra*, and known as *mata lafa*. It is different from these categories because it is not possible to fence it and protect it like *warra* pasture or temporarily settle in it like *foora*. *Mata lafa* grazing system requires that households travel to the grazing field and go back to their village every day.

Problems related to migration to *foora* include shortage of water for livestock, food for herders, and labor. Hiring herders is not common among the Borana and the term 'herder' or '*tiksee*' in Oromiffa has a negative implication. Instead if they want help in herding they ask someone saying, "*na gargaari, loon siif kenna, sii laadha, daara sibaasa*," meaning, "help me, I will give you cattle, feed you, and buy you clothes."

During the 2011 drought there were no *foora* and *warra* grasses and the households had to purchase straws and grain residues to feed their animals[1]. Even though initially some households migrated, they had to return soon due to lack of pasture and water in *foora*. Normally the Borana do not fight over pasture and water within themselves even during drought seasons. Instead they cooperate and share whatever is available. However, conflict over scarce resources is common with other groups.

In Borana there is no what is known as private *kallo* as both customary and statutory laws do not recognize private pasture. What actually exists is private farmland where households grow different crops, and part of this landholding may be allocated for grazing. However, households may have control over water sources. In Dambala Sadeen PA, some of the ponds were developed by individual households while others were developed by the community and government.
The incidence of livestock disease has not increased over the past twenty years, especially for cattle. This is due to vaccination and use of medicine for animals. However, the incidence of goat and sheep disease has increased. Common livestock diseases in Borana include *harka*, *silisa*, *sombessa* (CBPP), *oyele* (yellow fever), *birte*, *dadhi* (already irradiated), and *tumma*.

The households sold and/or purchased animals in the past 12 months. The sales mostly involve bulls and were sold for different purposes such as to buy food, clothes for the family, medication, or to invest in reproductive animals. Therefore, purchases are mostly related to female animals

[1] No matter how small, households purchased straws, hay, and/or concentrates during the 2011 drought. They sold one or more animals to purchase these feeds, and the amount they purchased depended on their wealth.

for breeding. Households mostly learn about the price for livestock from traders and individuals who visited the previous market. The major problem they face in marketing their animals during drought seasons is primarily low demand due to bad animal body condition. In addition, the animals become too weak to trek them to the market. In normal years they believe that there is no problem in marketing animals, and transportation does not seem to be a problem as always there are paid people who trek animals to the market.

Regarding climate change and variability, informants showed different perceptions. Two of the informants believe that the rain pattern has changed in the past twenty years; that rains have become more erratic, and there is less number of rainy days. They also believe that the number of hot days in a year has increased. One informant, however, does not seem to notice any long-term climatic change in the past twenty years. He believes that both the number of hot days and rainfall days, including its nature, stayed the same. The source of weather and climate information for them is traditional forecasters. They trust this source and it is readily available to them when they need them. Trust, however, largely depends on the past experience of the person forecasting the weather. In the short-term actions that households take depend on the actual, not forecasted, weather events. For example, they migrate only when droughts occur rather than taking a proactive measure. They tried to adjust to long-term changes by selling some of their animals and putting money in the bank. They also educated their children so that they can find opportunities outside the pastoral sector.

The 2011 drought is one of the recent environmental shocks that informants mentioned. The drought caused death of livestock, decline in milk production, and food insecurity and starvation. Children were most affected by all these consequences of the drought. In 2012 also there was erratic rainfall pattern which caused crop failure. Short-term responses to the drought include selling livestock to buy food, participation in food for work activities, and cutting tree leaves for their animals. Some of the households also received food aid during the drought.

When informants were given different weather scenarios, such as rains are likely to be scarce, rains are likely to be normal, and rains are likely to be heavy, they responded differently only to the first scenario. That is, they would search for water and pasture under scarce rain conditions and do nothing for the rest. This shows that pastoralists react more to rain shortages than excesses.

