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Agricultural Growth Project - Livestock Market Development

Value Chain Analysis for Ethiopia:

- Meat and Live Animals
- Hides, Skins and Leather
- Dairy

Expanding Livestock Markets for the Small-holder Producers




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ACRONYMS

A/I	Artificial Insemination
ADLI	Agricultural Development Led Industrialization
AGP	Agricultural Growth Program
AI	Artificial Insemination
ALPPIS	Addiss Livestock Production and Productivity Improvement
AMIP	Agricultural Improvement Program
ARDO	Agriculture and Rural Development Office
ARDU	Arsi Rural Development Unit
ATA	Agricultural Transformation Agency
ATVT	Agricultural Technical Vocational Training
BHS	Blackhead Somali Sheep
BoA	Bureau of Agriculture
BRD	Bovine Respiratory Disease
BRSV	Bovine Respiratory Syncytial Virus
BVDV	Bovine Viral Diarrhea Virus
CA	City Administration
CAAD	City Administrations Agriculture Office
CAADP	Comprehensive Africa Agriculture Development Program
CAD	Cash Against Document
CADU	Chilalo Rural Development Unit
CAHW	Community Animal Health Workers
CBPP	Contagious Bovine Pleuropneumonia
CCPP	Contagious Caprine Pleuropneumonia
CPO	Cooperative Promotion Office
CSA	Central Statistics Agency of Ethiopia
DA	Development Agents
DDE	Dairy Development Enterprise
EAFIA	Ethiopian Animal Feed Industry Association
EAPA	Ethiopian Agricultural Professionals Association
EAVA	Ethiopian Assistant Veterinarians Association
ECSA	Ethiopian Chamber and Sectoral Association
EDCBA	Ethiopian Dairy Cattle Breeders Association
EDDC	Ethiopia Dairy Development Council
ELIA	Ethiopian Leather Industries Association
EMA	End Market Analysis
EM	Ethiopian Metrology
EMDTI	Ethiopian Meat and Dairy Technical Institute
EMPPA	Ethiopia Milk Processors and Producer Association
ESA	Ethiopian Standards Agency
ESAP	Ethiopian Society of Animal Production
ESGPIP	Ethiopia, Sheep and Goat Productivity Improvement Program
ETB	Ethiopian Birr (currency)
EVA	Ethiopian Veterinary Association
FAIS	Food Aid Information System
FAO	Food and Agriculture Organization of the United Nations
FBO	Federal Business Opportunities
FMD	Foot and Mouth Disease
GCC	Gulf Cooperation Console
GOE	Government of Ethiopia

GTP	Growth and Transformation Plan
HACCP	Hazard Analysis and Critical Control Point
HSL	Hides, Skins, and Leather
IBRV	Infectious Bovine Rhinotracheitis Virus
ICT	Information and Communications Technology
ISO	International Organization for Standardization
LC	Letter of Credit
LGP	Livestock Growth Program
LIDI	Leather Industry Development Institute
LINKS	Livestock Information Network Knowledge System
LMD	Livestock Market Development
LMIS	Livestock Market Information System
LOL	Land O'Lakes
LSA	Livestock Agency
LSD	Lumpy Skin Disease
MFI	Micro-finance Institutions
MIGA	Multilateral Investment Guarantee Agency
MLA	Meat and Live Animals
MoA	Ministry of Agriculture
MOFED	Ministry of Finance and Economic Development
MoI	Ministry of Industry
MoT	Ministry of Trade
MSP	Multi-Stakeholder Platform Workshops
NAIC	National Artificial Insemination Center
NGO	Non Governmental organizations
OCSCO	Oromiya Credit and Savings Co.
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
PI_3	Parainfluenza Virus Type-3
PIF	Policy and Investment Framework
PPR	Pest des Petits Ruminants
RDPS	Rural Development Policy and Strategies
RVF	Rift Valley Fever
SGM	Simplified Gross Margins
SNNPR	Southern Nations, Nationalities, and Peoples' Region
SNV	Netherlands Development Organization
SPS	Sanitary and Phytosanitary
SPS-LMM	Sanitary and Phytosanitary and Livestock and Meat Marketing
TVET	Technical and Vocational Education and Training
UAE	United Arab Emirates
UHT	Ultra-high temperature processed
UNCOMTRADE	United Nations Commodity Trade Statistics Database
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
VAT	Value Added Taxes
VC	Value Chain
VCA	Value Chain Analysis
WHO	World Health Organization
WWO	World Wide Sires

INTRODUCTION

Ethiopia has the tenth largest livestock inventory in the world. The country has 52 million cattle including 10.5 million dairy cattle and 47 million shoats.[1] Animal ownership is ubiquitous throughout Ethiopia, including the AGP woredas in the Highlands.

Animals contribute in many ways to household incomes and food security, as draught animals and through milk production. They are only sold or slaughtered at an advanced age, or in case of urgent need. If slaughtered, the animal provides the family with meat and income from hides and skins.

With this immense and potentially productive resource, with such influence on household incomes as well as the national economy, it is imperative for the Ethiopians to maximize the economic value of their animal assets, including use of the animal for value added products. Yet by most economic metrics, this is not yet happening. Animals are not managed for high off-take, or to maximize their value for meat production. Hides and skins are not adequately preserved for fine leather production or international competitiveness, nor are they effectively collected to reach the tanneries and eventual leather products manufacturing. Milk productivity per cow is particularly low, and only ineffectively marketed.

LMD researched and prepared value chain analyses (VCAs) to examine and understand three livestock value chains: meat and live animals; hides, skins and leather; and dairy products. While each of the analyses describes the value chain's underperformance and the causes for this, each analysis also identifies opportunities and courses of action to address constraints and performance issues. Elements of sound, market-driven strategies become apparent.

This Executive Summary provides overviews of:

- The content and structure of the VCAs
- Objectives of the analyses
- Methodology, approach and geographic focus
- Major findings by value chain
- Opportunities for learning and innovation
- Linkage with other actors/projects/government plans

CONTENT OF THE VALUE CHAIN ANALYSES

LMD prepared separate value chain analyses for Meat and Live Animals (MLA); Hides, Skins and Leather; and Dairy products. Each VCA has been prepared as a stand-alone document. There are numerous linkages amongst the value chains, and these are discussed.

The VCAs describe and analyze the market factors, value chain performance against key metrics, product flow, core actors and their transactional and collaborative relationships, incentives for investment, inputs and services, other supporting actors, enabling environment, and gender concerns. Main findings are summarized in terms of barriers to value chain competitiveness and possible responses.

Main Dimensions of the VCA
(Presentation details vary)

- Overview of value chain performance
- Demand and supply
- Product flow through the value chain
- Core value chain actors
- Inputs and services (e.g. as appropriate: feed, breeding, animal health, extension access to finance)
- Quality management
- Supporting (Meso and macro) actors
- Gender and women's participation
- ICT and mobile applications
- Quality of the enabling environment
- Barriers to competitiveness and possible responses
- Conclusions

[1] Central Statistics Agency of Ethiopia (CSA), Livestock Sample Survey 2011-2012; FAO Stat.

Reflecting LMD's market-based "pull" perspective, the VCAs are in particular focused on understanding factors that determine market success, and how that information is transmitted between actors in the value chain to provide market/price incentive to supply the market and invest in meeting standards, improving quality and expanding productivity. In a profitable market with growing volumes, there should be opportunity for deepening the value chain through new specialized service providers (e.g. collectors and transporters, operators of collection/chilling centers, providers of A/I and veterinary services, auctions, feed producers, feedlots, and much more). There should also be incentive for increased vertical collaboration, and delivering embedded services provided by lead firms (e.g. tanneries, abattoirs, milk processors) to actors in their supply chains. These business-to-business (B2B) actions are inherently win-win in nature, and will build trust in the buyer-seller relationships.

Each VCA presents a great deal of regional information, including data and cases that illustrate various perspectives.

OBJECTIVE OF THE ANALYSES

The primary purpose of these value chain analyses is to inform the strategy of the LMD project.

LMD emphasized field research as an important contributing element to these VCAs. The objective of the research was to ground the VCAs in a deep understanding of the value chain: its actors, dynamics, opportunities, and issues at the regional, woreda, and enterprise levels. To further understand the regional patterns, opportunities, and issues relating to the dairy industry, and to engage with the stakeholders and actors who will hopefully recognize opportunity in LMD, and become the project's partners, beneficiaries and stakeholders.

The VCAs will also serve as baseline information for the project, and as a reference document for stakeholders to debate and achieve consensus.

METHODOLOGY AND APPROACH

These value chain analyses provide a deep understanding of the market, supply, relationships and drivers of the three value chains, and how they currently operate. They highlight current barriers to competitiveness and point to potential responses.

LMD's value chain strategy will target market-focused actions that will generate demand, improve supply linkages, incentivize and create market relationships that encourage greater productivity, add value, and promote investment throughout the value chain. The VCAs thus employ a market-focused approach that considers the LMD-target regions to identify businesses, market forces, and triggers that could incentivize the positive contribution of key value chain actors.

LMD prepared an initial desk study in November 2012, which collected and summarized information from currently available reports and studies. It provided guidance to issues that needed to be the focus of field research.

