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**Cross-Border Livestock Trade and Food Security
in the Southern and Southeastern Ethiopia Borderlands**

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Acronyms and Measures

BASIS-CRSP: Broadening Access and Strengthening Input Market System Collaborative Research Support Program

Birr: Ethiopian Currency, 1USD was Birr7.5 during the survey

BLPDP: Borana Lowlands Pastoral Development Program/GTZ

CARE: An international NGO working in the area

DOA: Department of Agriculture (at Zonal and Wereda Levels)

FEWS: Famine Early Warning System

GDP: Gross Domestic Product

GTZ: Germany Technical Cooperation of

MEDaC: Ministry of Economic Development and Cooperation (Ethiopia)

MOA: Ministry of Agriculture

NGO: Non-Governmental Organization

OSSREA: Organization for Social Science Research in Eastern and Southern Africa

RRC: Relief and Rehabilitation Commission

SCF/USA: Save the Children Fund Federation/USA

UNDP: United Nations Development Program

1. INTRODUCTION

Cross-border trade in the Horn of Africa has always assumed considerable importance in the economies and societies of the region, even when governments have attempted to discourage it. Incentives for cross-border trade result from geographic, cultural, ethnic homogeneity as well as production and consumption characteristics that favour certain countries for particular key commodities. In the case of southern and southeastern Ethiopia, it is the production and marketing of livestock, particularly of cattle, that assumes the most significance.

Throughout the region, social relations based on clan/ethnic affiliation, kinship, and friendship shape the existence of cross-border trade in the Horn of Africa. Relationships maintained for long periods of time along the international boundaries facilitate trading relations and, in some cases, these can be linked to clan/ethnic or other social structures (Ahrens, 1998:1). These trade patterns are reinforced by unattractive, highly regulated domestic prices that are by large lower than parallel market prices (for example, prices in the neighbouring countries' markets). Therefore, despite vigilant controls by the governments in the Horn of Africa region, to redirect commerce in the borderlands to the official channel, substantial exchange of goods takes place in the border areas in all types of commodities (Little, 1996 and 1997; Little et al, 1998).

International boundaries throughout the Horn of Africa have important economic and ecological characteristics that generally distinguish the region from other parts of Africa. For example, most of the borders are characterised by arid and semi-arid environments, inhabited by pastoralists and agro-pastoralists and livestock-based economies. The southern and southeastern Ethiopia borderlands are not unusual in this respect and livestock dominate local patterns of trade and production. The southern and southeastern Ethiopian rangelands is an important market shed for unofficial livestock trade from Ethiopia to Kenya and, secondarily, to Somalia. According to the trader interviews we conducted during November and December 1998 and January 1999, the animals traded in these unofficial channels are destined to consumer markets in Kenya and Somalia as well as re-export to the Middle East, primarily Saudi Arabia and Yemen.

Processed and unprocessed foodstuffs and other manufactured items that are predominantly consumer goods flow in the reverse channel; that is, from Kenya to Ethiopia and Somalia to Ethiopia. Without a central government since 1991, Somalia has emerged as a large 'duty free' entry point for numerous manufactured items, electronic consumer goods, and processed food items in the region. These items find their way into border markets in neighbouring countries and reach the shops and streets of major cities.

In this study livestock refers to cattle, sheep, goats and camels. In Ethiopia livestock production plays an important role in the national economy. Half of the country's output derives from the agriculture sector that is directly and indirectly supported by livestock production in the mid-1990s. About 15 percent of the Gross Domestic Production (GDP), which is 30 percent of the Agricultural GDP, was from livestock production. In 1997/98 GDP at constant factor cost from agriculture and allied activities (crop, livestock, forestry and fishing) was 46.4 percent of total GDP (MEDaC, 1999:462). Animal and animal products are

also the second major export items of the country. The country's livestock population is the largest in Africa. In 1993/94 there were 31.5 million heads of cattle, 19.8 million heads of goats 27.5 million heads of sheep and 1.2 million heads of camel (MEDaC, 1999:157-62). 20% of cattle, 25% of sheep, 73% of goats and 20% of equine and 100% of camels are found in the lowland rangelands (Mengistu, 1994). According to the 1998 record of the Borana Zone Department of Agriculture, the Zone had a total of 1,856,067 cattle; 372,534 sheep; 792,849 goats; and 302,586 camels. The data excludes the Borana Weredas of Bore, Odo Shakiso and Uruga. Data was not available for Liben and Afder Zones of the Somali Region.

Livestock is more important in the rangelands of the country both in distribution and as a source of living. The sector is a primary activity in the area (50-60 percent of the total area of the country) and about 12 percent of the country's population from 29 Cushitic and Nilotic ethnic groups make their living from this sector. Production is primarily for subsistence taking several forms of pastoralism and agro-pastoralism¹.

Rangeland livestock production is also linked to the highland areas mainly with Gujji and Arsi, by providing draft animals for agriculture and animal products for consumer markets. The rangeland also provides heifers and small ruminants to the Omotic population for breeding and heifers and she camels to pastoralists in northern Kenya and to Somalia in the east. The highland crop producing population meat demand is substantially met by the rangelands. The most important item in the return flow to the lowlands from the high lands is food grain. Livestock in the lowlands also provides subsistence employment and investment opportunities for around 5 million people for residents of some two dozen major towns and cities within and adjacent to the lowland areas (Coppock, 1994:19).

The lowlands, arid and semi-arid lands of Ethiopia, where much of the livestock production comes from are located in the peripheries bordering five countries of the Horn of Africa, namely Djibouti, Eritrea, Kenya, Somalia and Sudan. Unofficial cross-border trade in livestock among these countries is important. For instance, in the mid- 1980s unofficial annual livestock trade to Djibouti, Kenya and Somalia was estimated by the Ethiopian Ministry of Agriculture (1985) at 55,000 cattle and 330,000 sheep and goats. More recent estimates by Gebreselassie et al (1998) put the number of unofficial cross-border exports at approximately 260,000 cattle and 1, 200,000 sheep. The bulk of the sheep is exported from the Ethiopian Somali Region to Somaliland and eventually to the Middle East. It was estimated by Gebremariam (1976) that the flow of cattle from Ethiopia to Kenya was 50,000- 80,000 per year.

1.1 Research Objectives

The objective of this study is to characterise and analyse the process of cross-border livestock trade between Ethiopia and Kenya and the southeastern part of the Ethiopia Somalia borderlands. The study looks at the relationship between cross-border livestock trade and food security in the area and examines the impact of domestic markets on cross-border trade. The study is also meant to complement an on-going cross-border research in Kenya (the Kenya/Somalia borderlands) and a research to be carried out in the year 2000 along the Ethiopia/Djibouti borders. This comparative

research program, a joint collaborative effort between OSSREA and the BASIS-CRSP, is the first of its kind to document the extent and nature of cross-border trade in the Horn of Africa. The following questions motivate this particular study as well as the larger research program (see Little 1998; and Little, Tekla, and Azeze 1998).

1. What is the current structure and volume of cross-border trade in the Ethiopia-Kenya border?
2. How do different actors in the marketing chain manage risks associated with imperfect information, missing capital markets, unstable market and political conditions, and high and volatile transport costs?
3. In what ways do social/non-economic variables (informal social networks, ethnicity and other variables) help actors cope with uncertainty and risk?
4. What is the current performance of cross-border livestock trade?
5. What are the major policy and other constraints inhibiting cross-border trade and food security in the region?

1.2 Research Area, Data and Methodology

The Research Area covers most parts of southern and southeastern rangelands of Ethiopia which extends from Omo (west) to Wabi Shebelle (east) rivers covering Borana Zone (Oromiya region), Liban Zone and Afder (Ethiopia Somali region), Konso Wereda and lower Omo in the Southern Nations, Nationalities and Peoples Regional State (See Map 1).

Data has also been collected from secondary sources. The secondary sources for this study are the Department of Agriculture at Zonal and Wereda levels and non-governmental organisations operating in the area. Time series data has been obtained from these sources on quantity and price of live animals, grain, and other food staff by markets in the border area.

Most of the information used in this study is primary. Trader interviews were conducted by the OSSREA research team during December 1998 and January 1999 using a questionnaire. The survey instrument was field tested in November 1998. To assist with the research, enumerators were recruited from the local area and were trained using the questionnaire and, thus, were able to conduct interviews in some cases. Reconnaissance was conducted in both border catchment markets found in southern and southeastern rangelands consisting of Borana, Liban and Afder Zones. Field surveys were carried out in Borana, Arsi and East Shewa Zones of Oromiya region, Liban Zone of Ethiopia-Somali region, Gedeo Zone of Southern Nations, Nationalities and Peoples region and the Addis Ababa Regional administration. The questionnaire included questions that intended to capture traders profile, volume and price of different livestock traded in 1998, marketing inputs such as transport and cost, feed and water cost, veterinary drugs and services cost, the role of brokers and market information, diversification by traders and constraints in the cross-border trade. In addition, discussion has been made with livestock officers in the border regions of Kenya (Mandera and Moyale) and other people in Ethiopia (Borana Zone of Oromiya Region) and NGOs (GTZ/BLPDP, Save the Children Federation/USA and CARE-Ethiopia).

In the 13 Ethiopian livestock markets visited for this research, it was estimated that there were 650 livestock traders, both registered with the government and the unregistered. Out of these markets, 9 were in the cross-border trade catchment including Mandera and Moyale in Kenya. The rest were visited to see the impact of domestic market. Among the livestock markets that were surveyed were Mega, Dubluk, Teltelle, Finchawa, Arero, Wadera, Yabello, Negelle and Dollo-Ado. These markets were found in the cross-border livestock trade catchment from the Ethiopian side. Kebre Mengist, Hagere-mariam; Wonago/Dilla, Yirgacheffe, Nazareth, Dixis, Dhera and Addis Ababa were domestic markets for livestock from the southern and southeastern rangelands excluding camels. From the Kenyan side, the Ethiopian research team surveyed Mandera and Moyale, while Nairobi and Isiolo are covered in the Kenyan-based study. However, some data on the latter two Kenyan markets were obtained from interviews with Ethiopian traders and Kenyan border livestock officers.

The estimate on the traders' population in southern and southeastern Ethiopia was derived from the Department of Agriculture, the local Inland Revenue Department and traders in the local markets. It covers both domestic traders and those engaged in cross-border commerce. It was envisaged to sample 14 traders per market and a total of 182 traders that make up 28 percent of the traders population. However, during the survey we were able to survey about 171 traders or 26 percent of the traders population. 100 traders were in the border catchment covering Negelle, Dollo-Ado, Mandera, Arero, Dubluk, Mega, Yabello, Teltelle and Moyale markets. Trader involvement in cross-border trade generally increases as one approaches the border. The rest of the traders were involved in domestic livestock markets. A list of traders by name, big and small for each market centre was prepared. The survey covered all categories of traders willing to be interviewed and those available in the area. More than 10 % of the traders' population were away for livestock trade business in other markets. Interviews took place at traders' houses, market places, tea houses and bars. Table 1 summarises markets and number of interviews undertaken in those places where border traders were found.

Table 1. Number of Trader Interviews by Market Area

Border Market Area	Location	No. of Interviews
Arero Area (Mata Gefersa, Obulo and Web markets)	Ethiopia (Central Borana)	12
Dollo-Ado-(Dollo-Ado, Chiratte, Bare, Elkare)	Ethiopia (Ethio-Somali and Kenya-Somali Border)	12
Mandera, (Ramu, Banissa, Thakaba)	Northern Kenya	16
Dirre Area (Mega, Dubluk and Hidilola)	Ethiopia (Central Borana)	12
Moyale Area	Kenya	20
Negelle Borana Area (Genale,	Ethiopia (North east	14

Jidola, Harkallo, Wadera and Negelle)	Borana Zone)	
Teltelle area (Milami, and Omotic people)	Ethiopia (Western Borana)	12
Yabello Area (Yabello, Suruppa Harobake, Elwaya and Didhara)	Ethiopia (north west)	2
Total number of interviews in the border area		100
Total number of interviews in domestic markets*		71

SOURCE: Survey Data, 1999

* where livestock from southern and southeastern rangelands are traded with Addis Ababa, Nazareth, Dhera, Kibre Mengist, Dilla/Wonago, Yirgacheffe and Hageremariam.

Secondary data were collected from the Zonal and Wereda agricultural departments and NGOs operating in the regions, such as GTZ- Borana Lowland Pastoral Development Program (BLPDP) and CARE-Ethiopia. Data obtained from GTZ-BLPDP comprise four livestock markets that are important to the Ethiopia-Kenya cross-border trade. Out of these, three are found in Southern rangelands of Ethiopia (Borana Area). These are Negelle from the northeast part of the border catchment and, Arero and Dubluk in the central area. The fourth market is Moyale (in Kenya). The GTZ-BLPDP unpublished data in these markets compiled monthly data for livestock (dry cow, milking cow, calves, heifer, bullock, steer, ox, male and female goats, male and female sheep, camel and donkey), various types of grain and other food staffs such as flour, edible oil and milk. CARE-Ethiopia also compiled a monthly price data for livestock and grain in some markets in Borana. However, due to large missing values we were not able to use the information.

Limitations of market data, both in spatial and temporal coverage, forced us to use various techniques and look for the convergence of the results obtained using these different methods. In this study, simple statistical summarising techniques such as averages, coefficient of variation and correlation are used to explain some relationships.

The research report is organised as follows. Section 2 presents the social and ecological characteristics of cross-border trade, while Section 3 treats the structure of the cross-border trade. The structure is explained in terms of the goods traded, trader's socio-economic profile, livestock markets, marketing channel and market sheds and the types of currencies used by the traders. Section 4 summarised transaction costs including market information, transport and other related costs. Section 5 is devoted to the role of finance and credit arrangements. Market integration analysis is dealt with in section 6. The report is concluded with a summary of research findings, in Section 7. Finally, in Section 8, the study presents some policy implications for the cross-border trade in the southern and southeastern Ethiopian borderlands.

2. PEOPLE AND ECOLOGY IN THE SOUTHERN AND SOUTHEASTERN ETHIOPIAN BORDERLANDS

This section examines the ecological and ethnographic features of the cross border region and its implication for trade. As noted earlier, cross-border trade is facilitated by the presence of similar ethnic/clan groups, such as the Boran and Somali, on both sides of the border. Livestock husbandry is the main activity of these groups. Ethiopian and Kenyan pastoralists in this region focus on cattle, sheep, goats and camels, depending on social and ecological variables. In the dry western and extreme south-eastern parts of the border region, herders emphasise camel and goat production while in the higher rainfall areas like the Borana plateau herders focus on cattle pastoralism. All cross-border pastoralists in this region breed the Boran cattle type, which is especially of high demand in Kenyan markets. Most of the better quality livestock for both domestic consumption and export are supplied from these areas (See Map 1).