Mobile phone is widely used by the Borana both for weather and market price information exchanges. Even though all the informants interviewed were not educated, they recognize their friends and relatives' phone numbers by assigning to each of them a special sign. They charge their phones at Dida Hara every week on market days and pays 5 birr every time they charge. On the average they spend about 40 birr per month on minutes purchased. They often communicate with family members, friends and relatives both near and far mostly to discuss grazing and water condition, social issues, and market price in this order.

Livelihoods in Dida Hara seem to be less diversified. Only one of the households reported that a member of his household engages in petty trading in addition to herding. GK, 14, is from K's second wife and involved in egg trading. He buys eggs weekly from around Dida Hara and sells them in Yabello. This year he made an estimated profit of 400 birr. On the other hand, food aid

and food for work strategies are common in the area. Two of the households received food aid/food for work in the past 12 months, and only one household said it never received food aid.

2.4. Discussions with Zone Officials

The team visited Pastoralist Development Office and had a discussion with Lemma Ajama, Trade and Market Development department head. Lemma broadly classified 13 woredas in the zone into pastoralist (10) and agropastoralist (3). The highland woredas of Bule Hora, Dugda Dawa, and Galana Abaya are inhabited by agropastoralists while the remaining 10 woredas are occupied by pastoralists. However, this broad classification misses the burgeoning agricultural activities in the traditionally pastoralist areas.

According to Lemma, there are 25 primary and 6 secondary markets in Borana zone. In addition, there are several bush markets which feed to the primary and secondary markets. Market actors in the zone include traders and producers while other actors come from outside the zone and are mainly linked to the export trade. These mainly are feedlot operators, especially from Adama and its surroundings.

Currently animal body condition is good, but livestock price dropped significantly due to recent conflict between the Borana and Gerre groups. Animals prices may also fluctuate based on seasons and situations at the center. There are four seasons in Borana: main rainy season (mid-March to mid-May), hot dry season (mid-November to mid-March), cold dry season (June to August), and short rainy season (mid-September to mid-November). Supply is high during the hot dry season when pasture and water are scarce, especially if short rains fail.

Zonal Trade and market development department records supply and price information and sends it through SMS to Oromia trade and market development as well as to National Livestock Market Information System (NLMIS). Information is collected from markets in the zone through interviews as well as observations. Traders at different levels have different behaviors in reporting livestock prices. For example, local traders in Borana tend to inflate prices in order to discourage outside traders from visiting livestock markets. On the other hand, traders in Adama underreport prices in the center in order to negotiate better prices with local traders.

Cross border flow for all animal types is from Kenya to Ethiopia since the price is more favorable on the Ethiopian side except for breeding cows. Prices for breeding cows improved on the Kenyan side recently following a restocking project in its northern provinces. Restocking project affected the movement of female cattle to Kenya, especially before the main rainy season of 2012. However, this trend may change when the project phases out. Lemma also provided us with a list of traders in Yabello woreda.

A discussion with Dubuluk municipality workers also showed that conflict played greater role in disrupting the market. The municipality records the number of animals coming to the market for sale, and the workers said very few animals were brought to the market the past 3 market days. Normally traders truck their animals, but some of them are trekked up to Bakke where they are trucked to Adama. According to these workers, there are 20-30 *delallas* in Dubuluk, and many local elders also act as brokers.

Annexes:

I. Livestock Exporters Interview Notes

1. Field Visit to Adama

A team consisting of Drs. Carla Roncoli, Waktole Tiki, and Dejene Negassa travelled to Adama July 24, 2012. The objective of the trip was to visit feedlots in Adama and interview feedlot operators. Overall the team interviewed 3 operators in group or individually. Therefore, here I will highlight briefly information obtained from the three informants—MA, SB, and SMH.

1.1. MA

AM, 47, is a feedlot operator and livestock exporter. He has been in the business of livestock export for the past 7 years. Before getting into the export business he was a small livestock trader limited to domestic market. Now he also buys and sells sheep and camels in addition to bulls. Currently he has 730 bulls in his feedlots and 361 have been negotiated for sale to Egyptian traders. He buys most of the bulls from Borana and some from Bale.