Information for these VCAs were obtained from extensive interviews and other research in the LMD regions and the LMD-target woredas. LMD technical teams[2] visited 46 woredas in eleven woreda clusters,[3] in four Regions (Amhara, Oromia, Southern Nations, Nationalities, Peoples' Region (SNNPR) and Tigray), and in Addis Ababa. The meetings in Addis Ababa were of particular importance given its prominence as a market for milk and meat, a major center for value added

[2] Teams included experts from the core LMD team, supplemented by consultants from Precise and BCaD – Consulting Management

[3] The LMD clusters consist of 2 – 4 woredas that comprise a milkshed area, production or marketing grouping.

activities, enterprise headquarters, and public sector ministries and agencies. The bulk of the field work took place in January and February 2013. More than 200 interviews and meetings were held with producers, service providers, inputs providers, cooperatives and cooperative unions, traders, processors (e.g. slaughterhouses, abattoirs, dairy processors, tanneries, and producers of leather products), exporters, retailers, financial services providers, representatives of public sector organizations, NGOs, and development partners, amongst others. These interviews were complemented by a few short price and product usage surveys.

LMD teams[4] separately carried out livestock sector gender assessments in Amhara, Oromia, SNNPR and Tigray regions, and an assessment of potential ICT and mobile phone applications.[5] The results of these assessments are incorporated into the VCA.

In parallel, LMD also conducted end-market analyses of several important international markets for livestock products (principally meat, live animals, and leather and leather products). These analyses were conducted in collaboration with the GoE; personnel from the GoE and LMD collected information in several countries. These visits took place in February and March 2013. Precise Consult International and BCaD – Consulting Management also carried out brief domestic end market analyses during this period. The D-EMAs considered the domestic markets for meat; hides, skins and leather; and dairy products. They also examined key characteristics of the end-markets along three cross-border corridors for live animal exports – Metema-Sudan, Jijiga/Togochae-Somalia and Dire Dawa-Djibouti. While these EMAs will be separately presented, some of their findings were available in time to incorporate into the VCAs.

LMD facilitated two-day Multi-stakeholder Platform workshops (MSPs) in the four regions during March 6-9, 2013. Participants in these MSPs discussed, commented upon, and validated the preliminary findings of the VCAs as well as their regional aspects. Participants then identified and prioritized key issues facing each value chain and suggested possible course of action.

THE 3 VALUE CHAINS: MAIN FINDINGS OF THE ANALYSIS

Each of the three faces difficulties in production, marketing, processing, and export/sales – which contribute to their underperformance versus their market potential. Livestock are not raised to maximize productivity for meat, and there are few market incentives to encourage improved practices and supply. At the same time, live animals are exported to undiscerning buyers at low prices (although total volumes are impressive). For hides and skins there is failure in translating market information (grades, standards) into price incentives to manage quality and furnish more supply through price information. In the case of dairy, the issue is more basic – lack of consumption to pull more investment (in productivity and logistics) into the supply chain. There is indication of unmet demand if price and confidence can be improved.

Gender perspectives: Women play important roles in the livestock value chains. When women own livestock, it constitutes an important component of their asset portfolio, being an asset that they can easily own and that is not bound by most of the legal and property rights issues such as land. Livestock, therefore, has a huge potential to reduce gender asset disparities commonly found in households in most developing countries such as Ethiopia. Even in cases where women do not own livestock, they are often responsible for them. This has implications for interventions in livestock production and management.

Women have important roles in managing dairy cattle, poultry, and other small ruminants. They are often involved in feeding, watering, and milking animals reared close to home, such as in intensive and mixed systems and in processing and marketing of livestock byproducts.[6] They tend to have less

[4] LMD experts and consultants from IIE and TREG.
[5] LMD experts and consultants from DOT-Ethiopia.
[6] IIE and TREG, for LMD, Gender Equity Strategy in AGP- LMDP, 2013

involvement in marketing and sales away from the home. With some notable exceptions, women in rural areas are rarely involved in value-added activities away from the home. In urban areas, however, many employees of tanneries and other processing companies are women. There are very few women in leadership positions in cooperatives or cooperative unions.

The LMD researches identified a number of success stories of women and women's organizations that suggest opportunity for the project to support increased equity and women's leadership and entrepreneurship in the livestock value chains.

Enabling Environment. The VCAs describe many policies, regulations, guidelines, and programs that affect the livestock sector. In general, the livestock value chains operate in an enabling environment which is improving over time but is not yet effective in facilitating the competitiveness that allows actors to seek and expand opportunities. In particular, there are few effective institutional coordination mechanisms amongst actors.

The industry does have some participatory institutions for collaboration. These include cooperatives, NGOs, and some private business and professional associations. These associations offer valued services in many cases. But they have not yet been strong vehicles for achieving value chain vision, consensus, or effective engagement with the public sector or other partners. There are few platforms for private-private or public-private dialogue and decision-making, and here are few collaborative platforms for the dairy value chain actors to collaborate for their mutual benefit. There is no representative industry-wide forum for the dairy industry, although recent MSP initiatives are promising, and there are ongoing efforts toward the creation of a Dairy Board/Council.

Meat and Live Animals

Meat production offers opportunity to serve a vast export market as well as Ethiopia's domestic market. It also drives much of the rest of the livestock value chain in Ethiopia, particularly hides, skins and leather. (HSL is the focus of a separate VCA.) Ethiopia's challenge has been and continues to be that the booming formal and (particularly) informal trade of live animals across the frontiers of neighboring states keeps significant numbers of animals from reaching abattoirs in Ethiopia. This means that there is less meat processed, thereby limiting the number of hides and skins that reach the tanneries. Partly because of this, a thriving industry to produce packaged meats destined for Middle Eastern and East African markets is unable to get launched.

In Ethiopia, many producers only sell their livestock when they need the money or when a drought hits. As a result, most farmers do not consider the livestock trade as a profitable endeavor and ignore husbandry practices that could increase their livestock's market value, such as providing adequate and proper nourishment during the years of growth and development, preventing scarring, and do not consider the timing of sale designed to maximize sales price. Large numbers of animals are held for five to seven years or more to supply draught power and milk for the family in the highland areas. Animals this old do not produce the best meat and their hides are usually so worn that they have limited value to the leather industry.

Nonetheless, live animal and meat exports are an important and growing sector of international trade for Ethiopia. For instance, earnings from the export of live animals in 2008 was USD 40 million, while it jumped to USD 207 million in 2011[7] and such trade has contributed to increased rural incomes and reduced rural poverty in Ethiopia. The economic contribution of the domestic market consumption to the Ethiopian economy by the meat and live animal sectors has also been important. Livestock is also an important contributor to export earnings, responsible for nearly 8% (or USD 211

[7] EMDTI

million[8]) of the USD 2.75 billion in export earnings achieved in 2011[9]. Although informal trade is difficult to quantify, the value of the informal trade in livestock may be over $200 million.

One of the major economic objectives of the Government of Ethiopia is pursuing a policy of maximizing revenue of live animal and meat exports. The government's Growth and Transformation Program (GTP), launched in 2010-2011, has established annual export goals of 111,000 metric tons of meat and 2,000,000 live animals by 2015, increases of nearly four-fold on 2011 numbers. Ethiopia has seen some progress in the volumes exported, increasing from 5880 MT in 2007 to 17,666 metric ton in 2011[10] but the numbers are not nearly as high as anticipated or needed to meet the aggressive targets laid out in the GTP.

Ethiopia has the tenth largest livestock inventory in the world, yet the country's current share in the global export market for meat is quite small. In 2011, the volume of global meat exports was estimated at USD 105 billion, and Ethiopia accounted for less than one percent of this total (0.75 percent or USD 79 million), of which most was low-value, chilled sheep and goat carcasses.[11] This ranked Ethiopia as the 43rd largest meat exporter. The many reasons for this include very low off-take rates; large numbers of animals that by-pass abattoirs and are exported live, producers who are not commercially oriented and sell only in need of cash or when draught animals get too old, and lack of certifications and acceptable international standards by meat processors. Still, just over a decade ago Ethiopia was exporting close to no meat at all; since that time the country has built markets in several African and Middle Eastern countries, including United Arab Emirates, Saudi Arabia, Angola, Egypt, and Bahrain.

Even with this abundance of livestock and meat, Ethiopia still has one of the lowest per capita consumptions of red meat in Africa. Reasons for this low consumption include low per capita incomes, high domestic meat prices and the fasting days by the Orthodox Christians which means that 43% of the population does not consume meat products for over 200 days per year. This reduces aggregate demand by 20-35%.[12]

At the household level, 70% of all Ethiopians rely on livestock in some form to contribute to their family's livelihood. Women play an important role in livestock production, both through contributing livestock to the assets of the household and in supporting primary production of smaller ruminants. In Ethiopia cattle, goats, sheep, camel and poultry, are used as resource base for meat production; however, the first three species are the most common and is the focus of the LMD project. The regions with the largest livestock populations in Ethiopian are Oromia, Amhara and SNNP, with Tigray at a distant fourth.

Ethiopia has the potential to make a sharp impact on the regional and global markets for meat (and leather) in the next five to ten years if the public and private sectors can create a partnership and work closely to achieve a number of breakthroughs together. Value chain actors and stakeholders have taken some steps to address these constraint including increasing the export of offal and becoming more aggressive in locating markets abroad, particularly the Gulf States. However, more needs to be done.

The promise and potential of the Ethiopian livestock value chain is to become a thriving industry that can produce packaged meats destined for Middle Eastern, European and East African markets, or fashion gloves and shoes that sell in volume on the high streets and boutiques of Europe. To reach this level of growth and development, operators and investors along the value chain might consider how to improve the quality and value of meat exports by establishing a standardized grading system

[8] SPS-LMM Quarterly Bulletin July 2011
[9] Ethiopia Economy Profile 2012, IndexMundi
[10] EMDTI
[11] ComTrade, Global Trade Statistics
[12] Mariam, Amare, et. al. 2010

for meat and live animals; encouraging more supply into the abattoirs to increase capacity utilization thereby lowering costs, improving cost competitiveness and providing more raw material for leather producers; and introducing proper and improved feeding, fattening, animal health care and other services while encouraging foreign and domestic investment at all points along the value chain.