The Boran constitute the main ethnic/clan groups in the study area. They are the most numerous and inhabit both sides of the border and maintain the largest number of cattle in the region. Their livestock straddle both sides of the border relatively easily. The Boran speak Oromiffa, depend on livestock, trading, on relief food, and occupy large parts of northern Kenya as well, including parts of Marsabit and Isiollo districts.

Second in importance are different Somali clans. The Gerri, Degodia and Marehan clans are the important ones. The Gerri Somali who occupy the area south and south-east of Borana, in Liban Zone of Somali region, Ethiopia. They also reside on the other side of the Kenya border and maintain all species of livestock, especially camels and goats, in their herds and flocks. The camel breed kept by Gerri is the horka type known for its beef and meat. The Degodia Somali are found in the border area in the Liban Zone of Ethiopia Somali region. They keep the best camel breed, horka type and cattle in southeastern rangelands of Ethiopia. The Marehan, found to the east of the Degodia reside along the Somalia/Ethiopia border in the rangelands around the Genale River. The Marehan depend on pastoralism and are known for breeding an excellent Borana species of cattle.

Thirdly are the Gabbra, who occupy the western part of the study region. They are camel breeders and are found around Finchawa, Arero and Moyale. They straddle both sides of the Ethiopia- Kenya border easily. The Gabbra keep light weight camels of the Afar type.

Fourthly, to the west of the Gabbra are the Dasenetch, an Omotic people occupying the Omo river valley. They breed cattle, sheep and goats. They also depend on bee keeping, rain-fed farming, hunting, and gathering.

Fifth are the Konso. The primary activity of these people is farming. They inhabit the Konso land found bordering the Borana from northwestern side. Many of them are also found in the Borana area such as Teltelle, Yabello and Moyale.

Finally, the Burji are settled farmers in Mega, Hidilola, Tuka and Yabello. They originally came from Burji land, an area north of Yabello. The Burji also live in Marsabit, Kenya as farmers and traders.

The ecology of the border region is endowed with an undulating plain with sub-humid zone in the upper limit of the rangelands and semi-arid to arid environment in the south and southeast of the borderlands. The landscape is undulating with few scattered volcanic cones and rock out crops. The area is endowed with scrub savannah interspersed with acacia species and open grassland. Remnants of *Juniperus excelsa* are visible around old settlements. The open grassland is being invaded by bush and in some localities camels find it difficult to penetrate through. Long term overgrazing which prevents burning has turned them into dense scrublands where acacia are dominant. Government ban on burning in late 1970's and 1980's may have also contributed to bush encroachment and a corresponding decrease in grass production and carrying capacity of the land.

The distribution and quantity of rainfall is erratic. The small dry season referred to *deyr* (in Somali language) *hagaya* (in Oromiffa) and the big dry season *jilaal* (in Somali language) and *bona* (in Oromiffa) last for 6 months. The main rains fall in late March -May and account for 60% of the total, while the secondary rains from September - November may account for up to 40% but are unreliable. The mean annual temperature vary from 18-25 degree centigrade with little seasonal variation. The dry periods are sometimes followed by drought and stress periods. Cultivation is practised in river valleys in pockets of high potential agricultural land in settlements and in the vicinity of small towns. The environment on the Kenya side varies from arid to semi-arid and the rangeland has low potential than the adjacent southern rangelands of Ethiopia.

Two important rivers, the Dawa and Genale drain the area from north to south and south east and confluence at Dollo Ado and then flow together as Juba river (in Somalia) to the Indian Ocean. Cultivation has flourished along the Dawa and Genale rivers. Segen is a seasonal river on the western side of the rangelands and flows into Wayito River, which later enters the Chelbi desert. The Kenyan side is endowed with seasonal rivers.

Apart from the rivers, the lack water is a constraint to livestock production in most parts of the southern and southeastern rangelands. Pastoralists use different kinds of water facilities such as traditional wells, bore holes, ponds and cisterns for livestock and human consumption. The deep wells are located in Borana territory. The water facilities are not well developed on the Kenya side. One also observes that Kenya-Moyale gets some drinking water from Ethiopia-Moyale. On the borderlands of Ethiopia and Somalia, human dug shallow wells are common.

Fodder for livestock especially for sheep and cattle is a constraint in the dry season. The amount of rainfall decreases as one travels to the border area. On the other hand, the amount of rainfall increases from 300mm along the border to 900 mm in the Mega Mountains. As far as the livestock movement is concerned, pastoralists from the borderlands of Kenya travel north as far as the Dawa and Genale rivers. During stress and drought animals are moved up to Gujji lands, to the north of the Borana plateau. In normal dry season, livestock congregate around traditional wells on both sides of the border.

3. STRUCTURE OF THE CROSS-BORDER TRADE BETWEEN ETHIOPIA AND KENYA

Market structure can be explained in different ways depending on the purpose of the study. For instance, Cook et al, 1990 explained market structure for cross-border trade in some West African countries using trader's profile and goods traded. Similarly, Little (1997) described the structure of cross-border livestock trade between Kenya and Somalia using different actors involved and their roles in the marketing chain and markets. A Famine Early Warning System (FEWS) Somalia report described the structure using market channels and sheds (Steffen et al, 1998). All these studies used similar issues in explaining a given market structure albeit various degree of emphasis guided by variability in objectives and foci. In this study, elements of the cross-border trade are summarised to find out relationship with food security in the area and beyond. Thus, goods traded, traders' profile, markets, sheds, channels and currencies are identified and presented as follows.

3.1 Goods Traded

Observations were undertaken during November and December 1998 and January 1999 at various markets to identify the goods traded in the border areas. In addition, interviews were made to list important items traded under normal circumstances in these places. The evidence suggests that by encompassing only few items, the border trade be characterised by commodity concentration. Both primary and manufactured products in both directions are consumer goods and livestock. Livestock is also regarded as a consumer or a capital good. Consumer non-durables mainly food items and live animals are important commodities in the Ethiopia-Kenya border trade. The observation also shows that the commodity concentration is more in Ethiopian exports than its imports. Specialisation in the direction of the flow is presented in Table 2 below.

Table 2. Goods Traded in the Ethiopia-Kenya Borderlands

From Ethiopia to Kenya	From Kenya to Ethiopia
1. Live animals	1. Capital goods
1.1 Cattle	1.1 Construction materials
1.2 Goats	1.2 Veterinary drugs
1.3 Camel	2. Consumer durables
1.4 Sheep	2.1 Household furniture (mattresses, utensils and various plastic items)
2. Livestock Products	3. Non-food consumer non-durables
2.1 Milk and milk products	
2.2 Hides and skins	

3. Other Food items	3.1 Detergents
3.1 Tea (since recently)	3.2 Cosmetics
3.2 Salt (produced in Afder Zone of the Ethiopian Somali Region)	3.3 Pharmaceuticals
3.3 Vegetables and spices	3.4 Cloths
4. Others	3.5 Shoes (sandals)
4.1 Chat* (to Moyale- Kenya)	3.6 Cigarettes
5. Gold	4. Processed and raw food items
	4. 1 Rice(commonly preferred food among the Somalis in Ethiopia)
	4.2 Biscuits
	4.3 Flour
	4.4 Edible oil
	4.5 Sugar
	5. Others
	5.1 Chat* (from the Mandera side to Suftu and Dollo-Ado area).

SOURCE: Survey Result, 1999

*stimulant green leaves

Table 2 shows that primary products predominate Ethiopian unofficial exports to Kenya crossing the border and livestock and livestock products are the most important items. This is similar to the structure of the country's official export trade, i.e. agricultural exports. Although livestock and livestock related exports are next to coffee in the country, livestock production in the southern and southeastern rangelands is a primary and important activity. On the other hand, goods unofficially imported from Kenya are manufactured or processed and most of them are manufactured in Kenya. These items are similar to those items officially imported by Ethiopia from Kenya. Cattle and camel milk from Ethiopia are also sold in border towns of Kenya such as Mandera, Ramu and Moyale. In Liban and Borana Zones, the northern limit for milk collection and sale extends as far as 50 km north of the border i.e. Kole and

Boko Luboma (see Map 3). Milk fetched high price at the border markets as compared with prices further down to Marsabit and Isiollo in Kenya and in the southern and southeastern borderlands.

The structure of the goods traded shows that there are price incentives for unofficial importers from Kenya to Ethiopia through the border since most of the items officially imported are subject to taxes and duties. These impacts on government revenue and domestic industrial and trade policies and preoccupy governments that are on the disadvantage to impose control measures. These measures, however, involve both direct and indirect costs. Direct costs are government budget in financing the required institution. Indirect costs are more important and include foregone benefits by pastoralists from a larger market. Due to positive relationship between producers' incomes and wider and efficient markets, pastoralists in the area would benefit from cross-border trade. Cross-border markets offer better livestock prices. This would enhance food security for the pastoralists through increased income from livestock.

3.2 The Social and Economic Characteristics of Traders

Long-standing social relations based on ethnicity, kinship, and social variables help to shape the structure of cross-border trade. The profile of livestock traders in the borderlands shows that there is geographical, religious and ethnic concentration. This concentration is specifically high in markets near to the border. Along the Ethio-Kenyan border the Oromos (the Boran) and the Somalis (Gerri, Degodia and to some extent Marehan), dominate the cross-border trade. Most of these traders also have relatives in both countries and maintain multiple and a few carry triple country identity cards. These traders have access to larger markets in Kenya such as Garissa, Isiollo and Nairobi.

Table 3. Distribution of Livestock Traders by Wereda in the Ethiopia-Kenya Borderlands, 1998

Wereda	Oromo		Somalis			All Other Ethnic groups	Total
	Boran	Oromos from other areas	Degodia	Gerri	Somalis from other areas		
Arero	83.3	0.0	8.3	0.0	0.0	8.3	100
Dirre/Mega	54.5	18.2		0.0	0.0	27.3	100
Dollo-Addo					23.5	5.9	
Liban	78.6	24.1	0.0	0.0	0.0	0.0	100
Moyale	50.0	0.0	0.0	50.0	0.0	0.0	100
Suftu/	0.0	0.0	83.8	8.3	66.7	0.0	100

Mandera							
Teltelle ²	16.7	8.3	0.0	0.0	0.0	75	100
Yabello	100.0	0.0	0.0	0.0	0.0	0.0	100

SOURCE: Survey Result, 1999.

NOTE: Values in different rows are not comparable but values in different columns should sum up to 100 to reflect percent of the total interviews undertaken in the border markets. Percentages were computed from 100 trader interviews whose distribution by Wereda is indicated in Table 1.

In general, Table 3 and Table 4 below show that the cross-border trade is run by people who live in the area.

Table 4. Ethnic Distribution of Livestock Traders

Ethnic Group	Percent
Oromo- Boran	41
Oromo-Guji	1
Oromo- other	5
Somali-Degodia	14
Somali-Gerri	11
Somali-other	15
Konso	7
Others	6

SOURCE: Survey Result, 1999

People in this area speak primarily Oromiffa and Somali languages. These two languages are the most important medium of communication. Many traders speak both languages and some also speak Amharic in addition. While all traders of Somali clans are Muslims, the Boran are by large followers of Waqifata (religious practice by the Boran Oromo) and some are Muslims (Table 5).

Table 5. Religion of Livestock Traders by Ethnic Group (in percent)

	Oromo	Somali	Other Ethnic Groups
Muslims	25	40	3
Protestant Christian	6	-	
Orthodox Christian	3	-	9
Waqifata	8	-	

Other	5	-	
Not Reported	-		1

SOURCE: Survey Result, 1999

Table 6. Level of Education of Livestock Traders

Level of Education	Percent
No Schooling	15
Religious/ Traditional School	15
Primary School	59
High School and above	11

SOURCE: Survey Result, 1999

In terms of gender, livestock and grain-trade business are men's domain. Women's involvement in the border trade is limited in those small-scale ventures like sale of livestock products such as milk and butter, and other food items like vegetables that are primarily from own production.

Ethnic and religious concentration could entail substantial influence in the performance of production and trade in the southern and southeastern borderlands of Ethiopia. McIntire (1993) wrote that these social variables provide important coping strategies to missing markets for land, labour and capital in African pastoral production system. Cook et al (1990) and Shank (1997) also indicated the relevance of trust relationships among the same ethnic and or religious groups.

Table 7. Livestock Traders by Age

Age Group	Percent
22-30	19
31-35	18
36-40	25
41-45	16
46-50	11
51-79	11

SOURCE: Survey Result, 1999

Table 8. Distribution of Livestock Traders by Number of Years Involved in Livestock Trade

Number of Years involved in Livestock trade	Percent
1-7	51
8-10	23
>10	26

SOURCE: Survey Result, 1999 Range 1-25 years

Table 7 shows that traders are young which would imply the difficulty involved with contraband cross-border trade. In terms of experience, more than half of these livestock traders have started this business since the change of Government in 1991 Ethiopia (Table 8).

Another important socio-economic characteristic of the traders is their engagement in multiple activities. Trader interviews in the border markets indicated that almost all traders are engaged in other activities. However, the activities identified are very few and are limited in farming and small-scale business. These include, animal husbandry, crop farming, grain trade, retail shops of manufactured items and others. Out of these, farming accounts more than half of the activities (Table 9).

Table 9. Diversification/ Other Activities by Livestock Traders in Percent

Type of Activity	Percent
1. Animal husbandry only	11
2. Crop-farming only	11
3. Both animal and crop	30
4. Butchery	4
5. Other private business (shops, foodstuffs trade etc.)	4
6. Two or more combination of activities ³	27
7. Traders not engaged in any other activity	13
Total	100

SOURCE: Survey Result, 1999

Number of interviews=100

Trader's diversification would imply the risk and seasonality associated with cross border livestock trade. The risk emanated from drop in demand for livestock due to bans by importers in the Middle East, bans by the government to redirect the unofficial channel, theft and animal diseases. In addition, occasional droughts significantly affect livestock production in the area.

Seasonality in production and consumption is one of the manifestations of the livestock system in the border areas. Livestock supplies respond differently to dry and wet seasons of the year. Peak periods for consumption arise from relative importance of different time periods for meat consumption such as holidays with festivities like X-mass (Christian) and the Id (Muslim) in Kenya. Other demand shifters for livestock products in the country such as coffee and crop harvest are also seasonal (See Section-6 of this document for seasonality and livestock prices). Another reason for diversification could be that most traders from the Ethiopian side do not deal with large volume of sales that could be run as a full time venture and hence require additional activity to support their living.