He does not own private kalo for the bulls he buys in Borana. Instead he pays 10 birr per head per month to feed them on community kalo (at Dubuluk ranch). M says traders do not benefit from drought situation, even though prices fall significantly during droughts. He does not support the government program which trucks hays to pastoral areas because it comes back for sale at Adama for the reasons he doesn't understand.

Both domestic and global livestock markets can be affected by droughts. However, it is not only a drought in Ethiopia which affects global livestock market. Droughts in any part of the world could have effect on international market.

He mainly sends animals to Egypt, Yemen, Dubai, and Sudan. July-August 2011 he did not purchase bulls, but had only rejects in his feedlots. Bulls that are not gaining weight and qualified for export market, known as kulish, are sold in local markets such as for chilled meat, i.e., they sell them to Addis abattoirs.

September to November of the same year he bought 700 and exported them to Lebanon except 142 rejects which were kept in the feedlot. He did not keep them in the feedlot because he bought bulls which were already fat. From December 2011 to February 2012 he did not make any purchases, but had bought 730 between March and June 2012. The Middle East livestock market mostly depends on the Muslim holidays such as Ramadan, especially for sheep and goats.

He has agents in Borana who make purchases for him. He is not buying directly from producers, because there are brokers in the middle. When possible, however, he buys both from producers (pastoralists), brokers, and traders. Producers could be brokers and traders at the same time. The average purchase price is 6500-7000 birr per head from traders.

In general, he buys when it is dry in the central Ethiopia (September-June) because during rainy seasons the feedlot gets muddy and not conducive to keep animals in it. Also during rainy

seasons it is too cold for the animals to gain weight. Therefore, when he is not buying, it is either a rainy season or the feedlot is not cleared through sales.

On the other hand, any season is favorable for export sales, except that it is more favorable during Muslim holidays. The bulls he sells are between the ages of 2-4 years. Traders can export only bulls and cannot export calves and female animals. The reason is to prevent reproductive and young animals from leaving the country. He earns 400 to 500 birr profit from each bull.

Facilities in his feedlot include shelter for the animals, water, storage, and scale for weighing animals. He keeps the bulls in the feedlot for about 2-3 months, and if he keeps them more, he starts to operate at loss each passing day. He spends 30-40 birr per head per day on feed for bulls, 20-30 birr for camels, and 4 birr for sheep. The camels, however, are not for fattening. He uses the feedlot only as a resting ground for camels. He exports the sheep to Saudi Arabia and Kuwait, and also exports camels to the former.

Some of the export sales were on credit in the past, but the government banned this practice because of delays in repayment, which reduces government foreign exchange earnings. In a few cases exporters buy from one another if they have shortfalls in the number of animals requested by their foreign customers. Traders have different connections (with different countries and individuals). Feedlot operators specify the type of bulls they want such as age, breeds, color for purchase in order to meet the demands of their customers (Yemenis want white color, but do not like black and big horn).

M says dry weather is good for his business. Rainy, windy, and cold weather affect their feeding, weight, etc. In dry season animals take too much water and gain weight very quickly. His experience during the 2011 drought was that he bought enough bulls before the onset of the drought and did not benefit from the low price.

The main problem he faces as a feedlot operator is water, feed, and quarantine procedures. He uses trucks to transport water for his animals and it costs 0.25-2.5 birr per head (2 birr for camels, 2.5 for bulls, and 0.25 for sheep). He obtains hay from Sandafa and Sululta, teff straw from around Adama, beans straw from Addis Ababa, and other feed from flour mills—residues of nigerseed and cotton seed.

The absence of quarantine service in Ethiopia is affecting his business. He argues that the one in Djibouti rejects export animals without sufficient reasons and exposes traders to unnecessary expenses. Diseases that mostly affect his animals are LSD and FMD. For example, he lost 40 bulls because of LSD and spends about 40-50 birr per head for treatment. The disease occurs during wet seasons. When there is disease outbreak, he goes out to the market with veterinarians and assesses animal health conditions before he buys them.