Hides, Skins and Leather

The hides, skin and leather is a critical strategic sector for the economic and industrial development of Ethiopia. It has an abundant and renewable resource base in Ethiopia's large population of cattle, sheep and goats. It is labor-intensive with the potential to be a major source of employment all along its value chain. The government of Ethiopia has identified the leather and leather products value chain as one of the top four most promising industries in the country due to its strong backward linkages to the rural economy, and potential for poverty reduction. To date, over 10,000 formal jobs have been created as have thousands of informal handicraft and trading activities. The country has 25 commercial tanneries of which 23 are operational, 17 footwear and 8 leather goods producing factories.[13] Out of the 17 large shoe factories, 14 are engaged in exporting. About 1,000 small and microenterprises are also engaged in the production of footwear. Today the sector consists of over 850 legal hides and skins traders, 6,515 workers in tanning, 5,400 workers in foot wear and leather goods factories.

The Ethiopian leather industry is one of the leading generators of foreign currency in the country and an important creator of jobs. Until 2006/07 exports of pickled sheepskins and wet-blue goatskins ranked second only to coffee as a source of foreign exchange. However, with the advent of the law that applied a tax on the export of semi-finished leather, the exports of these products declined in 2008/09, and in 2009/10 no semi-finished leather was exported from Ethiopia - which coincided with the lowest level of leather and leather product exports from Ethiopia in nearly a decade. However, as the global economy recovered and the tanneries in Ethiopia began to invest more in finishing capability, the level of leather exports recovered and in 2011/12, reached a record of USD 112 million. Despite this rebound in the export levels of finished leather, tannery capacity is still significantly underutilized with most tanneries producing at well below 50% of their installed capacities.

The global market for leather and leather products is huge, yet Ethiopia has but a small fraction of the total global market for such products. In 2010 world imports of leather were valued at USD 19.9 billion, with USD 6.3 billion worth going to China (including Hong Kong), USD 2.3 billion to Italy and USD 1 billion to Vietnam.[14] Ethiopia has direct and (in some cases) long-term links to many of these markets, including Italy, China, United Kingdom, Russia and Hong Kong, which collectively account for about 75% of all leather exported from Ethiopia.[15]

Meat consumption drives the supply of hides and skins to the market in Ethiopia and all over the world. Maintaining ever larger herds of animals is a traditional sign of prosperity, heightening the social status of the owner while contributing to a continual shortage of hides and skins in the leather supply chain. In addition to a shortage of supply, the quality of sheepskin in Ethiopia is generally low due to poor flaying habits as well as the proliferation of ectoparasites, known as "ekek" in Ethiopia. Nearly 80% of all sheepskin from the highland areas of Ethiopia is affected by ekek; most of the rejected sheepskin is due to defects as a result of ekek.

The leather and leather products industry is hobbled by supply, quality, market, skilled labor and finance constraints. The leather supply chain is characteristic of a non-integrated chain in which most participants operate independently instead of interdependently across the value chain. Prices do not

[13] LIDI, 2011
[14] UN-International Merchandise Trade Statistics
[15] (KPMG International, 2010)

reflect premiums for different grades of quality. The industry is still operating with out-dated equipment as little new technology has been introduced and capacity utilization is low. Important issues facing the industry as it strives to strengthen its capabilities in the face of increasingly fierce global competition include lack of sufficient supply of hides and skins to meet demand, lacks of a price incentive that reflects premiums for superior quality; limited foreign and domestic investment in the value chain and lack of access to operating capital; lack of specialization necessary for accessing key niche markets in Europe and Asia; low worker productivity and weak backward and forward linkages.

The leather value chain's potential is to become a leading supplier of leather and leather based products to fashion houses in Europe and Asia. This is not a huge leap for Ethiopia given its 80-year history of working with European producers and the newly created supply links into China. By addressing several shortcomings, including increasing the supply of animals into the abattoirs, improved collection and introducing quality standards, the promise of accessing the globe's leading buyers of leather can be realized.

Dairy Products

Ethiopians produced 3.3 billion liters of milk worth $1,2 billion in 2011/2 and imported an additional $10.6 million of dairy products. At 19 liters per annum, per capita annual milk consumption is extremely low in Ethiopia, well below the world average of 105 liters and the African average of about 40 liters. However, Ethiopia has the largest cattle population in Africa, at 52 million, including 10.5 million dairy cattle.[16] Households that produce milk typically produce such a small amount that it is consumed entirely by the households.

Overall, Ethiopia has a complex dairy value chain, with both formal and informal channels. Less than 5% of the milk produced in Ethiopia is sold in commercial markets.[17] The dairy value chain has a variety of entrepreneurial actors: smallholder and commercial producers, small and large processors, service and inputs providers, farmers' organizations, and cooperatives. The dairy sector is growing in Ethiopia and is receiving new investment, although the demand for investment exceeds the supply.

The Ethiopian dairy production and market systems face severe constraints. The average milk production per cow is 1.5 liters per day, well below international benchmarks. Poor animal genetics, insufficient access to proper animal feed and poor management practices all contribute to the low productivity levels.

Similarly, dairy producers and downstream actors in the value chains face many challenges in getting milk to market. For the most part, milk collection, chilling and transport, is not well organized and there are few economies of scale. Transaction costs are high and up to 20-35% of milk is spoiled or otherwise lost[18]. Dairy cooperatives and some private processors seek to provide improved services and scale economies. Many cooperatives are have poor records of service delivery.

There are twenty three (23) formal sector dairy processors in Ethiopia and four new processing facilities in various stages of development. Most processors benefit from urban and peri-urban milk supply systems, and in several cases have invested in their own dairy farms to insure adequate milk supply and quality. However, these processors only operate at 50-60% of capacity.

Consumers' ability to pay and milk market accessibility limits milk prices. Liquid milk is typically sold raw, or unpasteurized, to consumers in urban areas at 7-14 ETB (USD 0.38-0.76) per liter, while

[16] Central Statistics Agency of Ethiopia (CSA), Livestock Sample Survey 2011-2012; FAO Stat.
[17] CSA, 2011/12
[18] SNV Ethiopia and Target Business Consultants Plc, Inventory of Dairy Policy – Ethiopia.

pasteurized milk that is sold at supermarkets is priced between 16-20 ETB (USD 0.87-1.08) per liter. By comparison, the average daily per capital income among Ethiopia's rural poor (approximately 80 percent of the population) is approximately 9 ETB (USD 0.50).[19]

Ethiopia's dairy value chain is thus constrained by low milk productivity at the farm level, inefficient logistics to link producers and processors, and low real demand – although demand does exceed supply.

These weaknesses present opportunities, especially if per capital milk consumption can be increased. Value chain actors are already investing in milk production, collection and processing, and increased demand would likely lead to increased investment. Market opportunity would lead to value chain deepening and upgrading, more solid horizontal and vertical relationships with the value chain, and investment in core value chain operations as well as needed services and inputs. The milk value chain offers opportunity for processors to invest in upstream supply, through collection logistics and embedded services that foster strong ties with suppliers. Improved cooperative operations would offer scale economies and valued skills, market access and value added services. There are many opportunities to improve yields per cow, to improve collection, reduce transaction costs - all of which would directly improve producer incomes - and to increase processors' capacity utilization.

OPPORTUNITIES FOR LEARNING AND INNOVATION

Achieving competitiveness objectives within each value chain will require a great deal of innovation, entrepreneurship, and learning by actors throughout the value chains. All lead actors will learn not only to understand market signals and opportunity, but also to translate that information into new business models and relationships that encourage upstream suppliers to provide more products of the quality and other standards that maximize price and profit. This "pull" in turn will encourage actors to invest in new husbandry, production and processing methods and skills; and will encourage them to be more demanding of suppliers of services and inputs.

At its heart, this innovation and learning is driven by investment and entrepreneurship. More robust, market driven value chains will offer core actors the opportunity to experiment with and invest in new products, approaches, and business models. Larger and more robust value chains will offer opportunity for entrepreneurs and inputs providers to invest in various types of service provision, such as in feed production, feedlots and fattening, collection, cold chain, A/I and veterinary services, each of which will be accompanied by entrepreneurial experimentation and learning. And more robust and expanded will encourage new forms of finance (such as value chain financing arrangements and mobile banking) and reassessment by lenders of the business models and risks in the livestock sector. Each of the VCs require interpreting the market into price signals, developing new relationships, and at its heart, deepening the specialization and services.

The need for value chains to respond to market requirements, for information such as traceability and prices, create opportunities to implement new ICT and mobile applications. Some of the likely applications will include Mobile-based data collection, Mobile Market Information, Mobile Banking, Traceability, TV and Radio programming, Large Sonic Screens in large markets to display market and other information.

[19] Dana E. Hunnes. Understanding Rural-to-Urban Migration in Ethiopia: Driving Factors, Analytical Frameworks, and Recommendations [Internet]. Journal of Global Health Perspectives. 2012 Aug 1. Available from: http://jglobalhealth.org/article/understanding-rural-to-urban-migration-in-ethiopia-driving-factors-analytical-frameworks-and-recommendations-2/. Converted at a rate of 1 USD = 18.4733 ETB, www.xe.com, 3/20/13.