There is also large scale of differentiation among the livestock traders as explained by high standard deviation and range.⁴ For instance, when we consider cattle, which is the most traded livestock group, we see that 55 percent of the livestock traders sell less than 200 cattle of various qualities and 35 percent sold less than 100 cattle (Table-10). Similar trend is also observed in small stock and camels (Table-11 and Table-12).

Table 10. Scale of Differentiation Among Livestock Traders Based on Annual Cattle Sales, 1998

Number of Cattle Sold	Percent
<100	35
101-200	20
201-300	10
301-400	10
401-500	3
501-600	4
601-700	1
701 and above	17

SOURCE: Survey Result, 1999

Mean = 532; Standard deviation=1057; Range 10-7322; N=95 cases

Table 11. Scale of Differentiation Among Livestock Traders Based on Annual Sheep and Goat Sales in 1998

Number of Sheep/Goat Sold	Percent
<100	9
101-200	3
201-300	12
301-400	9
401-500	6

501-600	0
601-700	3
701 and above	58

SOURCE: Survey Result, 1999

Mean=2388, Stdev=2686, Range 58-9883 (Min-Max)

Table 12. Scale of Differentiation Among Livestock Traders Based on Annual Camel Sales in 1998

Number of Camels Sold	Percent
<100	63
101-200	23
201-300	3
301-400	7
401 and above	4

SOURCE: Survey Result, 1999

Mean=116, Stdev=190, Range=4-980 (Min-Max)

In general, the livestock trade business that suffers from several constraints implying irregularities in the flow of income forced the traders to engage in other activities. This coping strategy allowed them to smooth consumption over time. Since other activities identified are also seasonal, the livestock trade business fills back the gap to sustain the flow of income. Thus the livestock trade business can also be regarded as a means of diversification of activities or opportunities for pastoralists and agro-pastoralists in the area when compared to other activities. This particularly holds true to small-scale livestock traders.

3.3 Markets and Market sheds

It is critical to examine both the markets and the areas (market sheds) from which these markets draw their supplies. As will be seen in this section, the market sheds for the cross-border trade with Kenya extends well into southern and south-eastern Ethiopia, with most of the livestock directed to the Nairobi market (See Map 2 & 3).

3.3.1 Markets

Livestock markets can be identified as bush, primary, secondary, terminal and export markets depending on who involves in the market (Ethiopian Livestock and Meat Board, 1971 and Gebremariam, 1976).

a. Bush or local markets

In these markets pastoralists and farmers congregate to exchange livestock for breeding, draught and slaughtering purposes either on barter or on cash basis. The exchange is between one farmer to another and between one stock-owner to another. The markets are dominantly of the breeding type and age. There is a very small flow to the trade stream. A few slaughter animals are also sold for local consumption.

b. Primary markets

These are the first points at which stocks enter trade. They are larger than bush markets. They are mostly found along livestock routes and are attended by all kinds of purchasers from farmers or pastoralists. Pastoralists buy breeding stock, butchers for local slaughter and traders for onward sale. In the pastoral areas distances to primary markets are considerable and if a producer does not sell he must trek his livestock to his holding, await the next market or trek to another market. Local farmers or pastoralists act as dealers and buy stock from farmers and pastoralists to resale in these markets. The dealers are in many cases also farmers or pastoralists whose trading activities are secondary. They have small capital resources and operate within a limited area.

c. Secondary or resale markets

These are the largest markets situated along stock routes leading to final destinations on all weather roads. They also help for the exchange of trade animals between the local traders and the larger traders who trek or truck onto terminal markets. They are attended to by farmers, pastoralists, traders, brokers, etc. and are usually located in farming and pastoral areas. Here, farmers buy breeding stock and draught replacements and sell draught culls, steers; and pastoralists buy breeding animals and draught replacements and sell bulls and steers. Traders buy culls from the farmers and slaughter stock from traders and move them to terminal or export markets.

d. Terminal, tertiary or consumers markets

Terminal markets are located outside or on the periphery of pastoral areas. They include markets in towns and cities and coffee growing areas; meat processing plants and industrial and mechanised farming areas. In these locations, the buyers are butchers, intermediary dealers and commission agents buying for processing plants, exporters and consumers.

e. Export markets

These markets are situated in the border countries and attended by traders from Ethiopia; and traders and trade livestock carriers from the neighbouring countries. When the export market is situated close to the borderlands, pastoralists attend markets.

Both livestock and other goods trade are effected in several places along the Ethio-Kenyan border. The most important livestock markets in Ethiopia are Negelle, Dollo-Ado, Arero,

Dubluk, Mega, Teletelle, Finchawa, Wadera and Yabello area. These markets account the majority of livestock traded in southern and south east rangelands of Ethiopia.

The most important livestock markets in Kenya, for livestock traded in southern and southeastern rangelands of Ethiopia, include Mandera and Moyale (see Table-13). These two markets are the major recipients and it is estimated by GTZ/BLPDP and MoA that 70-80 percent of live animals sold in Mandera and Moyale (Kenya) originate from Ethiopia. Other border markets for livestock in Kenya that are found between Mandera and Moyale include Ramu, Banissa and Thakaba. These three smaller markets supply to Garissa, Isiollo and Nairobi markets.

Markets in Kenya are receiving markets for livestock from Ethiopia and supply markets for manufactured items produced in Kenya and unofficially imported to Ethiopia. Domestic terminal or consumer markets are found in Gedeo, Sidama, Konso, Dorze/Ochollo and Wolaita areas. Feedlot owners found in Nazareth and Dhera areas also purchase some cattle from Borana, Arsi and Bale area and these animals are fattened for three months for Addis Ababa and export markets.

Table 13. Classification of Livestock Markets for Livestock that Originate from Southern and Southeastern Rangelands of Ethiopia

Market visited	Classification of Markets					
	Bush	Primary	Secondary	Terminal	Export	Livestock Traded
1. Border Market Catchment						
1.1. Negelle	Alge, Kitta, Geda, Bulbul, Kalkalcha	Genale, Jidola, Harkallo Wadera	Negelle			Cattle, Camel, Sheep, Goats
1.2. Dollo-Ado/ Mandera	Bur Amino, Kole	Chiratte, Bare, Gode, Elkare, Filtu, Seddei	Dollo Ado		Mandera, Ramu, Thakaba, Banissa	Cattle, Camel, Sheep, Goats
1.3. Dirre	Selu, Boko Luboma	Mega	Dubluk			Cattle Sheep, Goats
1.4. Arero	Hirmaye/Obulo, Web	Matagafarsa (Arero)				Cattle, Sheep, Goats
1.5. Yabello	Didhara, Harobake	Yabello, Elwaya				Cattle, Sheep,

	Dambella Wachu	Suruppa				Goats
1.6. Teltelle	Bule Korma	Teltelle (Melami)				Cattle, Sheep, Goats
1.7. Moyale	Tuka, Kedaduma	Hidilola			Moyale-Kenya Isiollo, Nairobi	Cattle, Camel, Sheep and Goats
2. Domestic Market Catchment						
2.1 Hageremariam		Finchawa	Hageremariam			Cattle, Sheep, Goats, Camels
2.2. Kebre Mengist		Wadera, Harkallo, Jidola	Kebre Mengist			Cattle, sheep, goats
2.3. Wonago/Yirga Cheffe	Leku, Tulla			Dilla/Wonago/Yirga-Cheffe		Cattle
2.4. Nazareth/Dhera			Diksis	Nazareth/Dhera		Cattle, Sheep and Goats
2.5. Addis Ababa (4 Markets)				Addis Ababa		Cattle

SOURCE: Survey Result, 1999

3.3.2 Market sheds

Market sheds are different regions in a given supply area whose consignments are destined effectively to different markets that are often located in opposite directions. The boundary between two market sheds is a place where a traded item fetches the same price if it is moved in both selling markets found in opposite directions (Steffen et al, 1998). A market-shed boundary can also be regarded as a supply region where the trader is indifferent to move its livestock to any one of the two directions. In the context of southern and southeastern rangelands of Ethiopia, three livestock market sheds can be identified based on three destinations, these are Somali markets, Kenyan markets and domestic markets. Kenyan markets are Moyale and Mandera and

all others between these two. Domestic markets in Ethiopia include coffee producing areas of southern Ethiopia found to the north of southern and southeastern rangelands of Ethiopia, and other important markets like Addis Ababa, Nazareth and Dhera.

The market shed for the catchment in the Ethiopia-Kenya border market was identified using trader interviews. This part of the interview captured buying and selling markets by type of livestock traded. Accordingly, the market shed or the catchment area for the cross border trade include south of Hagermariam and Wadera line. This is the northern limit of the cross border livestock trade (see Map 3).

The boundary between the market sheds of domestic markets in Ethiopia and Kenya is different for different types of livestock. For instance, the boundary for small ruminants particularly for goats was further down to the borderlands in the 1980's for Ethiopia. Whereas, the market shed or the catchment area for the domestic markets is north of Yabello-Negelle line. This is the southern limit of domestic livestock markets (see Map 3). Expansion and shrinkage of market sheds or shifts in the boundary follow changes in relative costs and prices.

In general, the demand for livestock in the southern and southeastern rangelands comes from outside. Domestic markets are limited for livestock from southern and southeastern rangelands. One better price period is offered by the coffee and crop harvesting areas and the market shed expands down to the borderlands for the supply of livestock and shrinks in the non-harvesting season. The movement of the shed depends on the relative forces from both sides. For instance, livestock embargo by Saudi Arabia depressed livestock prices in 1998 and domestic markets were second best alternatives. Therefore, the supply was sustained irrespective of season.

3.4 Marketing Channel

The overall marketing channel of the cross-border trade is simple. In all types of commodities, it involves fewer transactions and ownership changes. For livestock trade, the border channel is crossed after, at least, two ownership changes. In the trader interviews, livestock traders ranked their two suppliers for different types of livestock bought in 1998. This part of the interview captured trader's suppliers. The suppliers were classified into two: farmers/pastoralists and other traders. The purpose of this classification was used to identify the complexity or simplicity of the marketing channel. From Table 14 we see that most of the cross-border traders buy from pastoralists/agro-pastoralists in the border area and hence after the second trader the border is crossed. The implication of this structure is that the integration between border markets and central and export markets of the neighboring countries are important to income and hence food security of pastoralists in the border areas of Ethiopia.

Table 14. First Rank of Traders for Source Supplier to Purchase Livestock (in percent)

Type of Livestock	Purchased from pastoralists	Purchased from other traders
Cattle	95	5
Sheep and goats	96	4

Camel	100	0
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SOURCE: Survey Result, 1999

Foodstuffs such as milk, vegetables and grain from Ethiopia are supplied to border markets in the neighbouring countries by pastoralists from their own production. The bulk of vegetables and grain originate outside the border markets, especially from the highlands. There are no other agents involved in the transaction of petty trading of these commodities. However, middlemen, transporters, feed and water suppliers and veterinary drugs and services are required for livestock trade. Other manufactured and processed food items and textile products are purchased from retailers in the border towns of the neighbouring countries.

The border markets in Kenya are supplied live animals by livestock traders and pastoralists in order of importance. Pastoralists and traders supply to both secondary markets in Ethiopia and border markets in Kenya. But the majority of the suppliers are traders and the role of pastoralists in the market diminishes as we move to the higher level of the chain. Supporting services are also provided by transporters or drovers and feed and water suppliers (see Figure 1 and Map 2).

Figure-1. Cross-border Livestock Marketing Channel from Southern and Southeastern Rangelands of Ethiopia to Kenya and Somalia

Export Destined

The marketing channel shows that the actors involved in the livestock trade increases at higher levels suggesting various labour and capital contracts. In the cross-border livestock trading from Ethiopia to Kenya there is a maximum of three ownership changes before the border is crossed. These are from pastoralists (herders) to the first trader usually in bush and primary markets and then to the second trader at secondary markets. Once the Somali and the Kenyan markets are reached, the involvement of Ethiopian traders drops substantially. The marketing channel on the other hand becomes more and more complex by involving different agents such as exporters, importers and consumers as well as support services required such as motorised transport, veterinary and quarantine services and customs. Thus, much of the value added from livestock sold at export markets is beyond the reach of the Ethiopian traders.

In examining the market channels and spatial characteristics of the cross-border trade, livestock are moved through several different routes. The study identified 12 export livestock trade routes to Kenya and Somalia and 7 domestic livestock routes that originate from Southern and southeastern rangelands of Ethiopia (See Fig. 2 and Map 2).

Figure 2. Cross-Border Livestock Export and Domestic Trade Routes from Southern and Southeastern Rangelands of Ethiopia

1. Cross-Border Livestock Export Routes from Ethiopia to Kenya and Somalia

ROUTE 1

NEGELLE MOYALE NAIROBI

ROUTE 2

FILTU SEDDEI NAIROBI

ROUTE 3

DOLLO ADO MANDERA WAJJIR NAIROBI

ROUTE 4

CHILANKO BANISSA WAJJIR NAIROBI

ROUTE 5

KEDADUMA THAKABA WAJJIR NAIROBI

ROUTE 6

AFDER LUUQ KISMAYU/MOGADISHU MIDDLE EAST

ROUTE 7

AFDER DOLLO ADO MANDERA WAJJIR NAIROBI

ROUTE 8

GODE/KELAFO WARDER BOSSASO MIDDLE EAST

ROUTE 9

DIRRE SOLOLO MARSABIT ISIOLLO NAIROBI

ROUTE 10

ARERO MOYALE MARSABIT ISIOLLO NAIROBI

ROUTE 11

FINCHAWA DUBLUK MOYALE NAIROBI

ROUTE 12

TELELLE HOBOK DUKENA NAIROBI

2. Domestic Routes

ROUTE 1

NEGELLE DILLA YIRGA CHEFFE

ROUTE 2

NEGELLE DELLO BEKOJI DHERA NAZARETH ADDIS ABABA

ROUTE 3

DIRRE (MEGA) DUBLUK FINCHAWA YIRGA CHEFFE WONAGO/DILLA

ROUTE 4

ARERO FINCHAWA YIRGA CHEFFE WONAGO

ROUTE 5

TELTELLE WATA WONDO SOUTH OMO

ROUTE 6

TELTELLE KONSO ARBA MINCH DORZE/OCHOLLO

ROUTE 7

TELTELLE YABELLO YIRGA CHEFFE WONAGO

NAZARETH ADDIS ABABA

The livestock border trade from Ethiopia to Kenya is one way. There is no livestock trade from Kenya to Ethiopia. Similarly, the flow of other products such as milk and butter, vegetables and grain is also unidirectional, i.e. from Ethiopia to Kenya. These products are consumed in the borderlands, whereas, a large proportion of the live animals is transported to the center towns including Nairobi and some are exported by Kenyan traders to the Middle East.