1.2. SB

SB, 49, is a feedlot operator and livestock exporter. He is a 12 complete and has 2 years teachers training certificate, 2 years radio program producer training, and 2 years intelligence officer training. He has been in the export business for 7 years. He started the business with own capital by selling his house.

S buys the bulls from Dallo Manna and Haro in Bale and Bakke, Dubuluk, and Moyale in Borana. He then exports them to Egypt, Oman, and Yemen after they gain weight. He exports to Egypt bulls that are less than 5 years old, because their meet is very soft and demanded by many Egyptians. All other ages are sent to Oman and Yemen since they do not specify ages.

S says it is good to buy bulls from Bale when it is rainy and cold in Adama because they can easily adapt to the weather. On the other hand, it is difficult for those from Borana to adapt to the cold and rainy weather during this time. In general, sixty percent of his purchase, however, is from Borana. Every 45 days he ships about 500 bulls for export. Except Egypt there is no specification for animal ages.

It is more favorable to purchase animals in drought seasons, even though animals are weak and death rate is high during this season. For example, S made more profit during 2011 drought than normal period. However, pastoralists moved away from markets and they brought animals only after they became weak.

He has a feedlot with facilities such as water, store, and isolation feedlot place for sick animals, and scale for weighing animals. He keeps the animals 2-3 months in the feedlot before he sells them. The main resource constrains he reported include water and pasture problems. He trucks water for the animals in addition to the water pump facility he owns. He uses cotton seed, barley residues from flour factory, sorghum from Bale & Wollega, rice from Gondar, beans from Debre-berhan, and *teff* straw from the area. He spends 41 birr per animal per day on feed and 6 birr on water for bulls.

He sometimes obtains the animals on credit, especially during droughts, and pays the credit back after selling the animals. He also sometimes sells his animals on credit (receives what is known as dry checks), mostly to Ethiopian exporters. This practice has a risk of encountering default, and S lost about 200,000 in the past 12 months alone.

Other problems S faces during transporting animals to the port include theft and animal deaths. For example, in 2011 he sent 12000 sheep to the port and only 7411 reached his client. In the same year he lost 38 bulls due to disease (death), even though he spends 400-500 birr per head on animal treatment. Colder weather during wet season aggravates livestock disease.

Regarding the importance of mobile phone, he summarized its usefulness in one sentence: "Information is Money for Pastoralists."

1.3. SMH

SMH, 46, was interviewed on 25/07/12. He has a degree in Islamic education. He has been in the business of livestock trade for 15 years. He buys animals from Borana area (Bakke, Elwayya, Dubuluk, Surupha, Moyale, Nagelle Borana, and Finchawa). Currently he has 270 bulls in his feedlot and bought them between June-August 2012 from brokers for 6500 birr on the average. He sends these animals to Yemen and had also exported to Oman once.

He has regular customers (agents) in Borana who make the purchases for him. Also he has regular clients who buy from him, and the clients specify the kind of animals they need. The

months of February-June are favorable to make purchases because during this season there is a shortage of pasture in Somalia and Somalis supply in large numbers to the Middle East markets, which also affects domestic livestock markets. The unfavorable season is September to November when short rains make grasses to grow and fewer households are willing to sell their animals. On the other hand July-October is the most favorable season to sell because there is no pasture in Borana. The desired types by clients are young male animals. He sells the animals after keeping them for 3 months.

At the time of the interview, M just moved to another feedlot site because of flooding in earlier feedlot. Heavy rains flood the feedlot and affected the fodder and made it muddy.