KEY GOVERNMENT FRAMEWORKS AND PROJECT LINKAGES

Livestock value chain development in Ethiopia is guided by several framework plans, initiatives and inputs:

- Growth and Transformation Plan (GTP) 2010/11-2014/15
- Agricultural Growth Program
- CAADP Policy and Investment Framework
- USAID strategy documents - i.e. FTF strategy, USAID Forward

The VCAs respect these frameworks. As a key input into the formulation of LMD's strategy, the VCAs' perspective is particularly grounded in Component 1, Subcomponent 3 of the AGP. It will also be linked with other elements of AGP, USAID's livelihood programs (PSNP-GRAD and PLI/PRIME Programs) that focus on "hungry" and "pastoral" Ethiopia respectively. Through LMD, USAID/Ethiopia will be absorbing and up-scaling its previous livestock-related activities under the ATEP (hides and skins component), EDDP, ESGIPP, ESPS-LMM programs. LMD will collaborate with USAID's RAIN program (in the agro-pastoral livestock areas in eastern Ethiopia) as well as on-going dairy activities in the Dutch Government supported Market-linked Innovation for Dairy Development Program (MIDD) and USAID's knowledge management project, KLPP.

The VCAs provide the basis for readily identifying the points of linkage and collaboration.

The VCAs describe the important roles that GoE services play in the livestock sector at the federal, regional, zonal, and woreda levels.

CONCLUSIONS

Each VCA identifies potential opportunities for improving the value chain's competitiveness, and for addressing current barriers and constraints. As such, each value chain analysis points to possibilities for a clear strategy to achieve transformational change, achieve the LMD intermediate results, and sustainably establish ongoing growth and greater competitiveness.

MEAT AND LIVE ANIMAL VALUE CHAIN FOR ETHIOPIA

INTRODUCTION

Meat production offers opportunity to serve a vast export market as well as Ethiopia's domestic market. It also drives much of the rest of the livestock value chain in Ethiopia, particularly hides, skins and leather. (HSL is the focus of a separate VCA.) Ethiopia's challenge has been and continues to be that the booming formal and (particularly) informal trade of live animals across the frontiers of neighboring states keeps significant numbers of animals from reaching abattoirs in Ethiopia. This means that there is less meat processed, thereby limiting the number of hides and skins that reach the tanneries. Partly because of this, a thriving industry to produce packaged meats destined for Middle Eastern and East African markets, or fashion shoes to the high streets and boutiques of Europe, are unable to get launched. This value chain analysis will detail many of the challenges ahead and present a number of opportunities to change course for the industry.

In Ethiopia many producers only sell their livestock when they need the money or when a drought hits. In much of Ethiopia commercial livestock trading has not taken hold. As a result, most farmers do not consider the livestock trade as a profitable endeavor and ignore practices that increase their livestock's value such as providing adequate and proper nourishment during the years of growth and development, managing the animal to prevent scarring, and do not consider the timing of sale designed to maximize sales price. Large numbers of animals are held for five to seven years or more to supply draught power and milk for the family in the highland areas. Animals this old do not produce the best meat and their hides are usually so worn that they have limited value to the leather industry.

That said, however, live animal and meat exports are an important and growing sector of international trade for Ethiopia. For instance, earnings from the export of live animals in 2008 was USD 40 million, while it jumped to USD 207 million in 2011[20] and such trade has contributed to increased rural incomes and reduced rural poverty in Ethiopia. The economic contribution of the domestic market consumption to the Ethiopian economy by the meat and live animal sectors has also been important. Agriculture in Ethiopia accounts for 41% of GDP and over 80% of total employment with livestock accounting for as much as 40-50% of agricultural GDP[21].

Livestock is also an important contributor to export earnings, garnering nearly 8% (or USD 211 million[22]) of the USD 2.75 billion in export earnings achieved in 2011[23]. Although informal trade is difficult to quantify, the value of the informal trade in livestock may be over $200 million.

One of the major economic objectives of the Government of Ethiopia is pursuing a policy of maximizing revenue of live animal and meat exports. The government's Growth and Transformation Program (GTP), launched in 2010-2011, has established annual export goals of 111,000 metric tons of meat and 2,000,000 live animals by 2015, increases of nearly four-fold on 2011 numbers. Ethiopia has seen some progress in the volumes exported, increasing from 5880 MT in 2007 to 17,666 metric ton in 2011[24] but the numbers are not nearly as high as anticipated or needed to meet the aggressive targets laid out in the GTP (see table 1 below), especially considering the significant livestock resources the country possesses.

[20] LMD Research, 2013
[21] Index Mundi, 2012
[22] Norman Borlaug Institute for International Agriculture, and The Ministry of Agriculture (MoA), 2011
[23] Index Mundi, 2012
[24] LMD Research, 2013

Table 1: Meat and live animal export plan ('11-'15) compared to total agricultural export[25]

Year	Meat (tons)	Million (USD)	Live animal (Quantity of Heads)	Million (USD)	Total livestock (Million USD)	Total Agricultural products (Million USD)	Livestock from Agriculture (%)
2011	27,780	100	582,698	150	250	2,665	9.4
2012	55,550	200	1,048,857	270	470	3,419	13.7
2013	69,440	250	1,552,173	400	650	4,308	15.1
2014	83,330	300	1,940,217	500	800	5,391	14.8
2015	111,100	400	2,353,846	600	1000	6,688	15.0

Ethiopia has the tenth largest livestock inventory in the world, yet the country's current share in the global export market for meat is quite small. In 2011 the volume of global meat exports was estimated at USD 105 billion, and Ethiopia accounted for less than one percent of this total (0.75 percent or USD 79 million), of which most is chilled sheep and goat carcasses.[26] This ranked Ethiopia as the 43rd largest meat exporter. The many reasons for this include very low off-take rates; large numbers of animals that by-pass abattoirs and are exported live, producers who are not commercially oriented and sell only in need of cash or when draught animals get too old, and lack of certifications and acceptable international standards by meat processors. That being said, however, just over a decade ago, Ethiopia was exporting close to no meat at all, but since that time the country has built markets in several African and Middle Eastern countries, as noted on Table 2 below including, United Arab Emirates, Saudi Arabia, Angola, Egypt, and Bahrain.

Table 2: Main Export Markets for Ethiopian Meat (2011)[27]

Country	Volume (mt)	FOB value ('000 USD)
United Arab Emirates	8,721	43,001
Saudi Arabia	5,112	25,038
Angola	841	3,047
Egypt	662	2,307
Bahrain	446	1,764
Others	1,997	3,936
Total	17,779	79,093
FOB prices are calculated from the total value of exports.		

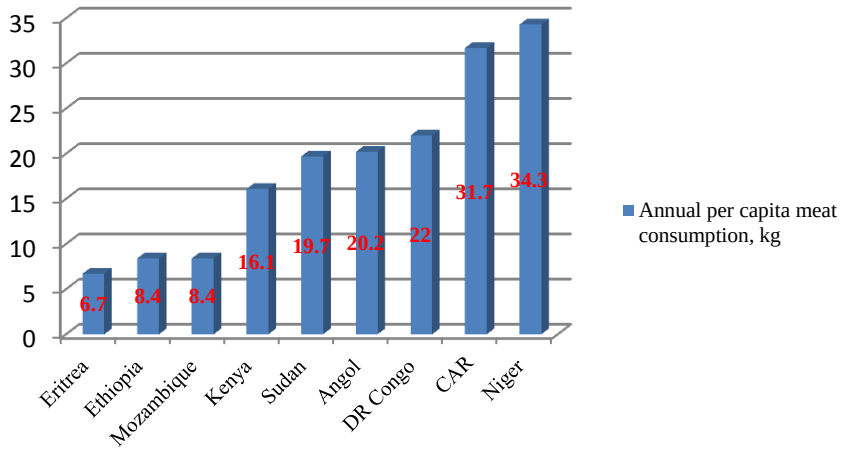
Even with this abundance of livestock and meat, Ethiopia still has one of the lowest per capita consumptions of red meat in Africa. There are several reasons for this low consumption, including low per capita incomes, high domestic meat prices and the fasting days by the Orthodox Christians which means that 43% of the population does not consume meat products for over 200 days per year. This reduces aggregate demand by 20-35%[28]. Only neighboring Eritrea has a lower per capita consumption of meat than does Ethiopia.

[25] MoFED, 2010
[26] UN COMTRADE
[27] IBID
[28] Solomon et al, 2010

Table 3: Meat and live animals export performance over 2002/03-2010/11[29]

Year	Meat Volume (ton)	Value (000 USD)	Live animal	Value (000 USD)	Total value (000 USD)
2002/03	1,700	2,400	10,372	480	2,880
2003/04	3,317	6,335	41,966	2,377	8,712
2004/05	7,754	15,598	103,905	13,081	28,679
2005/06	7,917	18,448	163,375	27,259	45,707
2006/07	5,875	15,471	233,925	36,507	51,978
2007/08	6,486	20,887	297,644	40,865	61,752
2008/09	7,468	26,581	214,683	52,691	79,272
2009/10	10,183	34,002	333,752	90,708	124,710
2010/11	16,877	63,226	472,041	147,877	211,103

Figure 1: Annual per capita meat consumption, kg



At the household level, 70% of all Ethiopians rely on livestock in some form to contribute to their family's livelihood. Women play an important role in livestock production, both through contributing livestock to the assets of the household and in supporting primary production of smaller ruminants. In Ethiopia cattle, goats, sheep, camel and poultry, are used as resource base for meat production; however, the first three species are the most common and is the focus of the LMD project.

The regions with the largest livestock populations in Ethiopian are Oromiya, Amhara and SNNP, with Tigray at a distant fourth. Table 4 below breaks out the livestock population by the four regions in which LMD will be working.