3.5 Currencies

Transactions in the Ethiopia-Kenya border are effected with most flexible form of payment, money. According to the results from the trader interviews, we conducted in December 1998 and January 1999, the instances of barter arrangements were very few. Out of 100 livestock traders interviewed in the border markets 86 percent of them sold one or more types of livestock in the

neighbouring markets. Out of these exporters, 77 percent responded that, in return to their goods, they received currencies only. The rest, 23 percent, said that they mixed other goods, mainly foodstuff, in addition to money.

Three types of legal tenders namely the Ethiopian Birr, the Kenyan Shillings and the Somali Shillings are used in various degrees in different sites of the border markets. The Kenyan Shillings was paid to 86 percent of the exporters. In terms of distribution across markets, the Birr and the Kenyan Shillings are used in most corners of the border, while the Somali Shillings is restricted to the northeastern part of Kenya-Somalia border and the Somali inhabited areas of Ethiopia. Currency holdings are also ethnic specific. So far as the Somali Shillings is concerned, it is exclusively used by the Somali clans, who have easier access to Somali markets such as Baidoa and Mogadishu because of location, language and culture. This part of the Ethiopia-Kenya border links the other border trade between Ethiopia and Somalia and between Kenya and Somalia.

Table 15. Type of Currency Received from Cross-border Livestock Trade

Type of currency received From livestock export trade	Percent of Total
Kenyan Shillings only	86
Eth. Birr and Kenyan Shillings	6
Ethiopian Birr only	5
Kenyan & Somali Shillings	2
Somali Shillings and USD	1

SOURCE: Survey Result, 1999

From Table 15 we see that 86 % and 6 % of the traders received Kenyan Shillings only and Ethiopian Birr and Kenyan Shillings respectively. Ethiopian traders in most sites, in Kenyan border markets, received Kenyan Shillings in return for their livestock sales and they exchanged the currency for Ethiopian Birr. However, most of the Ethiopian-Somalis who sell in Mandera and surrounding markets of Kenya exchange the Kenyan Shillings to the Somali Shillings. There are two reasons for the preference of the Somali Shillings in this area. One is that the Somali Shillings is used as money in many areas of the Ethiopia Somali Region. The other is that the traders use the currency to import other manufactured goods and some food items from Somali markets.

The Ethiopian livestock trader sells livestock and receives money in Kenyan Shillings and exchange it to Ethiopian Birr at the point of sales and brings the money with him to Ethiopia unlike the view that the trader buys manufactured or other goods after selling his livestock. This is also true of other cross border traders who buy manufactured goods. This shows that there is some kind of specialisation. The survey reveals that there are no traders both on livestock and manufactured commodities considerations and vice versa.

There are three possible explanations for this. First is that livestock traders from the Ethiopian side deal with very small volume of sales, the return of which is required for immediate purchases like grain, breeding stock and other essentials, in Ethiopia. In this case, therefore, the border trade may be sought purely for price incentives from one way trade only.

The second reason could be convergence or shift in agent groups in the return trade. Thus, only few traders or other groups of people involve in the manufactured items trade from Kenya and Somalia to Ethiopia. This could be because the return trade is sophisticated and risky requiring different arrangements than the livestock trade. Moreover, since the return manufactured goods could have different channels in marketing and consumption as well as market sheds, this could have been inaccessible for livestock traders.

The third possible reason is that some items imported from other countries in Asia are cheaper in Somalia than in Kenya. This is why traders who sell in the northeastern part of Kenyan markets such as Mandera exchange the Kenyan Shillings, received from livestock sales, for the Somali Shillings. However, not all the Somali Shillings is spent for this purpose. Part of it is used to buy some items in Ethiopia since this currency is used in many areas of the Ethiopian Somali Region.

Despite this flexible mode of payment in any of the three currencies in the border areas, exchange rate fluctuations entailed speculations by different agents. For instance, a speculation for exchange rates between the Ethiopian Birr and the Kenyan Shillings is due to the fact that changes in the relative flows of all types of goods across the border that is not officially accounted and relative price changes in the two countries. Thus, when more goods flow, for instance from Ethiopia to Kenya, the price of the Ethiopian Birr in terms of the Kenyan Shillings increases or vice versa. Therefore, Ethiopian traders paid in Kenyan Shillings would lose the premium if their price expectations for their sales were more static. The situation implies that traders would do away with prolonged arrangements to insulate themselves against this risk.

4. TRANSACTION COSTS

Transaction costs are defined as the costs of exchanging ownership titles. Market efficiency, in the sense of price integration at various levels of agents found in a horizontal or vertical arrangement, requires that these costs need to be minimised (Demsetz, 1968; Cook et al., 1990). The elements of transaction costs vary depending on the type of the goods transacted. Under the specific case of cross-border livestock trade, a trader incurs costs on market license, transport, feed and water, losses due to animal disease or theft, and market fees by the government at various sites. All these costs are incurred by various livestock traders interviewed at border markets found in Ethiopia and Kenya.

4.1 Market Information and Brokerage Fee

Information about prices and alternative markets is poorly available in the region. Information about prices of different types of livestock is private. Official sources are limited. Some NGOs such as GTZ/ BLPDP and CARE and government organisations of MOA zonal and wereda operating in the area collect prices on different types of animals, grain and fuel wood. However, the dissemination is limited and their market coverage is limited. Moreover, neither farmers nor

livestock traders used this information. This made the market search by individual trader complex to buy and sell animals. Market search by pastoralists (primary suppliers) and traders involves negotiations and in most cases it is facilitated by brokers locally known as *delala*. A broker has to be trust worthy, cooperative and make sure that his client gets the best service eventually as a broker can become a full fledged trader. The broker's role is to match the buyer with a seller and to insure the legitimacy of the sale. Out of the total livestock traders interviewed, 89 percent of them used brokers to purchase and 85 percent to sell animals (Table 16).

The use of brokers by traders is important in many of the livestock markets. In larger markets, traders responded to the interview that it was advisable to use. Important markets identified by many traders where brokers could play vital role are Dubluk and Negelle in Ethiopia and Mandera, Moyale and Nairobi in Kenya.

Lack of standardisation and the importance of subjective judgements by the agents on the quality of different types of livestock as well as the absence of information on different prices and alternative markets, made it mandatory the facilitation of brokers. However, some traders responded that it was not their choice to use brokers in some markets, but the brokers could affect the negotiation if they are not consulted. In such instances the brokers either offer better price to the seller or better quality cattle and/or lower price to the buyer depending on the agent who is not willing to trade with them.

Table 16. Percent of Trader Responses for the Use of Brokers to Purchase and Sell Livestock

	Yes	No
Use brokers to purchase livestock	89	11
The broker from the same ethnic group	44	56
Use of brokers to sell livestock	85	15
The broker from the same ethnic group	39	61

SOURCE: Survey Result, 1999

There are two modes of payment for a brokerage fee in the study area. The most often used is fixed charge by type of livestock and market. The broker charges this fixed amount both from the buyer and the seller. The fixed payment arrangement from both actors in a market implies that the broker does not have any incentive to favour the buyer or the seller. The broker rather maximises sales subject to his costs. The broker must be able to convince both the seller and the buyer to effect the transaction. Such objective function that the broker is facing requires trust and reputation. Brokerage fee for different types of livestock is presented as follows.

Table 17. Range of Brokerage Fee by Type of Livestock (in Birr)⁵

Type of animal	Amount paid to the broker per animal bought		Amount paid to the broker per animal sold	
	Minimum	Maximum	Minimum	Maximum
Cattle	4	20	4	50
Sheep	1	5	1	10
Goat	1	5	1	6
Camel	5	20	6	50

SOURCE: Survey Result, 1999

The values in Table-17 show that the amount paid to the broker are higher at the selling than buying markets. This implies that although the payments are made based on fixed arrangement there is a positive association between selling price and brokerage fee. This is also justified when we see the amounts paid by type of livestock. Thus, the amount increases as the value of the animal increases. The other mode of payment is that the seller or the buyer sets the price to the broker and the broker gets any amount above or below this price. Under such information asymmetry the seller or the buyer minimises information costs and sets the highest or the lowest possible price for the livestock to be sold or bought.

4.2 Transport

Transportation is the most important element of marketing. The demand centres are widely separated from the livestock producers. The means of transport between producer and consumer area is an important constraint to livestock trade and will have implications for organisational solutions.

The transport aspect includes rewards to drovers, truck costs and other personnel in the transport of livestock trade, feeding costs, fattening costs, enclosure costs and risk of theft and mortality. Traders incur costs when moving cattle either on the hoof or using trucks. Most of the cross border trade was chartered by trekking. Trucking takes place once the border is crossed or to domestic markets. Poor transport infrastructure in the Ethiopia -Kenya and Somalia triangle is a constraint for efficient cross border livestock trade. Motorised transport is not easily available to the livestock trader when and where he needs it. The livestock trader not only has problems for easy access to feed and water but also suffers from quality deterioration of livestock due to live weight loss as a result of long distance trekking

Livestock transportation from southern and southeastern rangelands to domestic markets and external markets such as Kenya and Somalia is undertaken by trekking. The region is characterised by poor transport infrastructure. Motorised transportation is limited and is restricted within the range of official channels. These include from border markets of Kenya to Nairobi and from boarder markets of Ethiopia to central markets like Nazareth and Addis Ababa. The border is exclusively crossed on hoof and this is regarded as contraband trade. However,

ethnic ties and the structure of livestock production in the area, which often involve transhumance, facilitate trekking to markets in the neighbouring countries.

Table 18: Number of Days Taken in Trekking from Origin to Destination Market by Livestock type

Number of days	Cattle %	Sheep/Goat %	Camel %
0-1	11	5	12
2-3	27	48	34
4-5	27	16	5
6-7	14	9	15
8-9	7	4	5
10-11	9	4	2
11-12	3	9	2
>12	2	5	24

SOURCE: Survey Result, 1999

Table 18 shows that almost all types of livestock are trekked from origin to destination within 12 days period. The origins are all markets in the cross-border market shed and the destination markets in Kenya and Somalia. Markets in Kenya are located in the border areas including Moyale, Mandera, Ramu, Thakaba and Banissa. However, markets in Somalia such as Mogadishu and Baidoa are not in the border areas. From Table 18, we see that more than half of all types of livestock reach the neighbouring markets in less than five days.

In most cases, amount paid to motorised transporters from origin to destination market, e.g. Moyale to Nairobi or Negelle to Addis Abeba is based on the capacity of the trucks: the bigger the capacity the higher the price. In some cases, payments are made on per number of animals transported. Unit transport costs of trekking cattle from different markets in Ethiopia to some Kenyan border markets are presented as follows.

Table 19. Cattle Trekking Fee from Ethiopia to Kenya for Selected Border Markets*

Origin in Ethiopia	Destination In Kenya	Distance in Km	Days taken (Average)	Transport fee per cattle(Birr)	Unit Price per km/head (Birr)
Arero	Moyale	200	5	9	0.05
Chilako	Thakaba	50	3	5	0.10
Dollo-Ado	Mandera	40	2	8	0.20

Dubluk	Moyale	135	5	9	0.07
Filtu	Mandera	225	14	60	0.26
Filtu	Ramu	90	7	30	0.33
Galgalo	Thakaba	60	3	6	0.10
Mega	Moyale	100	4	6	0.06
Negelle	Moyale	275	10	17	0.08

SOURCE: Survey Result, 1999

*See Annex 4 for the details.

Unit transport costs are related to the total distance between the origin and destination. The percentage share of transport costs to total buying price increases as distance increases. The total transport cost also incorporates loss while transporting due to animal diseases and theft, and weight loss (see Table-20). In the survey it was found that 95 percent of the traders interviewed in the border catchment bought 51,117 cattle of all types of quality. Out of these 1 percent were lost due to animal disease, injury and disappearance during trekking. According to the survey, 77 percent of the loss are caused by animal diseases and the remaining 24 percent were caused by theft and physical injury while trekking. The average cost of trekking per head of cattle from origin to destination for export or domestic routes is found to be the same, i.e. Birr0.10.

Table 20. Number of Cattle that Died/Lost by a Trader in 1998

Trader's Loss Range	Percent
No loss	33
1-5	45
6-10	7
10+	15

SOURCE: Survey Result, 1999

4.3 Feed and Water

These costs increase as one moves up in the marketing channel. For instance in bush and primary markets where animals are trekked for not that much far distance from home, communal pasture and water are used. However, at higher level markets and chains water and feed providers become important (see also Fig. 1).

Traders pay for the labour of hauling water from deep wells while trekking to border markets where natural pasture is easily available. Water is not a constraint while trekking to the domestic markets since the routes to these markets are highlands. However, pasture is a serious constraint

when animals are trekked to these markets mainly due to cultivation. Trade animals are also trekked on the highway and have been affected by traffic accident.

Table 21. Trader's Annual Expenditure for Feed and Water in 1998(in Birr)

Amount paid	Percent of total
Nil	24
1-100	19
101-200	10
201-300	7
301-400	10
401-500	3
501-600	3
601-700	2
701-800	2
801-900	1
901-1000	1
>1000	18

SOURCE: Survey Result, 1999

Mean = 905, Stdev. = 2510, Range = 0-20100.

4.4 Veterinary Services

Out of the total 100 livestock traders interviewed in the border catchment 89% incurred costs of veterinary services and there were no such expenses made by 11% of the traders (Table 22). About 55 percent also paid less than 500 Birr which is about half of the price of one first quality cattle at Moyale, Kenya.

Veterinary services for animals crossing the border are not provided in an organized way, i.e. animals traded are not checked by a formal veterinary institution. Instead livestock traders themselves treat common animal diseases using veterinary drugs bought in Kenyan border towns. It is claimed by the Kenyan livestock officers that formal inspection is done in Kenya before the animals are trucked to central markets such as Nairobi. However, based on our repeated visits to the border areas we were not able to confirm the above claim. Rather, livestock were trucked directly to the hinterlands of Kenya particularly to Nairobi without any veterinary inspection.

Table 22. Trader's Annual Expenditure for Veterinary Services in 1998(in Birr)

Amount paid	Percent of total
Nil	11
1-100	20
101-200	14
201-300	4
301-400	9
401-500	8
501-600	1
601-700	2
701-800	7
801-900	0
901-1000	6
>1000	18

SOURCE: Survey Result, 1999.

Mean 1,107, Stdev. 1941 Range 0-8000

In the cross-border trading, cattle bought in the Ethiopian border markets of southern and southeastern rangelands are immediately trekked to the neighbouring countries. Therefore, veterinary costs are unlikely to be a constraint.

4.5 Market Fees

Market fees are charged by municipalities and both the seller and the buyer pay a fixed amount of money per animal. Trader interviews revealed that these fees are constraints next to bans and restrictions by the government in cross-border trade.