During the 2011 he spent additional money to purchase additional fodder and water to keep weak animals for long period. However, he did not make more profit than he usually does during normal years. Benefitting from drought time low price depends on the traders' situations such as the availability of water, enough feedlots, etc. Therefore, M did not make more profit than usual. For the export trade, there was less supply with higher prices because exporters kept their animals for longer periods in their feedlots even though there were more traders buying animals. In general, during droughts traders can increase their purchases of animals without increasing their capital because of the lower prices.

Pasture and water are critical resources during drought seasons. M gets water for his livestock from the cistern he built in the feedlot and shortfalls are made for by trucking it through purchases. The daily cost of water per animal is estimated at 4 birr while the cost of animal feed per day per animal is 40 to 45 birr. For fodder he uses cotton seed, wheat and beans residues, lentil, barley, and *teff* straws, and hay in a few cases. He buys hay from traders who bring it from Sandafa, 130 km away from Adama. The hay costs 60 birr a bale, and 20 bales are needed to feed his animals a day (all 270 of them).

There are several risks involved in the business of livestock trade. For example, about two years ago, 6 bulls died and 2 wounded when the truck flipped over, and the truck owner compensated him only for half of the loss. Also 10 bulls died due to LSD (skin disease). Low standard of feedlots and low water and feed qualities contribute to increased livestock disease. Problems associated with export market include lack of appropriate trucks.

II. Pastoralists (Livestock Producers) Interview Notes

1. Field Visit to Borana

Three household heads were interviewed in order to pretest the household questionnaire: KG, JG, and MH.

1.1. KG

KG, 52, is a resident of Dambala Saden PA in Yabello woreda and has 9 family members, and three of his children attend school. He was interviewed on 09/08/2012 and provided useful information regarding pastoralism, livestock trade and climate variability.

The household shows religious diversity, with 2 Protestants and 7 followers of traditional religion. There is one female individual (a sister of second wife) who joined the household to assist with domestic chores.

The household manages different species of livestock, including camels, cattle, sheep and goats. In addition, the household also owns animals that it does not manage (3 male cattle, 10 female cattle, 6 male sheep, 10 female sheep, 1 male goat, and 5 female goats).

Table 1: Livestock Ownership of K's Household

Period	Livestock Type (number)							
	Male camels	**Female camels**	**Male cattle**	**Female cattle**	**Male sheep**	**Female sheep**	**Male goats**	**Female goats**
Current	1	-	3	10	5	10	2	5
Five Years Ago	4	3	5	20	10	20	5	10

Compared to five years ago, the household owns less animal assets, the reason being more frequent droughts. K continues to go to *foora* with his livestock regardless of the declining herd size. The nearest *foora* to him is 15km while the furthest one is 25km. During the 2011 drought there were no *foora* and *warra* grasses and the household had to purchase straws and grain residues to feed the animals.

K reported that the Borana do not fight over pasture and water even during drought seasons. Instead they cooperate and share whatever is available. However, conflict over scarce resources is possible with other groups.

In Borana there is no what is known as private kallo as both customary and statutory laws do not recognize private pasture. What actually exists is private farmland where households grow different crops (K grows maize, wheat, and beans), and part of this landholding may be allocated for grazing. K piles crop residues and uses them as supplement for animal feed. However, households may have control over water sources. In Dambala Sadeen PA, some of the ponds were developed by individual households while others were developed by the community and government.

The incidence of livestock disease is low, especially for cattle. This is due to vaccination and use of medicine for animals. However, the incidence of goat and sheep disease has increased. Common livestock diseases in Borana include *harka*, *silisa*, *sombessa* (CBPP), *oyele* (yellow fever), *birte*, *dadhi* (irradiated), and *tumma*.

K sold a bull for 7000 birr and a cow for 3000 birr, both in a good condition, in Bakke in the past 12 months. He sold the bull to a trader and the cow to local butcher to meet the financial needs of his household. He also purchased a heifer from Bakke in August for 2400 birr for breeding

from a local producer. He mostly learns about the price for livestock from traders. The main problem in marketing livestock during drought years is low price of animals. In normal years he believes that there is no problem in marketing animals.