Table 4: Livestock Population by LMD Region (2010-2011 data)[30]

Regions	Cattle	% of total	Sheep	% of total	Goats	% of total	Camels	% of total
Ethiopia	52,129,017		24,221,384		22,613,105		979,318	
Amhara	13,354,797	26%	8,227,862	34%	5,189,432	23%	55,626	6%
Oromiya	22,481,530	43%	8,618,970	36%	7,226,944	32%	310,420	32%
SNNP	10,437,409	20%	3,865,819	16%	3,506,210	16%	0	0%
Tigray	3,539,395	7%	1,121,537	5%	2,874,520	13%	35,946	4%

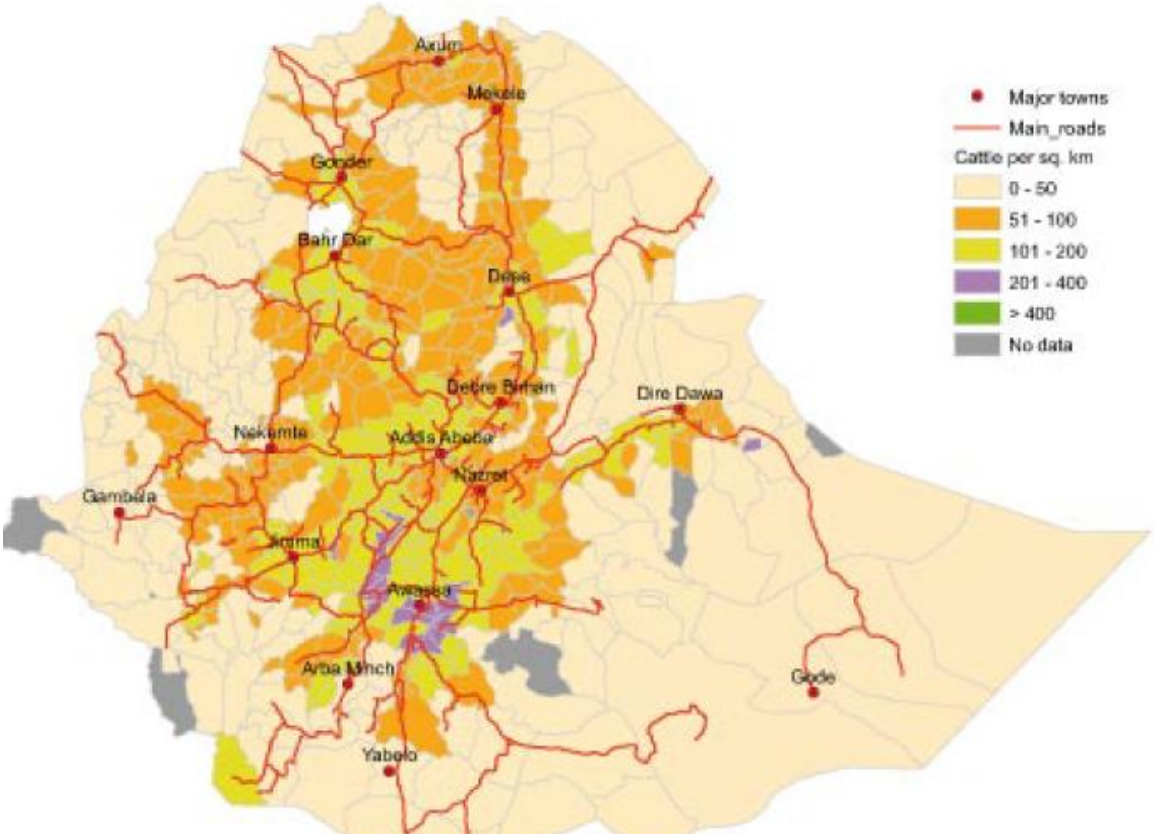
[29] ERCA
[30] Livestock and Livestock Characteristics, 2011

HIGHLAND CROP-LIVESTOCK AND PASTORAL PRODUCTION SYSTEMS

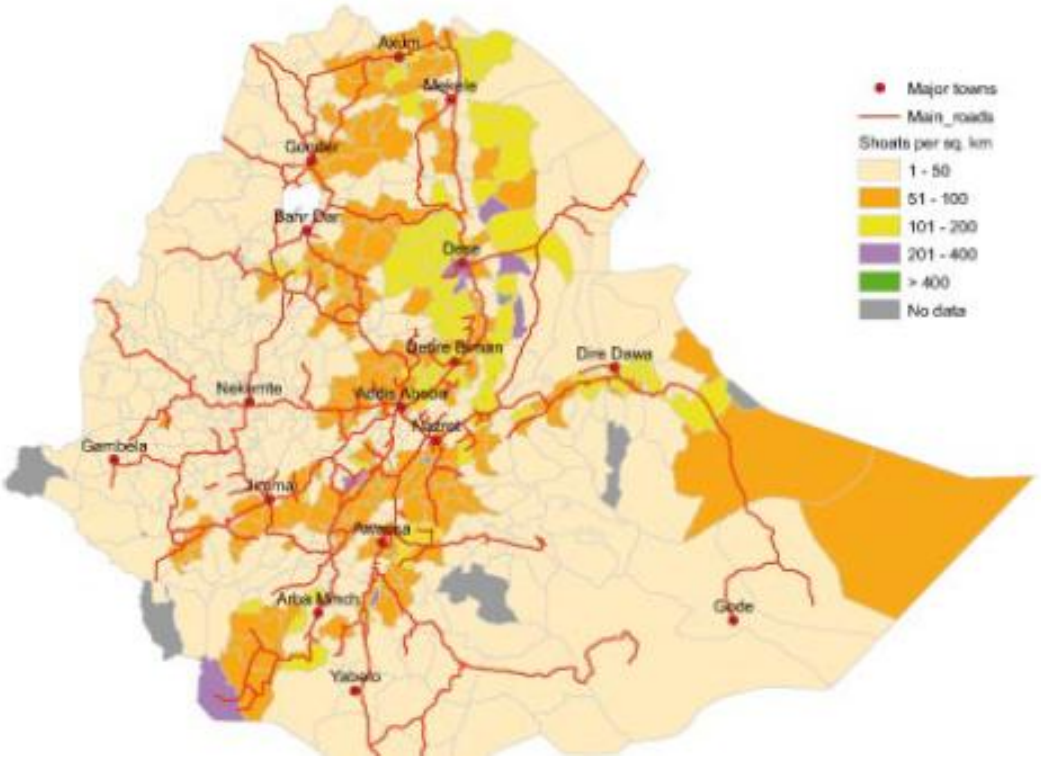
Ethiopia has two primary livestock production systems – the highland crop-livestock system; where crop production is well integrated with livestock, and the lowland pastoral system. The LMD Project's focus will be in the highland areas, with a focus in the regions of Oromiya, Tigray, Amhara and SNNP.

The highland system, with a total rural population of over 55 million, accounts for 60-70% of the cattle or about 34 million heads of cattle in herds averaging of two to five[31]. The highland areas are home to about 75% of the total sheep flock[32] (about 18 million) and farmers keep about 4 sheep and/or goats each[33]. Average distance to market in the highland system is about 30 kilometers[34]. Cattle are used primarily for draught power, with oxen making up 40-50 percent of the herd, while dairy/milking cows constitute approximately 25% of the herd.

Figure 2: Cattle (top map) and Shoat Population Density in Ethiopia (number per square kilometer)[35]



[31] LMD Research, 2013
[32] Livestock and Livestock Characteristics, 2011
[33] Solomon et al, 2010
[34] IBID.
[35] Livestock and Livestock Characteristics, 2011



There are approximately 10 million lowland pastoralists in Ethiopia that cover nomadic communities as well as sedentary agro-pastoralists. Each argo-pastoralist owns between 10-15 cattle and 7 sheep/goats[36], while pastoralists collectively herd about 75% of the country's goat population[37] (approximately 17 million). Average distance to market in the lowland system is about 90 kilometers[38].

The key interaction between the lowland and highland systems is the exchange of male calves which are primarily used for draught purposes for six to eight years after which they are sold into the meat supply chain; almost entirely destined for domestic markets.[39].

Nearly all of the meat exported from Ethiopia comes from lowland sheep and goats (20% sheep and 80% goats) due in large part to the preferences of the international market for these animals that have developed over the years. Also, neighboring countries raise and export similar animals as those in the Ethiopian highlands, so gaining more market share for these animals will require a targeted and concerted effort on the part of the producers and exporters in Ethiopia. Recently, however, due to increasing demand for Ethiopian meat in general in selected export markets in the Middle East, more highland sheep and goats are being slaughtered for export, mainly to fill gaps in supply necessary to meet demand. This suggests a high potential for increasing the export of meat from highland sheep and goats, although a problem of meat darkening (color change) is usually associated with sheep and goats from highland areas, presumably due to the small fat cover of the carcasses of yearling sheep. Other possible reasons for the meat darkening is poor handling and inadequate cold chain in the highlands as well as improper conditioning of the animals just prior to slaughter.

This raises an interesting issue of where the bottleneck is in the highland areas that if corrected, would lead to a significant unleashing of this potential. Even though highland sheep have big demand in the domestic market, the demand has not conveyed to the export market. Part of this problem revolves

[36] Solomon et al, 2010
[37] Livestock and Livestock Characteristics, 2011
[38] IBID.
[39] Solomon et al, 2010

around the high price (relative to regional competitors) of Ethiopian meat in the export market. Also, as noted above, importers of Ethiopian meat are more familiar with meat from lowland animals; a situation that could be addressed by an aggressive marketing program by attending trade fairs, making investment outreach trips and hosting 'reverse trade fairs' in Ethiopia.