Some traders evade this by effecting the transaction out of the market centre. However, this limits the information available by the seller and the buyer, as there is no option to cross check the prices from a larger number of offers by other buyers and sellers in the market.

5. TRADER FINANCE AND CREDIT ARRANGEMENTS

Information captured by trader interviews in this regard include sources of finance to set-up the livestock trade business, use of formal institutions (banks) to borrow or to transfer money, type of credit obtained (money or commodity) and interest rate on loan. The result revealed that, in general, the cross-border livestock trade is cash based and is financed from own funds. (See Table 23.)

Table 23. Source of Start-up Capital for Livestock Trade Business (in percent)

Source of starting capital	Percent
Own capital	62
Inherited from parents	17
Loan from relatives/ Kinsmen	8
Loan from other friends	6
Others and different combination of above	7
Total	100

SOURCE: Survey Result, 1999

Livestock traders in the area were also asked the amount of their start-up capital. Most of the traders responded that they had less than Birr5000 (Table 24). Given the limitation of formal and informal sources of credit and dependence on own financing, the values seem reasonable. Moreover, due to fear of detection by tax authorities, traders are unlikely to provide the accurate information in this regard. This becomes more suspicious when we see the modal value of Birr 5000 for which 14 responses were found out of 100 traders interviewed in the border catchment.

Table 24. Business Start-up Capital by Livestock Traders (in Birr)

Amount	Percent
<=500	13
501-1000	13
1001-1500	10
1501-2000	10
2001-2500	4
2501-3000	4
3001-3500	1
3501-4000	3
4001-4500	2
4501-5000	14
5501-6000	1
6001-6500	6
6501-7000	3
7001-7500	2
>7500	14

SOURCE: Survey Results, 1999.

Average (mean): 4153

Mode: 5000 (14 responses out of 100 traders interviewed)

Standard Deviation: 4091

Range: 30-20000

It is found in our survey that the role of formal sector credit to finance the cross-border livestock trade is insignificant. Availability of trader finance from very few formal sector banks branches in the area is challenged from several aspects. One is that cross-border trade is not licensed and traders do not have legal bases required by formal financial institutions to enforce contracts. Formal sector financial institutions in the pastoral areas are underdeveloped. External financial capital is scarce and financial intermediation within the system is absent.

The other is the limited distribution of financial institutions in the area. This factor affects other commercial banking services such as money transfer. Other services rendered by the formal sector financial institutions where licenses are not required such as money transfer and deposit are not provided adequately. For instance, the northern catchment of livestock that supply northeastern Kenyan markets and adjacent Somali markets is Wadera, which is 60 kms from Negelle where there is a branch of the Commercial Bank of Ethiopia. Negelle is about 362 km and 400 km from the Ethiopia-Somalia and Ethiopia- Kenya borders respectively.

Table 25. Banking Service Use Formal and Informal Money Transfer by Livestock Traders

Services	Yes %	No %
Own bank account	14	86
Usage of bank draft and radio communication for money transfer ⁶	42	58

SOURCE: Survey Result, 1999

Limited access to formal sector credit and services due to the reasons mentioned above are partly substituted by informal credit sources. Different types of loans from clients, friends and relatives as well as informal ways of money transfer using merchants are used by cross-border livestock traders. Informal ways also substituted other commercial bank services. For instance, merchants in different places are also used as intermediates of the buyer and the seller and are contacted through radio communication. A livestock trader at Dollo-Ado told that he received money at Dollo-Ado for the animals sold at Mogadishu and Baidoa markets and informal radio-communications between Mogadishu and Dollo-Gedo (Northern Juba, Somalia) were used.⁷ He also told that this is a common practice especially when it is difficult to come with the money or

other goods due to security problems in the area. Money brokers operate in Mandera and Moyale and have taken the role of banks.

Table 26. Traders' Responses to Availability of Different Types of Loan

Type of loan	Yes %	No %
Buy animals on credit from the seller	11	89
Purchase animals on credit from other sources (Loan from friends and relatives)	20	80
Sell animals on credit to the buyer	31	69

SOURCE: Survey Result, 1999

Three types of informal loans are available to the trader. One is loan in kind from a supplier or a client. This is the most important type of loan available to the traders. This type of loan in some studies it is referred to as commodity loan (see for example, Cook et al, 1990). In this case the trader buys animals on credit and returns the loan after the animals are sold. Interest rate is not accounted explicitly for this type of loan. However, preliminary interviews with livestock traders indicated that the opportunity cost of capital is regarded and trader often buys animals above the cash based price. These loans to the traders are facilitated by clientele relationship.

From Table 26 we see that traders who sell on credit are larger in percentages than traders who buy on a similar mode of transaction. This implies that this type of loan is easily available for traders, than other traders who purchase animals from pastoralists. This is due to the fact that traders at various levels could easily establish trust from repeated trade contacts than a trader with a number of pastoralist suppliers.

Second is loan from relatives or friends. This type of loan is interest free and gives the trader more options in the type of livestock he buys and markets. However, only few traders responded that they took such loans from friends and relatives (Table 23). Primary traders or collectors from pastoralists require these loans than higher level traders, as commodity loans are limited to the former groups than to the latter. Due to the gaps between primary traders and their suppliers (pastoralists), the missing capital market is unlikely to be substituted at this level of transaction. In interest free loans, the opportunity cost of capital is considered but compensated by social indebtedness (see Cook et al, 1990). Traders responded that such loans require close relationship and good reputation.

The third type of loan is profit sharing. In this relationship, the loan provider can be better regarded as the partner for that particular period or transaction. In this type of loan risk of loss is distributed between the partners. This type of loan was available to very few traders. This arrangement could suffer from a principal-agent problem due to multiple ownership of capital and moral hazard due to incomplete information about the profit by the loan provider or the partner.

6. PRICES, MARKET INTEGRATION AND FOOD SECURITY

6.1 Determinants of Livestock Prices

6.1.1 Seasonality in supply of and demand for livestock

Livestock prices are affected seasonally by supply and demand changes in different periods and events of the year. Almost all livestock traders responded to the interview that there were good seasons in the year to buy and sell animals.

Environmental stress and the needs of pastoralists for different goods and services affect supply of livestock by the pastoralists. Thus, supply increases during food, feed and water shortages. Quality of livestock deteriorates during this season, however. Moreover, during the same period the need to sell livestock by pastoralists increases to buy grain and other food items the demand for which is partly shifted upwards due to milk shortage. Consequently, grain prices rise during the same period owing to upward shifts of demand caused by distress sales of livestock.

Several events like X-Mass and Id (religious holidays) both in Somalia and Kenya as well as coffee and crop harvest in the southern highland areas of Ethiopia contribute to the livestock price rises. Some Muslim holidays such as Id, cross-border livestock trade increases and the export of sheep, both official and unofficial, through Kenya and Somalia to the Middle East significantly rises. In the Ethiopian highlands, there are peak demands in September, January and at Easter coinciding with religious feasts and a marked throughput in March and part of April (for about 56 days) with long fasting period of the Orthodox Christians who avoid meat and fat foods.

Although it is difficult to generate a reliable figure for the volume of unofficial export trade of livestock from Ethiopia to Kenya, this study has tried to give some estimates. The estimates are based on personal count in both Moyale-Kenya and Mandera markets, the livestock trucks movement from origin to destination (e.g. Moyale to Nairobi) and the Moyale-Kenya market survey by GTZ/BLPDP. Accordingly, the annual export of livestock through cross-border trade in 1998 was estimated to be 35,000 - 50,000 cattle; 100,000 - 110,000 sheep and goats; and 9,000 - 10,000 camels. Other trekking routes through Ramu, Banissa, Thakaba, Sololo and Dukena were not considered in this estimate. We, however, suggest that a special survey be conducted to look into this matter for a more reliable figure.

6.1.2 The role of marketing inputs in livestock prices

Livestock as a tradable good requires more than transportation. The involvement of other input supplies as well as losses affect the final price. All these items can be regarded as transport associated inputs in the broader sense. The Takayama and Judge (1971) spatial price arbitrage model suggests that prices in the two markets be eventually equalised controlling for transport costs. This is not however in the case for cross-border livestock markets as is shown by our findings. Absence of market information on different prices and alternative markets, government controls, animal disease and insecurity are still important factors. Therefore, we still have positive margins after all inputs are considered.

Prices and marketing costs in two important border markets, Negelle and Dubluk that supply to Moyale (Kenya) livestock market are shown in Table-27. The table shows purchase and sale prices for Ethiopian trader and inputs including transaction costs of livestock trade from these two border markets of Ethiopia to one of the major border markets of Kenya, Moyale. In this marketing chain, transaction costs for Negelle market (275 kms from Moyale) account 16.8 percent and 14.1 percent of the buying and the selling prices respectively. Transaction costs for Dubluk market (135 kms from Moyale) account 10.2 percent and 9.7 percent of the buying and the selling prices respectively. The table also shows costs and prices for a Kenyan trader that purchases at Moyale and sells in Nairobi.

Table 27. Marketing Costs and Profits from Unofficial Trade of Cattle (bullock oxen) from Southern and South-eastern Rangelands of Ethiopia to Kenya

Trader Expenditures, Revenue and Profit	Departure Livestock Markets from Ethiopia			
	Negelle		Dubluk	
	Cost per cattle in Birr	Accumulated cost per cattle in Birr	Cost per cattle in Birr	Accumulated cost per cattle in Birr
1. Producer Price	950	950	979	979
2. Brokerage fee at purchase	10	960	10	989
3. Market fee at purchase	2	962	5	994
4. Drover fees: Trekking to Moyale, Kenya	25	987	14	1008
5. Water fees while trekking	5	992	2	1010
6. Market fee at sell (Moyale, Kenya)	10	1002	10	1020
7. Brokerage fee at Moyale	10	1012	10	1030
8. Death/ Loss assuming 5%* of (1)	48	1060	49	1079
9. Selling Price at Moyale, Kenya	1131		1131	
10. Gross Profit at Moyale (9-1)	181		152	
11. Net Profit (10-2-3- 4-5-6-7-8)	71		52	

12. Trucking to Nairobi, Kenya	355	1486	355	1486
13. Shade, feed and water at Nairobi	6	1492	6	1492
14. Market fees at Nairobi	12	1504	12	1504
15. Brokerage fee at Nairobi	10	1514	10	1514
16. Death/Loss assuming 5%*of (9)	57	1571	57	1571
17. Selling Price at Nairobi	2160		2160	
18. Gross Profit (17-9)	1029		1029	
19. Net Profit (18-12-13-14-15-16)	589		589	

Data source for 1998 average annual prices of bullock oxen at Negelle, Dubluk and Moyale is Borana Lowland Pastoral Development Programme-GTZ. Other costs and prices are based our study on trader interviews in December 1998.

Notes: Losses 5% are estimated based on a similar study by Shank (1997).

From Table 27, we also recognise that transport, market and brokerage fees are important costs. Controlling for these three items that are not accrued to the trader, we see that there is little margin for Ethiopian traders at Moyale markets. The table shows that, half of the value added for the livestock destined to Nairobi market is made by the Kenyan traders. Percentage shares of income by different agents computed based on Table-27 are presented as follows in Table28.

Table 28. Distribution of Gross Income and Profit from Sale of First Quality Cattle (bullock) for Negelle and Dubluk (Ethiopia) livestock trader's as Percent of Gross Income and Profit from Moyale and Nairobi (Kenya).

	As % of Moyale Price	As % of Nairobi Price
Seller at Negelle Gross Income	84	44
Seller at Dubluk Gross Income	87	45
Negelle Bullock sold at Moyale Profit	-	12
Dublik Bullock sold at Moyale Profit	-	9

SOURCE: Computed from Table.27

Table 28 summarised trader's gross income and profit distribution by Ethiopian and Kenyan livestock traders. The Table shows that 84 and 87 percent of the Moyale-Kenya price for cattle bought at Negelle and Dubluk markets respectively. The share decreases by 100 percent when the Nairobi price is considered. The disparity increased when profit comparison is made. Thus, the profits made by Ethiopian traders at Moyale is a maximum of 12 percent of the profits made by Kenyan and few other Ethiopian traders profit made at Nairobi.

6.2 Spatial Livestock Price Integration

At a market level of a given catchment, price movements in the supplying or receiving markets also affect prices for a spatially integrated markets. Border markets of Ethiopia are livestock supply markets for border markets of Kenya. Thus, for a vertical spatial integration analysis, markets in Ethiopia are considered as surplus regions and those markets in Kenya (e.g. Moyale) are considered as deficit regions.

Correlations were estimated for bullock (castrated male cattle of 6-8 years) and male goat prices between Negelle and Kenya-Moyale and between Dubluk and Kenya-Moyale based on the GTZ/BLPDP monthly data during July 1997 and March 1999 (Table 29 and 30).

Table 29. Summary of Relationship Between Moyale (Kenya) and Dubluk and Negelle (Ethiopia)Livestock Markets for Export Quality Cattle (July 1997-March 1999).

	Negelle	Dublik
Distance to Moyale (Kms)	275	135
Mean monthly price (Moyale=1069 Birr/unit)		
Mean monthly price differential (Moyale-Negelle/Dublik) (in Birr per unit)	198	155
Standard deviation of price differential	73.6	81.4
Simple correlation of price with Moyale	0.29	0.36
P-Value	0.20	0.11
Correlation of first differences	0.019	0.25
P-Value	0.94	0.285

SOURCE: Computed from GTZ/BLPDP (unpublished data)

N=21 (July 1997-March 1999)

Correlation results are found responsive to distance (Table-29). Thus, the correlation result for Dubluk and Moyale is greater than for Negelle and Kenya-Moyale. However, the positive association between the border markets of Ethiopia and Kenya is not supported at conventional

levels ($p < 0.05$). Moreover the standard deviations of the price differentials are very high and correlation results on first differences are very low. This is therefore difficult to conclude that there is stable spatial price differential in the area. Similar computations for small stock (male goat) revealed no relationship suggesting that the prices do not co-move in border markets (Table 30).

Table 30. Summary of Relationship Between Moyale (Kenya) and Dubluk and Negelle (Ethiopia) Livestock Markets for Male Goat (July 1997-March 1999).

	Negelle	Dublik
Distance to Moyale (Kms)	275	135
Mean monthly price (Moyale=138 Birr/unit)	67	92
Mean monthly price differential (Moyale-Negelle/Arero/Dublik) (in Birr per unit)	71	46
Standard deviation of price differential	22.58	23.85
Simple correlation of price with Moyale	0.219	0.151
P-Value	0.340	0.513
Correlation of first differences	0.377	0.072
P-value	0.101	0.762

SOURCE: Computed from GTZ/BLPDP (unpublished data)

N=21 (July 97-March 1999)

The correlation result in general suggests that the border markets during the period July 1997 - March 1999 were not contagious. Price volatility measured for different types of livestock in the three markets (Moyale, Dubluk and Negelle) also supports the absence of stable spatial relationship. The coefficient of variation was found high and different for the same type of livestock in different markets (Annex-1a).