Regarding climate change and variability, K believes that rains have become more erratic and there is less number of rainy days in the past twenty years. The source of weather and climate information for him is traditional forecasters. He trusts this source and it is readily available to him when he needs them. He tried to adjust to the changes by selling some of his animals and putting money in the bank. He also educated his children so that they can find opportunities outside the pastoral sector.

When K was given different weather scenarios, such as rains are likely to be scarce, rains are likely to be normal, and rains are likely to be heavy, he responded differently only to the first scenario. That is, he would search for water and pasture under scarce rain conditions and do nothing for the rest. This shows that pastoralists react more to rain shortages than excesses.

Mobile phone is widely used both by K's household and the Borana in general. Even though K is not educated, he recognizes his friends and relatives' phone numbers by assigning to each of them a special sign. He charges his phone at Dida Hara every week on market days and pays 5 birr every time he charges. He spends about 40 birr per month on minutes purchased. He often communicates with family members, friends and relatives both near and far. He communicates mostly to discuss grazing and water condition, social issues, and market price in this order. He also shares this information with other community members.

In addition to herding, a member of K's household engages in petty trading. GK, 14, is from K's second wife and involved in egg trading. He buys eggs weekly from around Dida Hara and sells them in Yabello. This year he made an estimated profit of 400 birr.

K's household did not experience food shortage in the past one year, but Kote admits that he had received food aid once in the past 12 months. He received 50 kilo of grains, 2 liters of oil, and 4 kilo of flour in exchange for working on bush clearing and pond construction. He does not remember which organization distributed the food aid or sponsored the community work.

1.2. JG

JG, 47, is a Muslim and resident of Dambala Sadeen PA and has 7 family members. Two individuals, brothers of the household head, joined the household because of the death of their parents. Only one of his children, GJ, attends school.

Table 2: Livestock Ownership of J's Household

Period	Livestock Type (number)							
	Male camels	**Female camels**	**Male cattle**	**Female cattle**	**Male sheep**	**Female sheep**	**Male goats**	**Female goats**
Current	-	-	5	15	1	7	-	5
Five Years Ago	2	3	30	50	5	20	15	20

Compared to five years ago, J's livestock asset has substantially declined. The changes are primarily due to frequent droughts, livestock sales to buy food, and insufficient pasture and water. J continues to go to *foora* camp regardless of the declining livestock herds. The nearest *foora* is 3 hours walk from his village and the furthest is 5 days.

However, as explained by J, the distinction between *foora* and *warra* is not simple. There is a rangeland use type that is different both from *foora* and *warra*, and known as *mata lafa*. It is different from these categories because it is not possible to fence it and protect it like *warra* pasture or settle in it like *foora*. Households have to travel to the grazing field and go back to their village every day.

Problems related to migration to *foora* include shortage of water for livestock, food for herders, and labor. Hiring herders is not common among the Borana and the term 'herder' or '*tiksee*' in Oromiffa has a negative connotation. Instead if they want help in herding they ask someone saying, "*na gargaari, loon siif kenna, sii laadha, daara sibaasa,*" meaning, "help me, I will give you cattle, feed you, and buy you clothes."

J's household did not migrate to *foora* during the 2011 drought and stayed at *warra* grazing areas. The grazing areas they went to are called Charri, Labu, Koticha Taphe, and Chirri. These are also normal areas where he takes his animals during dry season. His elder son, TJ, takes care of the cattle both in *warra* and *foora* areas while GJ, 7, and SG, 15, respectively herd small stock at *warra* and *foora* camps. In general, calves are not herded both at *warra* or *foora* camps and let to freely roam.

While rangelands are generally communal, households have private use right over farmlands. J has 1 ha of farmland which he received from the government officials in 1998. Currently his farmland is under cultivation, but 1/3rd of it is allocated to grazing land. He grows crops such as maize and beans on his farmland and uses crop residues as a fodder.