LIVE ANIMAL AND MEAT VALUE CHAINS

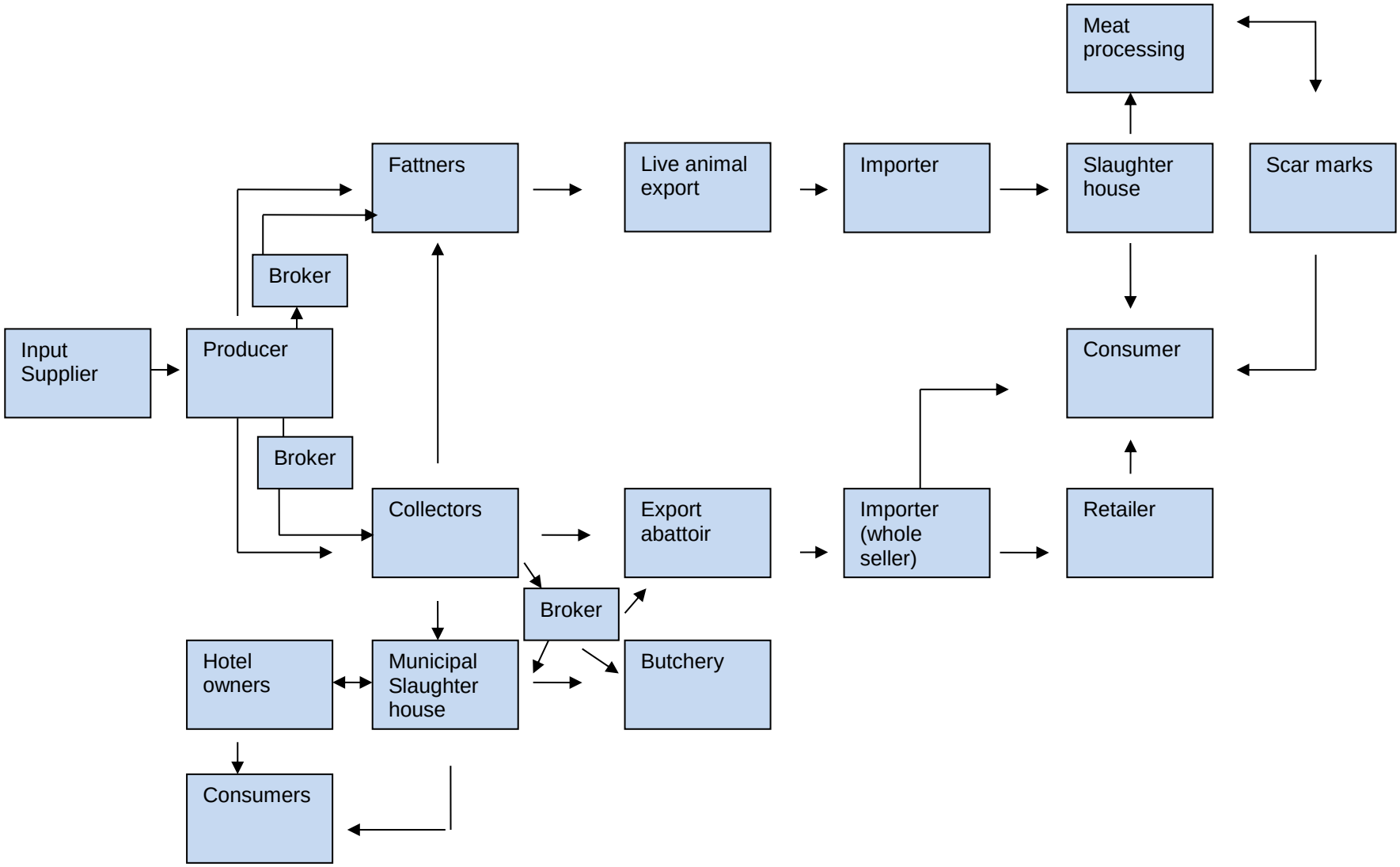
The Ethiopian meat and live animal value chains have developed over the years into a series of complex constituents involving various actors that include producers, collectors, small private and cooperative fatteners/feedlots, various (and in some places, numerous) middlemen, livestock trading cooperatives, individual traders and exporters.

Some of the meat and live animal exporters collect animals through their own purchasing agents assigned to major livestock markets and other small and large scale traders. Two of the export abattoirs that are currently in operation buy more than 90% of their animals at the factory gate, whereas the other three operating export abattoirs use a number of different mechanisms for collection including their own agents, and through livestock trading cooperatives. For live animal trade, purchase agents of exporters in turn collect animals either from collectors, small traders, livestock trading cooperatives, farmer groups, or directly from producers; who then have the option of selling their animals to the collectors in their village, small traders, and livestock trading cooperatives. Some farmers also form groups and supply animals to the market. Other than the domestic channel, foreign national live animal exporters-importers collect animals directly from the collectors in most of the livestock markets using licensed Ethiopian traders.

The general value chain for meat and live animals trading and exporting is depicted in Figure 3. In general there has historically not been a reliable, sustained relationship among actors within this value chain. Most relationships are casual and change often to suit the situation and the actors. Although value chain relationships work best when they are on a strict business basis, such relationships in the highlands can be characterized as 'clanish'. Although these relationships are not all clan-based, trust is built through such relationships and being native to an area gives one a significant advantage.

There is very few well-developed backward-linked relationship from processors to traders and producers. An example would be where the Abergelle meat processing plant facilitated the acquisition of credit for animal collectors, yet even that arrangement did not last long because of Abergelle ceasing operation in 2012. Ashraf and Abergelle export abattoirs also established their own animal feed processing plants as a way of developing their own backward linkages, however, neither of these two export abattoirs are currently operating, suggesting that the current business model for export abattoirs in Ethiopia needs significant restructuring.

Figure 3: Value Chain Map for Meat and Live Animals



LIVE ANIMAL VALUE CHAIN ACTORS

Producers: The largest share of meat and live animals for export are produced by lowland pastoralists: they account for 90% of all such production in Ethiopia[40], however, there is a growing share of highland animals entering the export supply chain. Producers rear cattle, shoats, and camel, in order of importance. They are often located in rural areas where access to market and infrastructure is insufficient. Market and pricing information is difficult and often impossible to come by. Hence pricing received by the producers, when they go to market, is either the previous week's price or not the best price they could obtain if they had access to better and more timely information. Large animal herds are considered signs of affluence and prestige, especially in pastoral areas, so many producers only go to market when they encounter financial difficulties or face drought. Not only does this keep product off the market and represents sub-optimal production management, but it also limits the ability of the producer to set a favorable price because he is either selling into a distressed market or he is not in a position to negotiate a fair price. Previous attempts to organize these traditional producers into production and marketing groups have not been successful. Shifting to a more commercially-oriented system and away from the traditional approach that has been in place for generations will require new thinking on the part of the value chain actors and the government. The process described here is also true of highland animals when the final destination is the export market. There is a minor distinction when the target market is for domestic consumption. In this case, the bulk collection of animals in not significant and usually animals fattened in *backyards* in the highlands enter the domestic market.

Collectors: These important market agents collect animals, usually from remote locations and gather animals to the producer areas where watering points are founds. They are mostly independent operators who use their local knowledge and social relationships, family, clan and friends to collect animals. In turn, they become an important source for big and small-scale traders and livestock trading cooperatives, which lack the local knowledge and relationships. They are usually constrained by a financial capacity that limits their operations and keeps them within a narrow geographic range. The collectors are not always good sources of market information, however, and they may take advantage of a producers' limited knowledge of the markets. This can lead to distortional pricing, almost always benefiting the collector. Designing and implementing dependable information dissemination mechanisms is essential in order to develop significant levels of trust and cooperation among producers and other market actors in remote areas. Collectors may also operate as agents for exporters and traders usually on a fixed-fee or commission basis. Their commissions can ranges from ETB 0.25–1.50 per kg live weight, demonstrating that collectors have a built in motive to encourage improved weight per animal and higher rates of off-take.

Large feedlot operators
Have large facilities and herd sizes ranging from 350 to 5,000 cattle and are mostly located in the growth corridors. These operators buy feed both roughage and concentrate, hire workers, take care of the animal health issues like de-worming and spraying against internal and external parasites respectively and vaccinate their animals. They fulfill the SPS requirements and regulations of the countries to where they export. Estimated age of animals destined for export market is 2 to 3 years and mostly sourced from pastoralists in the lowlands.

Small to medium feedlot operators
Target the domestic market and make an attempt to synchronize the cycle of fattening with holiday markets like New Year, *'Meskel'* and Easter. The animals used for this purpose usually come from the highland and are often older i.e. more than 4 years of age.

Feed lots: The feedlot/fattening operations include small scale private feedlots and those that operate larger facilities aimed at animal exporting. Some operate according to generally accepted SPS requirements and rules and regulations of animal quarantine, while others, particularly the smaller ones, do not. Feedlots generally purchase livestock, either through their own purchasing agents or from traders; they will also purchase from cooperatives on occasion. Feedlots generally purchase cattle; both young and older animals, fattening young animals primarily for sale to export abattoirs and older animals (more than five years old) for the domestic market. Most of the cattle that come through feedlots are the Borena breed from the lowlands yet other breeds are also serviced in the

[40] Livestock and Livestock Characteristics, 2011

feedlots. Previous attempts to introduce the Borena breed in the highlands has not been very successful, even though abattoirs located in the highlands are demanding Borenas.