The implication of the absence of spatial integration is that any intervention in one market or area will not induce significant changes in other markets. For instance, improvements in livestock price in neighbouring countries may not be disseminated to supply markets in the southern and southeastern rangelands of Ethiopia. This, therefore, suggests selective intervention for different markets if streamlining of the cross-border trading is deemed necessary.

6.3 Food Security Issues

One of the implied objectives of this research is to look into the link between cross-border livestock trade and food security in the area. As mentioned in earlier sections, the southern and

southeastern rangelands of Ethiopia are predominantly inhabited by pastoralists. Food security issues in the border areas, therefore, primarily concern the situation with pastoralists.

The discussion on food security in pastoral areas involves at least two important points. One is the capacity of pastoralists to purchase grain. The other is the availability of livestock and livestock products for own consumption. The importance of livestock in the livelihood of the pastoralists suggests that the food security situation is strongly linked with the price of livestock and livestock products such as milk and butter. The income derived from these sources is used to buy grain. Therefore, relative price movements based on these particular items would indicate the food security situation of pastoral households in southern and southeastern rangelands of Ethiopia (see Annex 1a-1d).

Different groups of pastoral communities face different levels of market risk. Among the Boran groups, milk and related items are sold by poor households whereas richer households sell live animals to buy grain (Helland, 1999). Therefore, the vulnerability of poor pastoral households to price fluctuation is higher than those of the richer pastoral groups.

In terms of food security, instabilities in terms of the caloric terms of trade are higher for animal products to grain than live animals to grain. This is based on the cross-border markets which showed that pastoralists are sellers of animal and animal products and buyers of grain.

To get more insight into the vulnerability of pastoral households in the area, the terms of trade between maize and livestock and livestock product (milk) is calculated from the GTZ/BLPDP market survey. The terms of trade calculated on monthly basis exhibited substantial fluctuations from month to month during July 1997 to September 1999. A similar trend is also captured on annual average values. The fluctuations are induced both by changes in the price of grain and livestock and livestock product.

Table 31, below, shows the quantity of maize in kilogram that a price of bullock, goat (male and female) and milk (in cup) can buy.

Table 31. Terms of Trade Between Livestock and Livestock Products and Maize (Price of Some Selected Livestock and Milk in Maize for Selected Markets)

Commodities	Moyale-Kenya Market			Negelle Market			Dubluk Market		
	July-Dec.97	Jan-Dec.98	Jan. - Sept.99	July-Dec.97	Jan-Dec.98	Jan. - Sept.99	July-Dec.97	Jan-Dec.98	Jan. - Sept.99
One Bullock	959	1310	700	576	792	695	869	1149	807
One Male Goat	105	184	81	52	57	42	102	106	66

One Female Goat	89	155	70	54	62	41	88	92	51
One Cup of Milk	n/a	0.92	0.55	n/a	0.63	0.6	0.79	0.7	0.56

SOURCE: Computed from GTZ/BLPDP, Market Survey (unpublished data)

Note: Values are in kilograms of maize.

In the above three important markets, in 1998, the price of commodities increased compared to the average values of the last second six months of 1997. These values again declined in 1999 in all the markets. In most cases this decline was substantial. For instance, in Moyale-Kenya market, one bullock on average fetched 1310 kg of maize. The same item in 1999 fetched only 700 kg of maize. During the same period, the situation in goat price (in terms of maize) was even much worse.

The situation in Negelle and Dubluk markets is similar to that of Moyale-Kenya. However, it is better when compared to the Moyale-Kenya market. One reason for this could be due to the fact that maize is more expensive in Moyale-Kenya than in Negelle and Dubluk since it is supplied to the area from other parts of Ethiopia found to the north of the southern rangelands. This is also consistent with our result indicated in the use of money from the proceeds of the cross-border trade. Livestock traders exchange the Kenyan shillings for the Ethiopian Birr in order to buy grain in the highlands of Ethiopia.

The Boran, Gabbra and Somalis depend on milk of multi livestock species (cow, camel, etc.) for their diet and income is obtained from the sale of livestock and livestock products. About 40% of the energy requirement are obtained from grain, sugar and others. In this kind of scenario, drought is a cyclical occurrence and affects the production capacity of households. A major drought occurs every 9-10 years and results in the devastation of livestock. There is also localised drought, which occurs every 2-3 years. The failure of the small rains (September-October) followed by the failure of the main rain (March-May), results in severe stress situation where forage will not grow leading to drought and loss of livestock and humans. During the drought and stress periods, emergency assistance in the form of food aid or food for work etc. has been forthcoming to the southern rangelands to fill the food deficit and in a continuous process. In the case of the Boran, father, children and grand children have been relying on food aid for the last 25 years (Gebremariam, 1997).

The southern and southeastern rangelands are in general food insecure areas. Normal food shortages occur in the long dry season, i.e. November to February. The livestock price fluctuations increase the vulnerability of the stockowners, especially the poor pastoralists. Poor households especially have to sell more of their herd products than the large herd owners to obtain food. This accelerates the processes of economic differentiation among the Boran as this trend allows the rich to keep more herds than the poor. The food security of the pastoralists, therefore, is maintained through increased involvement in trade. The amount of grain consumed

by pastoralists is increasing. Pastoralists are made vulnerable to the fluctuations in the terms of trade between livestock and grain with variations in the different ecological areas.

The Boran and Somali sell livestock in the dry season, November-February. When they face a food shortage (milk supply declines) but then they receive low price for their stock as the animals are not in good condition. During drought periods agro-pastoralists would be without seeds. When the dry season ceases and the planting season begins they buy the available seed from the market. This is the time when agro-pastoralists are vulnerable to food security.

7. SUMMARY, IMPLICATIONS FOR CROSS-BORDER TRADING AND CONCLUSIONS

7.1 Summary

The objective of this case study was to describe and analyse cross-border livestock trade in the southern and southeastern Ethiopia borderlands with special reference to its implications on food security in the region. The livestock trade included cattle, small ruminants and camels.

The survey data was collected using questionnaire for livestock trader survey and interview with informants working for governmental and non-governmental organisations found in the research area. Livestock development experts and officers interviewed included border towns in the area both in Ethiopia and Kenya. In addition, data has also been obtained from secondary sources (from GTZ/BLPDP unpublished data).

The structure of the cross-border trade between Ethiopia and Kenya is characterised by sectoral specialisation and ethnic, geographical and product concentration. Ethiopia's unofficial exports through the borderlands are predominantly agricultural, live animals being the most important ones. From the Kenyan side goods sent to Ethiopia in return are manufactured consumer items dominated by foodstuff and clothing. While very few agricultural items are exported from Ethiopia, a wide range of manufactured goods are imported from Kenya.

Livestock is the most important item in Ethiopian exports. It is also the main source of livelihood in the area. Thus, the study emphasised on livestock cross-border trade from southern and southeastern rangelands of Ethiopia to Kenya. There are different estimates in different studies on the volume of livestock that crosses the border and sold in neighbouring countries specially Djibouti, Somalia and Kenya. However, there is no reliable data in this regard specifically on the distribution to each country. According to our estimate and GTZ/BLPDP market survey the volume of livestock smuggled to Kenya in 1998 was estimated at about 35,000-50,000 cattle; 100,000-110,000 sheep and goats; and 9,000-10,000 camels. Based on the GTZ/ BLPDP price records at Moyale- Kenya, during the same period the total value of livestock smuggled to Kenya is estimated at Birr37 million (see Annex 1 for monthly average prices of different types of livestock).

The social and economic characteristics of livestock traders revealed important implications on the performance of cross-border trade. Livestock traders are people living in the area and comprise primarily the Boran and the Somalis. This implies that several factors imposed entry barriers for other people to set up a livestock trade business in the area. There is also high scale

of differentiation among livestock traders and most of these trader's annual volume of sales is below 200 cattle per annum. All traders were also found to engage in other activities including farming and small-scale business for retailing manufactured items.

Southern and southeastern rangelands provide three market sheds for livestock trade. The first is that of the southern rangelands that supply to cross-border markets in the borderlands of Kenya. The second is the southeastern rangelands, which is found near to the Ethiopia-Somalia border that supplies to markets found in Somalia such as Baidoa and Mogadishu. The third is the northern part of the area that supplies to the domestic markets in Ethiopia particularly to the coffee and other crops growing region of Gedeo, Sidama, Konso, Dorze/Ochollo and Wolaita areas.

The northern market shed boundary for the cross-border trade (export destined) is the line joining Hageremariam and Wadera (Map 3). Whereas, the market shed boundary for domestic markets is the line north of Yabello and Negelle (Map 3). The boundary between the sheds is found near to the domestic markets where the least price for livestock is found among all market options. The shed shrinks and expands depending on relative costs and prices in livestock trade.

The marketing channel for cross-border trade from Ethiopia to Kenya is simple in the sense that it involves few ownership changes before the border is crossed. Once the border is crossed, the involvement of Ethiopian traders drops substantially. Pastoralists found near the border area also supply markets in Kenya from own production. Thus the border markets in Kenya and Somalia are supplied by both traders and pastoralist. The simplicity of the channel suggests that other things being constant, price movements at border markets in Kenya will have strong impact on pastoral welfare in southern and southeastern rangelands.

In the cross-border trade between Ethiopia and Kenya, three currencies are used to effect transactions. These are the Kenyan Shillings, the Somali Shillings and the Ethiopian Birr. Livestock traders paid in Kenyan Shillings exchanged it for the Somali Shillings and the Ethiopian Birr. The use of the Somali Shillings in some parts of the Ethiopia-Somali region and the attractiveness of the Somali duty free markets for a range of manufactured products, Ethiopian traders paid in Kenyan Shillings in the northeastern part of Kenya preferably exchange it for the Somali Shillings.

Market information, transport, feed and water, veterinary services, herding, loading and unloading, searching lost animals, trade livestock attendants on livestock trucks and market fees are major transaction costs incurred by a livestock trader in the area. The importance of these costs increases at higher level of the marketing channel.

Market information is private. Lack of standardisation makes the market search by both the buyer and the seller more complex. Almost all traders used brokers to facilitate transaction both in cross-border and domestic markets. Broker's service becomes more important at larger markets. The most often used mode of payment for brokerage fee is fixed payment irrespective of the quality of animal. The payment is related to the type of livestock traded and location of the market.

All traders trek their animals from border markets of Ethiopia to border markets in the neighbouring countries (Kenya and Somalia). The border is exclusively crossed on hoof. A livestock trader hires drovers and fixed payment per trip or per animal is made based on the distance between the origin and destination. To minimise risk of loss, two or more drovers are hired by one or more traders. Motorised transport is limited in the domestic channel. In trekking of animals to neighbouring countries, the main livestock routes are done away with. Instead, traders use several other routes to avoid government detection. This contributed to loss due to theft and disappearance in the bush.

Other costs incurred by the trader are feed and water, veterinary services and market fees. Feed and water costs are not substantial due to the availability of communal pasture and deep water wells along the external livestock routes. However, this is a constraint along domestic routes due to increased cultivation and shortage of grazing land. Veterinary services are not provided in an organised manner in the area. This is due to the unofficial nature of the trade and hence is beyond the reach of government institutions available in the area to provide such services. Therefore, trader's expenditures for veterinary diseases captured in this study are those paid for the purchase of drugs. Market fees are paid to municipalities in every market centre.

Formal trader finance is virtually non-existent. Informal finance partly substituted capital market access. Trust relationships among the livestock traders at different market chain facilitated access to credit. The common form of credit available to livestock traders in the area is commodity credit with implicit interest. In this case, traders buy animals on credit from the client and pay after the animals are sold. In this arrangement, opportunity cost of money is considered and hence traders repay their suppliers with some provision in return for the facility. Other forms of credit are interest free cash loans from relatives and friends. These loans provide more options to the trader but they are rarely available.

Seasonal characteristics of production and consumption and different marketing inputs determine livestock prices. Supply fluctuations are caused by availability of feed and water. On the other hand pastoralists tend to sell more during the dry season mostly to buy grain whose demand increases during the same period due to additional quantity required to compensate the decline in milk production.

The producers and traders buy food items such as maize, sorghum, rice, etc. and other essential goods and also invest in livestock. The terms of trade between grain and livestock deteriorates in the dry season and drought periods and that is the period when pastoralists sell livestock. The yield from livestock dwindles and the pastoralists have to rely on purchased grain.

Prices are also affected by different marketing inputs including transport, information and market fees, fees to feed and water and veterinary expenses. After considering different inputs used by Ethiopian traders who sold at Moyale and Kenyan traders who sold at Nairobi, it is found that there is high disparity between Ethiopian and Kenyan traders in profit sharing.

Livestock prices in different markets are found variable explained by high standard deviation and coefficient of variation. The correlation result between two border markets of Ethiopia (Dubluk

and Negelle) and between markets in Ethiopia (Dubluk and Negelle) and Kenya (Moyale) revealed that there was no relationship.

Regarding food security, the borderlands are food insecure in the dry seasons for seven months-September to March and seriously insecure between January and March. The bulk of the food input into the area comes from the highlands in Borana zone and the Southern Nations, Nationalities and Peoples Region. The peripheries in Kenya such as Marsabit, Moyale and Mandera districts are in the same ecological area as southern and southeastern Ethiopia and are grain deficient.

7.2 General Implications of Cross-Border Trading

Although cross-border trade in the south and southeastern part of the Ethiopian border is unofficial and contraband, this study has shown that livestock trade is one of the major activities for the pastoralists and agro-pastoralists. It helps for the sustenance of life for the poor households and in the generation and accumulation of capital for the rich. Following are issues that favour and challenge cross-border trading in the southern and southeastern rangelands of Ethiopia.

7.2.1 Implications favouring cross-border trading

1. At the point of origin of livestock markets (e.g. Dubluk and Negelle in Ethiopia), pastoralists earn higher prices with cross-border trading since larger and competitive markets tend to benefit producers. Thus, food security is enhanced through income from higher livestock prices.
2. At the point of destination markets, (e.g. Nairobi, Kenya and Mogadishu, Somalia) consumers of livestock also benefit from cross-border trading, as larger competitive markets tend to depress marketing margins.
3. Cross-border trading also creates opportunities for diversification by pastoralists. For instance, pastoralists may engage in some small -scale activities such as vegetables and grain trading.
4. Regional integration is strengthened that could help for the creation of common market for a wider range of goods and services.
5. Recent developments in Ethiopia in legalising cross-border trade between Ethiopia and Djibouti as well as between Ethiopia and Northern Somalia could provide relevant experience to the cross-border trade that can be legally undertaken between Kenya and Ethiopia.
6. The same Oromo groups and Somali clans inhabit both sides of the border. Therefore, because of the trust that originate from ethnic relationships, missing markets (e.g. credit access) can partly be substituted to facilitate trade.