J believes that the incidence of livestock disease has decreased over the last 20 years, but could not clarify what contributed to the decline in disease incidence.

He had sold a young bull and a heifer for 2000 birr each in the past 12 months. He sold both animals at Bakke to traders and bought food with the money for his family. He often learns about the price of animals from others who previously sold livestock. The major problem they face in marketing their animals during drought seasons is primarily low demand. Other problems include bad animal body condition, which makes them unsalable. In addition, the animals become too weak to trek them to the market.

The 2011 drought is one of the recent environmental shocks that Jaba mentioned. The drought caused death of livestock, decline in milk production, and food insecurity and starvation. Children were most affected by all these consequences of the drought. Some of the things his household did as a response to the drought were selling livestock to buy food, participation in food for work activities, and cutting tree leaves for the animals. His household also received food aid during the drought. J does not seem to notice any long-term climatic change in the past twenty years. He believes that both the number of hot days and rainfall days, including its nature, stayed the same.

Two members of J household own a mobile phone and share them with others. They charge the phones every week at Dida Hara on a market day. They spend 50 birr on minutes and 20 birr on charging for each phone. They use the phone to communicate with *olla* (neighbors), relatives, and all other acquaintances, mostly to discuss grazing and water conditions and social issues.

J's household experiences seasonal food shortages. For example, in March 2012, his household was food insecure for about 3 weeks. He tried to cope with the problem by selling and bleeding animals as well as earning wage from gold mining. J's household received food aid once in the past 12 months. He received 90 kilo of grains, 2 liters of oil, and 4 kilo of flour in exchange for working on bush clearing and pond construction. He said CARE distributed the food aid and sponsored the community work.

1.3. MH

MH, 42, has 6 family members all of whom follow traditional religion. Five years ago he had 3 male and 13 female cattle, 2 male and 5 female sheep, and 2 male and 10 female goats. Compared to 5 years ago his herd size has declined and now owns a few livestock assets (1 male and 6 female cattle, 4 male and 1 female sheep, and 2 male and 6 female goats). Frequent droughts and sale of animals for various household needs are responsible for the household herd decline.

M is not sure about future changes that he will make to his livestock herd. He says if there will be increases, that is due to natural birth and if decreases, it is due to death or sale. Therefore, there will not be any planned change to his herd, which is already small. As a result of his herd size and permanent settlement of *foora* areas, he is not going to satellite camps with his livestock. Often problems associated with migration are shortage of pasture and water for livestock.

M, his brother, and his children herd cattle, calves, and small stock in turn. He has no private pasture and depends on communal *kalo*. For water, he depends on hand dug well and pond in the area which is owned by the community. M has half a hectare of farmland which he cleared 6 years ago and grows maize and beans. After harvesting crops from the field he allows animals to graze crop residues there. He believes that the incidence of livestock disease has decreased over the past 20 years. The reason is the existence of vaccination every year.

In January 2012 his household sold a young bull for 2000 birr to buy food for the family. He learns about livestock price from people who visited the previous market. In drought years, the problem with marketing animals is low price and bad animal body condition. Transportation does not seem to be a problem as always there are paid people who trek animals to the market.

The drought of 2011 and erratic rainfall pattern in 2012 affected M's household. The 2011 drought caused loss of animal assets, income, and decline in crop yield. The impact of the shock was particularly high on children, since there was no milk and enough food. The 2012 crop failure also had a similar impact and affected all households in the village.

M notices climate change over the last 20 years. According to him, while temperature stayed the same, rainfall has decreased and also became erratic. It comes earlier and there is less number of rainy days in a year. Regarding weather information, he receives forecasts from traditional forecasters. Even though he trusts the traditional source, trust largely depends on the past experience of the person forecasting the weather. Actions that his household takes depend on the actual, not forecasted, weather events. For example, he migrates only when droughts occur rather than taking a proactive measure.

His household seems food self sufficient, since he said he has never received food aid in his life. When food shortage occurs he makes for the deficit by selling livestock and buying food for the family.