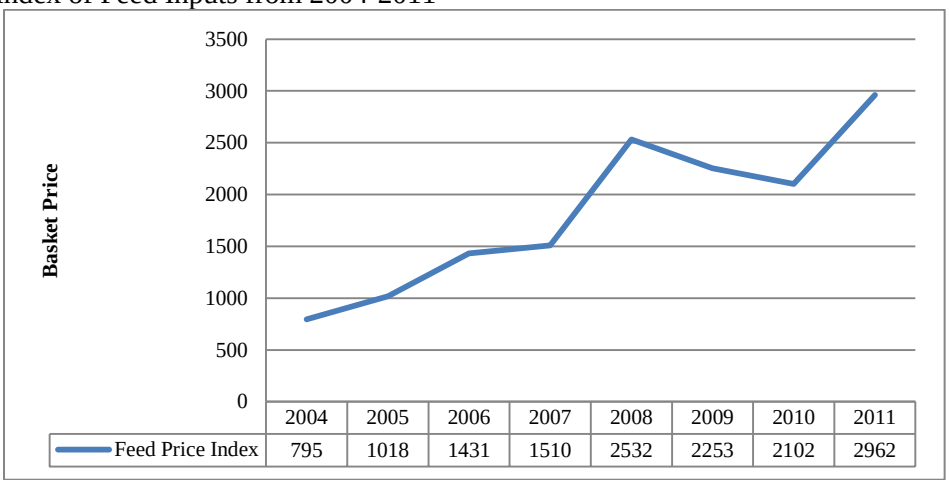
Feedlots are primarily located in and around urban areas. Feedlot operators noted a number of challenges to our research team, including policy-related issues that greatly affect the industry. There is not enough land available for feed production around cities and towns, and infrastructure such as roads, electric power and water are inadequate. Perhaps the most current problem facing the industry is one of rising costs as feed costs have almost tripled from 2004 to 2011 (see Feed Price Index in Figure 4 below). The cost of operating a feedlot has risen proportionately, while the net profits from animals have been reduced sometime by as much as half in just three years. For instance, in the 2010 "End Market Analysis of Ethiopian Livestock and Meat" the author calculated a net profit for a typical feedlot for the purchase, fattening and sale of a 300 kg bull with a weight gain of 100 kg to be ETB 3,100[41]. Whereas in 2013, the net profit for purchasing, fattening and selling that same 300 kg bull at current feed prices will only be ETB 1,550 (see accompanying text box). The primary reasons for the increased prices are the inflated costs of the inputs due to a number of factors including overall inflation in Ethiopia, increase in global commodity prices and increased demand within Ethiopia.

The Cost and Profit in Fattening Bulls
Profit of a typical feedlot operator in 2013 based on the purchase, fattening and selling of a 300 kg bull destined for the live animal export market (all prices are Ethiopian Birr)

300kg bull purchase price = 7,250 (range for a healthy bull would be 7,000-7,500)
40/kg is cost of weight gain
32/kg is current selling price

If the bull gains 100Kg in the feedlot:
Net cost is 7,250 + (40 x 100) = 11,250
Sales Price is 400kg x 32=12,800
Net Profit for the feedlot: 12,800-1,250= **1,550**

Figure 4: Index of Feed Inputs from 2004-2011[42]



	2004	2005	2006	2007	2008	2009	2010	2011
Feed Price Index	795	1018	1431	1510	2532	2253	2102	2962

Source: *Index developed by author using data taken from SPS-LMM, 2011, and "Livestock Feed Resources in Ethiopia, edited by Tolera, Yami and Alemu, 2012.*

Traders: There are both animal traders buying on average 100 animals per week and small traders (usually buying on average 15 animals per week) in the market. Large traders, which are few in number, are those who are permanently operating in the live animal and meat value chain business and are known for purchasing large numbers of animals from a variety of sources in order to supply their key buyers (abattoirs and live animal exporters). Usually just one or two big traders will operate in a certain area and they'll often divide the markets among themselves, thereby reducing competition and increasing prices. The larger traders will use their own capital and act as a source of funding to their collectors. Most big traders are indigenous to the area in which they operate and they have extensive experience in the market in these areas.

[41] Farmer, 2010
[42] The Feed Price Index included common inputs to feed in Ethiopia including wheat bran, wheat middling, noug cake, cottonseed cake, linseed cake, rapeseed cake, maize, soybean, salt, molasses.

Smaller traders, on the other hand, are large in number relative to big traders. At times, they are the only outlet to markets that many smaller collectors have. Unlike the larger traders, small traders have little working capital which results in their collecting limited numbers of animals on a weekly or even biweekly basis. They often use rented vehicles to transport the animals to abattoirs. Some small traders have relations with the larger traders and will often feed animals into the larger traders' networks; especially for the export market. The small traders lack access to the detailed market information that large traders possess, thus creating a situation where the small traders do not have accurate market information which further compounds the problem of limited market information.

Cooperatives: Livestock cooperatives are located throughout the livestock production areas in Ethiopia, however, few exist in highland areas. Most of the livestock cooperatives operate in the shoats market because of the low financial requirement of shoats compared with cattle and camel. Livestock trading cooperatives have been established primarily to operate as a marketing arm for their members; they rarely work as a backward link for input suppliers to producers, although it was observed that some cooperative have begun attempting to work on input supplies. A number of problems plague livestock cooperatives including dysfunctional organizational setup and management systems, dependence on few buyers, a shortage of working capital, lack of market information inadequate training and conflicts of interest by cooperative directors, many of whom are also livestock traders themselves.

The cooperative do not have an equal level of business skill; most of them lack entrepreneurial skills required to compete in the market with individual traders.

Brokers/Middlemen: An important feature of the livestock marketing system in most of the livestock markets in Ethiopia is the involvement of brokers/middlemen in many segments of the marketing chain. They match buyers and sellers and facilitate transaction, and in some cases they indeed provide for a valuable service. Throughout the field work for this study, many teams identified several situations in which the channel from producer to final market would include one to three brokers/middlemen. Each successive middleman took a larger fee and added little if any value. The text box below shows an example of the brokers' take at each level of the transaction. In this particular example, he adds over 13% to the abattoir factory gate price.

Most of these middlemen were simply aggregators. This could be eliminated if proper wholesale markets or auction houses were established, nullifying the need for producers and other brokers to sell into larger pools of animals. In some market areas, particularly in remote rural locations, brokers not only provide an important service but are critical links to the markets for small holders. On the contrary in most urban settings, brokers do not play as important of a role, however, they are still often involved in many transactions.

Brokers in Ethiopia

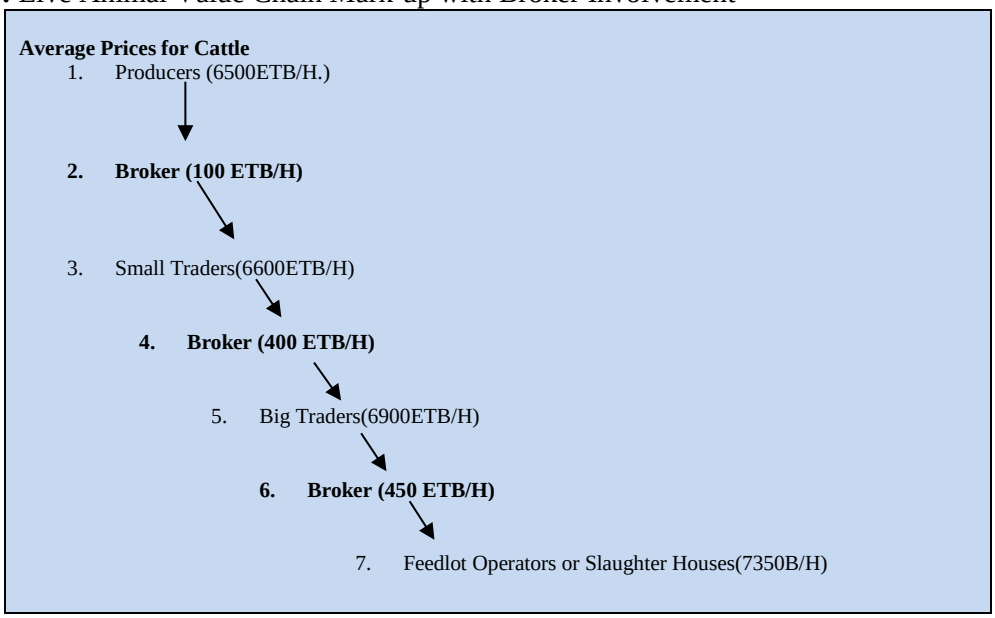
They are market agents that link buyers with sellers, mediating negotiations and facilitating the terms of exchange. Brokers are more active in the lowland areas than in the highland areas because the volume of animals sold in lowland markets is much higher than in the highlands. On the other hand, the level of producer/seller awareness in the highlands with regard to market access and information is somewhat better than that in the lowlands.

Brokerage fees are dependent on a number of factors including relation of the broker to the seller, location, how active a particular market area is, etc. In some places, buyers must pay a broker's fee of ETB 50-100/head of cattle whether or not a broker helped mediate the deal. This is assumed to be an assurance for a buyer that the seller will take a responsibility of finding the animal in case it is lost during trekking. For instance, after two parties agree on the terms of sale, the broker takes the money from the buyer. After taking his fee, the broker pays an amount to the seller that is less than what the buyer thought he was paying. In essence, the broker is 'representing' both sides of the deal. In this situation, the broker is not providing much in the way of value added, yet he is extracting rent from a value chain system that can barely afford the added costs.

In most parts of Ethiopia, livestock are sold through 'eyeballing' between the seller and the buyer making the role of the broker limited to facilitation and counseling for the traders who are new to a particular market place and traders who are infrequent visitors or not familiar with the local situation.