7. Attempts to prevent or control cross-border trade have proved to be ineffective. According to the customs records at Moyale-Ethiopia, animals captured by the Customs Authority border patrols while crossing the border are very few when compared to the total volume traded (See Annex-3).

8. In cross-border trading there is no requirement for official paper work, letter of credit to be established and export/import clearances to be obtained.

9. Less or no patrol control by Kenya for livestock and grain and other commodities originating from Ethiopia.

10. In situations where official livestock export trade does not exist, cross-border trade would provide an outlet.

7.2.2 Implications challenging cross-border trading

1. The border is near northern Somalia through which duty free goods can be smuggled to Ethiopia. This would frustrate domestic trade and industrial policies in Ethiopia.

2. The border is frequently closed due to insecurity in the area.

3. There are no quarantine, bank services and market information that are required to facilitate the cross-border trade.

4. The lack of and or limitations of standardization in the goods traded in the borderlands, under invoicing or over invoicing by the traders is likely to be higher depending on the magnitude of taxes and duties.

5. Ethiopia is likely to loose in the border trade since some of its goods can be re-exported to generate foreign exchange through other ports.

6. The cross-border trading is a two- way exchange for specific products. For instance, agricultural products (crop and livestock) originate from Ethiopia whereas manufactured goods originate from Kenya. This situation puts Ethiopia into a disadvantage because of the terms of trade between these two groups of products.

7.3 Conclusions

Although the Ethiopia-Kenya cross-border trade is considered as contraband and there are restrictions and controls by governments, it is facilitated through social ties among the ethnic groups living in the borderlands of both countries. This relationship partly substituted missing markets. Thus, livestock traders benefited from ethnic and trust relationships to get market information and credit.

The structure of the cross-border trade suggests some important policy implications. One aspect is that the situation favours the Ethiopian government to develop infrastructure to redirect the unofficial channel to official ones and to promote the availability of manufactured substitutes in the area. Lack of intervention by the Ethiopian Government would continue to encourage uncontrolled flows of goods across the border and it would also affect the effectiveness of domestic trade and industrial policies.

Most pastoralists in the rangelands finance food purchases through the sale of livestock and, thus, any change in cross-border commerce and prices will have a negative effect on pastoral food security.

Cross-border trade from southern and southeastern rangelands of Ethiopia to Kenya is constrained by several interrelated factors. First and foremost, it is currently regarded as illegal for most of the goods traded particularly live animals. In addition, formal capital markets are missing; and informal substitutes are imperfect; market search is complex; access to large markets in Kenya by Ethiopian traders is limited; and livestock stock routes are not developed. Thus, improving pastoral welfare through increased incomes and the environment through increased offtake in southern and southeastern rangelands require several policy and development interventions.

Much of the demand for livestock comes from outside. Export markets are the most important marketing options for livestock traders and pastoralists living in the southern and southeastern rangelands despite inadequate price transmissions. Domestic markets for these products are limited. Only few traders responded that they moved their animals to domestic markets. Thus, government controls and bans of the cross-border trade will not be without adverse implications on food security in the area due to suppressed prices owing to a forced downward demand shift. Markets in the area were found non-integrated based on simple correlation results. Given the importance of livestock to the livelihoods of pastoralists and agro-pastoralists in the area, the performance of livestock markets would substantially affect welfare.

Ethiopia and Kenya have a permanent committee that meets every year to look into issues that concern their border areas. Because of the benefit that cross-border trade gives to pastoralists, agro-pastoralists and others on both sides of the border, it is high time that the two Governments discuss the issue with the view to design a system to lift the border control in such a way that is beneficial both to the Governments and the people.

Policy decisions of this nature would generate official cross-border trade and create more employment in a more secure environment. In this way, cross-border traders will not run away from the state but would rather work with the state. Pastoralists and traders will also perform their livestock trading in an open and free environment. This not only brings additional revenue to the Regional, Federal and Central Governments Treasury but also helps in a reduced policing of the borderlands and in the harmonisation of clan and ethnic conflicts. This is good for the peoples and the countries in the border areas and good for the region as a whole. Finally, it is our hope that this study could help set the grounds for further understanding of the cross-border trade and for food security in the Horn of Africa region in general and the southern and southeastern Ethiopian rangelands in particular.

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ANNEXES

Annex 1a: Livestock price and price volatility from July 1997 to March 1999 in Negelle Borana, Dubluk and Moyale Kenya (in Birr)

Month	M-Steers	M-bull	M-msheep	M-mgoat	M-fgoat	N-steers	N-bull	N-msheep	N-mgoat	N-fgoat	D-steers	D-bull	D-msheep	D-mgoat	D-fgoat
Jul-97	437	1060	89	105	97	320	793	97	71	72	385	707	66	99	96
Aug-97	445	1060	99	116	99	320	475	83	81	77	446	927	70	95	75
Sep-97	413	1014	104	118	99	293	711	73	73	77	288	806	64	89	74
Oct-97	417	1021	85	95	84	239	746	91	64	66	440	795	62	93	78
Nov-97	413	1000	100	123	98	246	789	78	54	62	415	797	67	108	88
Dec-97	405	895	91	108	87	256	838	76	56	66	477	861	62	88	87
Jan-98	417	987	102	120	105	290.8	897.1	85	64	71	422	821	74	89	75
Feb-98	476	1113	113	153	119	278.5	871.9	78	62	73	467	861	68	90	75
Mar-98	560	1096	126	155	128	269.8	877.8	92	61	73	477	853	67	92	79
Apr-98	570	1167	138	157	135	258.6	937	70.8	62.1	70.6	522	969	69	99	78
May-98	555	1183	142	182	157	290.4	907.7	82	74	75	543	999	68	92	79
Jun-98	530	609	130	151	126	273.1	897.9	84	66	72	513	981	69	93	84
Jul-98	565	1143	135	158	139	288.4	921.5	96	74	84	477	1065	71	91	83
Aug-98	567	1127	129	158	132	310	979	93	69	75	490	1052	67	91	81
Sep-98	591	1179	133	158	129	301	1017	89	80	79	532	1120	65	91	84
Oct-98	618	1154	130	156	130	367	1075	99	84	79	578	1054	61	85	78
Nov-98	556	1136	133	139	126	301	957	112	69	72	699	1045	70	97	85
Dec-98	555	1121	125	138	119	268	1005	94	52	63	628	934	67	96	79
Jan-99	574	1122	129	146	127	285	920	80	57	66	704	1032	59	84	66
Feb-99	516	1100	117	134	112	349	964	83	52	58	775	1071	54	83	56

Mar-99	591	1164	114	137	119	220	969	86	61	65	772	1101	56	89	65
STDEV	72.64	128.89	17.59	22.20	18.58	35.05	130.21	9.85	9.41	6.47	127.12	120.35	5.01	5.70	8.66
Mean	512.90	1069.10	117.33	138.43	117.48	286.89	883.28	86.75	66.00	71.22	526.19	945.29	65.52	92.10	78.33
CV	0.14	0.12	0.15	0.16	0.16	0.12	0.15	0.11	0.14	0.09	0.24	0.13	0.08	0.06	0.11

Note: M-= Moyale (Kenya), N-= Negelle, and D-= Dubluk, Steer = uncastrated male 2-3 years of age and 200-225 Kg live weight Bull = bullock (castrated steer of 6-8 years of age and live weight of 400-500Kg), msheep = male sheep, mgoat = male goat, and fgoat = female goat

Annex 1b: Monthly Price Data for some Selected Grain and animal Products at Moyale Kenya Market

Month/year	Maize Local	Maize Non-local	Wheat-Non Local	Fresh Cow Milk	Sour Cow Milk	Fresh Camel Milk	Sour Camel Milk
Jul-97	1.15	1.15	2.53	n/a	n/a	n/a	n/a
Aug-97	1.00	1.00	2.40	n/a	n/a	n/a	n/a
Sep-97	1.00	1.00	2.00	n/a	n/a	n/a	n/a
Oct-97	1.00	1.00	2.00	n/a	n/a	n/a	n/a
Nov-97	1.00	1.00	2.00	n/a	n/a	n/a	n/a
Dec-97	1.21	1.21	2.00	n/a	n/a	n/a	n/a
Jan-98	1.00	1.00	2.00	1.00	2.00	0.80	0.60
Feb-98	1.00	1.00	2.00	1.16	2.16	0.93	0.85
Mar-98	0.75	0.75	2.00	1.25	2.00	0.86	0.75
Apr-98	0.90	n/a	2.00	0.80	1.15	0.55	0.50
May-98	0.75	n/a	2.25	0.75	1.25	0.60	0.50
Jun-98	1.05	n/a	1.75	0.75	1.30	0.60	0.50
Jul-98	0.69	n/a	2.00	0.75	1.46	0.60	0.50

Aug-98	0.60	n/a	2.00	0.75	1.43	0.69	0.65
Sep-98	0.63	0.63	2.00	0.81	1.65	0.81	0.75
Oct-98	0.90	n/a	2.00	1.00	2.00	0.95	0.75
Nov-98	1.09	n/a	2.00	1.00	2.00	0.90	0.75
Dec-98	1.15	n/a	2.00	1.00	1.63	0.98	0.90
Jan-99	1.38	1.13	2.00	1.11	1.94	1.03	0.94
Feb-99	1.31	1.31	2.00	1.00	2.00	0.94	0.75
Mar-99	2.60	1.00	2.40	0.70	1.45	0.56	0.50
Apr-99	n/a	1.50	2.50	0.75	1.25	0.50	0.29
May-99	n/a	1.56	2.63	0.74	1.44	0.45	0.40
Jun-99	n/a	1.67	2.67	0.75	1.50	0.50	0.40
Mean	1.06	1.12	2.13	0.89	1.65	0.74	0.63
Stdev	0.41	0.28	0.25	0.17	0.33	0.19	0.19
CV	0.39	0.25	0.12	0.19	0.20	0.26	0.30

Annex 1c: Monthly Price Data for some Selected Grain and animal Products at Negelle Borana Market

Month/ Year	Maize Local	Maize Non- local	Sorghum	Wheat- Local	Wheat- Non- Local	Fresh Cow Milk	Sour Cow Milk	Fresh Camel Milk	Sour Camel Milk	Gee Butter Large Cup	Gee Butter Small Cup
Jul-97	1.40	n/a	1.60	1.58	1.42	n/a	n/a	n/a	n/a	n/a	n/a
Aug- 97	1.38	n/a	1.70	1.50	1.32	n/a	n/a	n/a	n/a	n/a	n/a
Sep-97	1.39	n/a	1.62	1.55	1.11	n/a	n/a	n/a	n/a	n/a	n/a
Oct-97	1.18	n/a	1.52	1.64	1.43	n/a	n/a	n/a	n/a	n/a	n/a

Nov-97	1.18	n/a	1.57	1.87	1.68	n/a	n/a	n/a	n/a	n/a	n/a
Dec-97	1.14	n/a	1.60	2.08	1.90	0.60	3.13	0.60	0.45	6.13	4.94
Jan-98	1.09	n/a	1.58	2.20	2.10	0.63	2.00	0.72	0.49	6.25	2.00
Feb-98	1.15	n/a	1.33	2.34	1.35	0.84	2.00	0.75	0.50	6.13	1.94
Mar-98	1.14	n/a	1.46	n/a	n/a	0.75	1.50	0.75	0.50	5.72	2.00
Apr-98	1.17	1.10	n/a	2.53	2.13	0.94	1.31	0.66	0.50	5.25	1.94
May-98	1.15	1.14	1.72	2.59	2.00	0.61	1.75	0.57	0.46	5.00	1.55
Jun-98	1.15	n/a	1.58	2.88	n/a	0.60	1.88	0.50	0.50	5.00	1.50
Jul-98	1.15	n/a	1.88	3.00	2.00	0.71	2.00	0.50	0.45	4.88	1.50
Aug-98	1.12	1.00	1.72	2.30	n/a	0.75	1.83	0.64	0.48	5.42	2.00
Sep-98	1.18	n/a	1.71	1.75	n/a	1.00	2.00	0.75	0.55	6.25	2.63
Oct-98	1.44	n/a	1.74	1.95	n/a	0.95	2.00	0.74	0.60	7.00	2.50
Nov-98	1.33	n/a	2.00	1.93	n/a	0.63	2.00	0.56	0.53	5.25	2.00
Dec-98	1.28	n/a	n/a	2.05	n/a	0.65	2.00	0.60	0.50	5.25	2.00
Jan-99	1.20	n/a	n/a	2.20	n/a	0.80	2.00	0.79	0.50	n/a	2.40
Feb-99	1.36	n/a	1.80	2.09	n/a	1.00	2.00	0.75	0.56	n/a	2.50
Mar-99	n/a	1.50	n/a	2.81	2.40	1.06	2.00	0.68	0.53	n/a	n/a
Apr-99	1.50	1.46	2.10	2.20	2.50	0.55	1.13	0.40	0.40	n/a	2.25
May-99	n/a	1.48	2.11	2.25	2.53	0.50	1.24	0.40	0.40	n/a	1.85
Jun-99	n/a	1.90	2.10	n/a	2.38	1.84	1.94	0.40	0.36	n/a	2.17

Mean	1.24	1.37	1.72	2.15	1.88	0.81	1.88	0.62	0.49	5.66	2.20
Stdev	0.12	0.31	0.22	0.43	0.47	0.30	0.42	0.13	0.06	0.64	0.76
CV	0.10	0.23	0.13	0.20	0.25	0.37	0.22	0.21	0.12	0.11	0.34

Annex 1d: Monthly Price Data for some Selected Grain and animal Products at Dubluk Market

Month/year	Maize non-local	Wheat-Non local	Fresh Cow Milk	Sour Cow Milk	Gee Butter Large Cup	Gee Butter Small Cup
Jul-97	1.18		0.83	1.25	n/a	3.17
Aug-97	1.02		0.82	1.25	n/a	3.20
Sep-97	0.87		0.75	1.25	n/a	3.00
Oct-97	0.86		0.81	1.25	n/a	3.63
Nov-97	0.83		0.75	1.25	n/a	3.00
Dec-97	0.96		0.50	1.06	n/a	2.56
Jan-98	n/a	1.67	0.50	1.00	5.00	2.60
Feb-98	n/a	1.23	0.58	1.13	5.25	2.63
Mar-98	0.89	1.45	0.60	1.25	6.50	3.25
Apr-98	0.84	1.45	0.60	1.25	6.50	3.25
May-98	0.79	1.54	0.55	1.25	6.25	3.13
Jun-98	0.84	1.54	0.55	1.25	5.88	2.94
Jul-98	0.84	1.70	0.55	1.25	6.50	3.25
Aug-98	0.86	2.05	0.64	1.25	6.00	2.90
Sep-98	0.85	1.93	0.75	1.25	6.50	3.25
Oct-98	0.90	2.06	0.65	1.25	5.75	2.88

Nov-98	1.05	2.13	0.60	1.25	5.50	2.69
Dec-98	0.96	2.19	0.70	1.25	7.50	3.75
Jan-99	0.93	2.06	0.75	1.25	n/a	3.40
Feb-99	1.14	2.03	0.88	1.75	n/a	3.00
Mar-99	1.29	2.00	0.69	1.38	n/a	3.13
Apr-99	1.23	2.43	0.50	1.21	n/a	2.92
May-99	1.51	2.46	0.50	1.05	n/a	2.20
Jun-99	1.50	1.83	0.70	1.25	n/a	2.50
Mean	1.01	1.88	0.66	1.24	6.09	3.01
Stdev	0.21	0.35	0.12	0.14	0.68	0.36
CV	0.21	0.18	0.18	0.11	0.11	0.12

SOURCE: For Annex-1a, 1b, 1c and 1d: GTZ/ BLPDP (unpublished), Negelle, Ethiopia.

Note: For Annex 1b, Annex 1c and Annex 1d, prices for all grain types are per kilogram; prices for milk and butter are per cup; and there are large and small cups for butter. CV is coefficient of variation.

Annex 2: Registered hides and skins sales from Gedeo zone, 1993-1998

Year	Cattle	Sheep	Goats
1993	114194	100870	43000
1994	89777	139880	50470
1995	84319	170778	57884
1996	74731	168754	33534
1997	79412	163344	47456
1998	78007	132076	38958

SOURCE: Department of Agriculture, Gedeo Zone, 1999.

Annex 3: Livestock Confiscated by Ethiopian Customs Authority Border

Patrols at Moyale-Ethiopia

Year	Cattle	Sheep and goats
1995	120	-
1996	70	-
1997	147	105
1998	42	-

SOURCE: Ethiopian Customs Authority records, 1999. In 1998, in Dollo Ado,

20 sheep and goats were confiscated from traders

Annex 4: Cattle Trekking Fee by Market Origin and Destination in Southern and Southeastern Ethiopia Borderlands (in Birr)

Export Livestock Routes	Fee/cattle	Distance in km	Fee/cattle/km	Average days taken
Arbore-Moyale	18.33	170.00	0.11	6.83
Bare-Mandera	13.50	90.00	0.15	4.75
Chilako-Thakaba	5.00	50.00	0.10	2.50
Chilako-Moyale	20.00	150.00	0.13	6.00
Chiratte-Mandera	25.50	225.00	0.11	9.00
Didhara-Moyale	13.16	230.00	0.06	5.33

Diksis-Nazareth	7.00	105.00	0.07	2.50
Dollo Ado-Mandera	7.66	40.00	0.19	1.86
Dubluk-Moyale	8.56	135.00	0.06	4.57
Elwaya-Moyale	12.50	240.00	0.05	8.87
Filtu-Mandera	60.00	225.00	0.27	14.00
Filtu-Ramu	30.00	90.00	0.33	7.00
Finchawa-Moyale	18.00	270.00	0.07	7.50
Galgalo-Thakaba	5.50	60.00	0.09	2.50
Harakallo-Negelle	2.50	30.00	0.08	2.00
Hargele-Mandera	30.00	270.00	0.11	9.00
Harobake-Moyale	10.80	230.00	0.05	7.73
Hidilola- Moyale	7.20	63.00	0.11	3.00
Kedaduma-Thakaba	5.00	N/A		2.00
Konso-Dubluk	12.00	160.00	0.08	5.00
Matagafarsa-Moyale	8.60	200.00	0.04	4.90
Mega-Moyale	5.69	100.00	0.06	3.84
Moyale-Isiollo	24.00	500.00	0.05	30.00
Negelle- Moyale	16.66	275.00	0.06	10.23
Negelle-	4.00	225.00	0.02	18.00

Mandera				
Obulo-Dubluk	4.00	122.00	0.03	4.00
Obulo-Moyale	17.00	228.00	0.07	5.25
Seddei-Ramu	1.00	3.00	0.33	0.20
Teltelle-Arbore	5.00	90.00	0.06	5.00
Teltelle-Dubluk	13.00	160.00	0.08	6.33
Teltelle-Moyale	18.00	300.00	0.06	10.00
Teltelle-Omorate	30.00	175.00	0.17	7.00
Tumticha-Wonago	2.00	15.00	0.13	1.00
Tumticha-Yirga Cheffe	2.00	45.00	0.04	1.00
Turmi-Teltelle	1.00	245.00	0.00	7.00
Wadlahube-Mandera	4.00	47.00	0.09	2.00
Yabello-Moyale	1.70	200.00	0.01	4.00
Average	12.7	-	0.10	6.26

Domestic Livestock Routes	Fee/cattle	Distance in km	Fee/cattle/km	Average days taken
Bensa Daye-Wonago	5.66	73.00	0.08	3.00
Bidire-Dera	14.00	N/A		17.00
Bore-Wonago	5.00	63.00	0.08	2.00
Chiratte-Wadera	10.00	225.00	0.04	8.00
Dhera-Nazareth	5.00	30.00	0.17	1.61
Dhera-Wonji	14.00	17.00	0.82	0.75

Diksis-Dera	12.00	80.00	0.15	2.33
Dubluk-Finchawa	5.00	140.00	0.04	9.50
Dubluk-Hageremariam	9.33	110.00	0.08	5.00
Dubluk-Harobake	3.00	83.00	0.04	3.00
Elwaya-Hageremariam	5.00	N/A		5.00
Elwaya-Harobake	5.00	50.00	0.10	2.00
Finchawa-Hagere Mariam	2.33	30.00	0.08	1.00
Finchawa-Yirga Cheffe	8.50	102.00	0.08	2.00
Gasera-Nazareth	2.50	N/A		7.00
Ginir- Dhera	14.00	N/A		9.50
Gondoraba-Teltelle	3.00	175.00	0.02	5.00
Hageremariam-Yirga Cheffe	7.33	70.00	0.10	1.00
Harakallo-Kibre Mengist	4.00	90.00	0.04	3.00
Harakallo-Wadera	4.00	30.00	0.13	1.00
Harakallo-Kibre Mengist	1.50	90.00	0.02	3.00
Harobake-Finchawa	4.33	45.00	0.10	3.50
Harobake-Hageremariam	4.75	83.00	0.06	3.00

Harobake-Suruppa	1.00	15.00	0.07	1.00
Hidilola-Dubluk	10.00	N/A		4.00
Kibre Mengist-Wonago	4.75	172.00	0.03	4.50
Konso-Teltelle	5.00	50.00	0.10	2.00
Negelle-Wadera	4.00	60.00	0.07	2.00
Negelle-Wonago	12.33	250.00	0.05	8.33
Omorate-Teltelle	21.50	175.00	0.12	8.00
Suruppa- Hagere Mariam	3.00	N/A		2.00
Suruppa-Finchawa	2.00	30.00	0.07	1.00
Teltelle-Arba Minch	7.50	140.00	0.05	4.00
Teltelle-Konso	3.00	60.00	0.05	2.00
Teltelle-Yabello	5.42	100.00	0.05	3.71
Wachile-Moyale	18.75	140.00	0.13	3.25
Wadera-Kibre Mengist	4.33	60.00	0.07	2.00
Wadera-Wonago	1.50	192.00	0.01	6.33
Wolaita-Wonago	10.00	N/A		3.00
Wonago-Yirga Cheffe	6.00	26.00	0.23	1.33
Average	6.73	-	0.10	3.92

Annex 5: List of Persons Consulted

Addis Ababa and Nazareth Area

1. Ato Abdi Abdullahi, Director, Pastoralist Concern Association, Ethiopia.
2. Dr. Fisseha Meketa, SCF/USA, Addis Ababa.
3. Ato Zewdu Kebede, Hides and Skins Expert, ELFORA.
4. Dr. Zerihun Tsege, Team Leader, DOA, Addis Ababa Regional Administration.
5. Ato Mulugeta Getu, Head, DOA, Addis Ababa Regional Administration.
6. Ato Estifanos Nega, ELFORA Agro-Industries Private Limited Company.
7. Ato Yacob Wanore, Head Commercial Section, Livestock and Marketing Products, ELFORA.
8. Ato Fikre Nigussie, Head, Food Information System, CARE-Ethiopia.
9. Dr. Tafesse Mesfin, Head, Pastoral Extension Team, MOA.
10. Ato Netsere Gebreyes, Senior Marketing Expert, Pastoral Extension Team, Ministry of Agri. (MOA.)
11. Ato Tekle Feyissa, Hides and Skins Expert, MOA.
12. W/t Zenebu Tekle Haimanot, Head, Zonal Dept. of Agri. (DOA), Region 14.
13. Ato Mulugeta Tadesse, Private Feedlot Owner, Nazareth.
14. Wzt. Hirut Gebre Hiwot, Team Leader, Regulatory, DOA, Adama Woreda, Nazareth.

Borana Zone, Oromiya Region

1. Ato Sora Adi, Pastoral Livestock Production Specialist, Borana Lowland Pastoral Development Program, GTZ/Negele Borana.
2. Mr. Florian Menzel, Team leader, Borana Lowland Pastoral Development Program, GTZ/Negelle Borana.
3. Mr. Reinhold Swoboda, Pastoral Livestock Production and Rural Development, Borana Lowland Pastoral Development Program, GTZ/Negelle Borana.
4. Ato Feyissa Taffa, Head, Borana Zone Agricultural Development Department/Negelle Borana.
5. Ato Mulugeta Assefa, Expert, Agricultural Development Department Borana zone.
6. Ato Tilahun Kassa, Administrative and Finance, DOA, Negelle-Borana.
7. Ato Getachew Mergia, Extension Team Leader, DOA, Negelle-Borana.
8. Ato Gerawork Demessie, Extension Team Leader, DOA, Adola/Wadera Woreda, Borana zone.
9. Ato Dalu Ibrhaim, Head, Yabello Woreda Agricultural Development Office.
10. Ato Alemu Adere, Acting Head, Southern rangelands Development Unit, Yabello, Borana.
11. Ato Endgidawork Hailu, Branch Manager, Commercial Bank of Ethiopia, Yabello .
12. Ato Yilma Tadesse, Supervisor, Melbena- Erder project, South Ethiopia Synod, Mega, Borana Zone.
13. Ato Hassan Adem, Administration and Finance Head, Customs Authority-Moyale Ethiopia Station.
14. Ato Abraham Bongassei, Project Manager, SCF/USANegelle Borana.
15. Ato Tesfahun Jabessa, Head, Moyale Woreda Agricultural Development Office.

16. Ato Halake Bante, Supervisor, CARE, Yabello

Ethiopia Somali region: Liban and Afder Zones

1. Ato Abdi Arab, Social Affairs Division Head, Zonal Council, Liban Zone.
2. Ato Jallo Amin Hilowle, Vice chairman, Dollo Ado Woreda, Liban Zone.
3. Ato Mohameed Ahmed, Chairman, Dollo Ado Woreda, Liban Zone.
4. Ato Abdi Hirape, Member of the Executive Committee, Dollo Ado Woreda, Liban Zone.
5. Mzo.Fatuma Ahmed, Member of the Executive Committee, Dollo Ado Woreda, Liban Zone
6. Ato Aden Abdullahi, District Development Officer, Dollo Ado Woreda, Liban Zone.
7. Ato Basho Mussa, Vice Chairman, Suftu Kebele, Dollo Ado Woreda.
8. Ato Ahmed Shek Oumer, Chairman, Dollo-Bay Woreda, Afder Zone.
9. Ato Abdurahman Ilki Adi, Vice Chairman, Dollo-Bay Woreda, Afder Zone.
10. Ato Said Sahle Uhul, Security Affairs, Dollo-Bay Woreda, Afder Zone.
11. Ato Umer Mahdi, Head of Finance, Dollo-Bay Woreda, Afder Zone.
12. Ato Hamed Oumer, Secretary, Dollo-Bay Woreda, Afder Zone.
13. Ato Abdi Daad, Project Manager, Pastoralist Concern Association, Liban Zone.
14. Ato Abdullahi Elmi Nur (Sandhol), SCF/USA, Dollo-Ado.
15. Lieutenant Mekonnen Shibeshi, Head, Customs Authority, Dollo Ado Station.

Kenya

1. Mr. A. Mohamed, Livestock Officer, Mandera District, Kenya.
 2. Mr. Yusuf Deis, Soil Conservation Officer, Mandera District, Kenya.
 3. Mr. Oumer Bu-Ulle, Livestock Officer, Mandera District, Kenya.
 4. Mr. H. N. Mugo, Livestock Production Officer, Moyale District, Kenya.
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1. Pastoralists whose more than 50 percent of income come from livestock production occupy about 85 percent of the lowlands (600,000 km²). There are about 5 million pastoralists in Ethiopia who depend on 6 million cattle, 6 million sheep, 13 million goats, and more than one million camels to support their livelihood (Gebreselassie et al, 1998). 93 percent of the population in the lowlands are pastoralists and agro-pastoralists and the remaining are hunter-gatherers or/and pure cultivators (UNDP/RRC, 1984).
 2. 50 percent of the interviewed traders in Teltelle are Konso: an ethnic group found in the western part of the southern and southeastern rangelands near and in Teltelle Wereda where a cross-border channel to Kenyan markets in the northwestern part is found.
 3. Activities here could combine any of the following: grain trade, hides and skins trade, foodstuffs trade, retail shops, farming, etc.
 4. Big traders reside in big towns and travel by bus to cover long distances whereas small traders are confined to localities and travel short distances.
 5. Brokerage fee varies by market and quality of livestock bought or sold. Moreover, since there is no fixed charge by brokers the fee also could vary from trader to trader.
 6. Bank account is not mandatory to transfer money.
 7. Dollo-Gedo (in Somalia) is about 2 kms from Dollo-Ado (in Ethiopia). Dollo-Gedo and other towns in Somalia provide radio communication services to Mogadishu, Nairobi, Addis Ababa as well as other parts of the world including the Middle East, Europe and North America because of the absence of National Communications and Postal Services in Somalia..