A significant finding in the field research for this report was that a number of producers, collectors and traders complained about "illegal traders"[43], unlicensed individuals without previous market knowledge who were acting as brokers. The limited market information available to the value chain actors (particularly to the small producers who visit the market once or twice a year and the small collectors) allows the unlicensed broker to 'manage' information in his favor, thereby, according to several interviewed, "distorting the market in their favor." Although brokerage licenses are required, only the larger, high profile brokers have licenses and the regulatory authorities do not enforce the current licensing requirements.

Figure 5: Live Animal Value Chain Mark-up with Broker Involvement[44]



Live Animal Exporters: There are hundreds of legal live animal traders and exporters operating throughout Ethiopia. They are also some of the most highly paid actors along the value chain, garnering profit margins ranging on average between ETB 2000-3000 per cattle. Animals are supplied mostly by traders or small scale fatteners while sometimes animals are purchased directly from producers. The primary export markets for live animals are Egypt, Somalia, Djibouti, Somaliland, Yemen, Saudi Arabia and Sudan, whereas meat is exported to a number of Middle East and African countries, mostly through formal channels, supplied mostly by small scale fatteners. In most cases importers come to Ethiopia and buy the animals. In recent years the Gulf food fair exhibition was used to get connection with potential importers.

Live animal exporters – How they find Buyers

1) The foreign buyers (importers) visit Ethiopia and search for potential suppliers, often resulting I contracts to supply a specific market. This would include the type of animal (the number, breed and size) and a price is negotiated. Feed lot operators buy /collect the animals and fatten them as per the agreement.
2) Meat exporters visit trade fairs and connect with potential buyers negotiating deals on the spot.

Most live animal exports from Ethiopia go through informal channels to Djibouti, Somaliland, Kenya and Sudan and most of these animals are shoats. Many of these animals (almost all lowland sourced) end up in Yemen, often as being 'sourced' from Djibouti and or Somaliland. Exported animals from the highland (mostly Amhara and Tigray) almost all end up Sudan for consumption in Sudan or for re-export to Egypt and other countries in the Gulf. Exporters collect animals from secondary markets (from big and small traders, livestock trading cooperatives, collectors and producers).

[43] The term "illegal traders" in this instance was used by value chain actors as a way of referring to unlicensed brokers.
[44] LMD Research, 2013

Importers from Yemen and Djibouti are involved in purchasing animals for export. They use the export license of Ethiopian exporters who will be paid commission on the number of animals to be exported. They also rent barns at Adama and pass their animals through the quarantine centers there. They collect animals directly from the source markets through brokers and sometimes they purchase animals from feedlots.

Transporting animals from collection sites to feed lots and later transporting to the port of export, i.e. Djibouti is seen as a major problem by exporters. There is no designated vehicle for animal transportation and hence animals are loaded on trucks. In most cases, trucks are overloaded increasing the stress as well as causing bruises to the animals, which ultimately leads to rejection rate of 2 – 5% of such animals upon inspection at the port of export. Animals that enter Djibouti are required to go through a formal quarantine and vaccination process at the Abu Yasir International Est., quarantine facility. Complaints by animal exporters claim that this quarantine facility is and acts like a monopoly in Djibouti and that the exporters are required to keep their animals here for 30 days, regardless of any procedures they have previously gone through in Ethiopia.

Table 5: Ethiopian Live Animal Exports through Formal Channels (thousand head)[45]

Live Animals	2006–2007	2008–2009	2010–2011
Cattle	156	84	217
Camels	19	25	61
Sheep	33	97	165
Goats	11	5	28
Others	12	2	2
Total Numbers	233	214	472

MEAT VALUE CHAIN ACTORS

Abattoirs/Butchers

Among the existing nine export abattoirs, only 5 are currently functional (see Table 6 below). All of the existing abattoirs have facilities for sheep and goats, but facilities for cattle are limited in all of the abattoirs and none of the export abattoirs are currently exporting beef. These abattoirs get their animals supplied by traders or through their agents. When the demand is high and the supplies are limited from their usual sources, some of them buy animals from big traders at their factory gate. Upon arrival animals undergo physical examination and are rested for two to three days in a holding area where they receive feed and water. Before slaughtering, they are held in lairage for 12 to 24 hours with access to water but not feed. During their stay in the lairage, animals undergo ante mortem or pre-slaughter examination. Animals that pass the examination are slaughtered using the Halal procedure. Afterward the carcass is chilled at -2 to 2 degrees Celsius for 24 hours. In most cases slaughtering is done when abattoirs receive orders from their customers. The only processing that local abattoirs do is put the carcass in stocknet for shipping.

Depending on demand and availability of freight, carcasses are loaded onto trucks fitted with coolers and transported to the airport. All of the export abattoirs have their own trucks which they use for transporting. Upon arrival at the airport, the chilled carcasses are transferred to cold stores and held there until loaded onto the airplane shortly before the flight time.

The export abattoirs all have networks in destination markets through which they sell their product. Mojo Modern even has a retail outlet in each of Riyadh and Dubai from which they sell meat directly

[45] Norman Borlaug Institute for International Agriculture, and The Ministry of Agriculture (MoA), 2011 and Livestock and Livestock Characteristics, 2011

to consumers as well as being an outlet for their wholesale business in Saudi Arabia and the UAE, respectively.

Abattoirs in Ethiopia sell both meat and meat by-products. Contrary to the approach taken by abattoirs elsewhere, the abattoirs in Ethiopia try to sell as much of the by-product as they can because it is by selling the by-product of the animals – hides, skins, blood, intestines, organs, etc – that they make enough money to break even. Consistently selling the meat into the market is the road to profitability for the abattoirs in Ethiopia.

In Ethiopia, some of the by-products are being exported; however, there is an active domestic market for by-products as well. These include rumen gastro intestinal tract (GIT), liver, kidney and lung. Of these products the lung is usually sold as a pet food (dog) and other products are used in some dishes preferred by consumers in the market. Some export abattoirs have recently started exporting by-products like kidneys, brain and intestines. There seems to be a prospect for expanding the export of by-products as new markets for these products are appearing.

Two by-product processing plants which are located in Dukem (Turkish company) and Debre Zeit (Chinese Company) process intestines and other GIT products and export to various countries including Vietnam, China, Turkey and the Gulf states. It is notable that the cost of these by-products have increased to 10 ETB per kg, up from just 2 ETB/kg only two years ago.

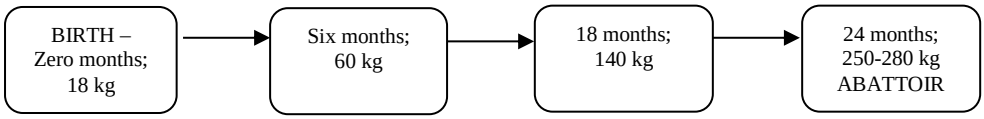
Table 6: Export Abattoirs Operating in Ethiopia

Abattoir name	Type of process	Type of export	Certifications	Location	Remark
Mojo Modern	Slaughter and Chill	Sheep and goat carcass	HACCP; Halal	Mojo, Oromiya	Also export kidneys and brains. Has an adjacent tannery.
Organic	Slaughter and Chill	Sheep and goat carcass	HACCP; Halal	Mojo, Oromiya	
Helmix	Slaughter and Chill	Sheep and goat carcass	HACCP in process; Halal	Debre Zeit, Oromiya	Has facility for slaughtering cattle but currently not exporting.
Elfora	Slaughter and Chill	Sheep and goat carcass	HACCP in process; Halal	Debre-Zeit, Oromiya	Has facility for slaughtering cattle and chilled carcass is destined for local market.
Luna	Slaughter and Chill	Sheep and goat carcass	HACCP in process; Halal	Mojo, Oromiya	Has a facility for slaughtering cattle and chilling, but supply the supermarket in Addis.
Melge-Wondo Meat Factory	Slaughter and Chill	Cattle carcass		Wondo, SNNP	Used to export quartered carcass to Egypt but not operating currently.
Methara	Slaughter and Chill	Sheep and goat carcass		Metehara, Oromiya	Currently not operational.
Abergelle	Slaughter and Chill, freezing	Sheep, goat and cattle meat		Mekele, Tigray	Currently not operational.
Aschraf	Slaughter, chill, freeze, and by-product process	Sheep, goats and cattle		Bahir dar, Amhara	Currently not operational.

Table 7: Export of Meat from Ethiopia[46]

	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012
Volume (metric tons)	5,850	6,487	7,468	10,183	16,877	17,666
Revenue (millions USD)	15.4	20.9	26.6	34	63.2	78.7

One key to developing a commercial livestock sector is to shorten the time from farm to abattoir and to make more use of commercial fattening services. Ideally the animal's progression from birth to arrival at the abattoir would be 24 months, as the following diagram for cattle shows.



If the aforementioned process was followed and if farmers could get 6,000-7,000 ETB at the farm gate for the animals, they would be able to turnover more animals and make more money.

The demonstration trial conducted of dairy cattle by EMDTI and the SPSs-LMM project indicated that it was possible to attain a weight of 500 kg weight at 24 months of age. This suggests that weight targets indicated above for indigenous cattle is possible with improved feeding and management

BREED

According to available information, there are 32 different types of cattle/breed[47], 13 breed of goats and 9 sheep types[48]. Through the centuries, adaptive traits rather than production traits, gained more importance in the breeding and development of these animals.

Ethiopian sheep and goats that are favored by importing countries include the Blackhead Somali Sheep (BHS), locally known as *Wanki* and the Somali goat also called *Borena* goat. Through a previous USAID project called Ethiopia, Sheep and Goat Productivity Improvement Program (ESGPIP), Dorper sheep and Boer goats were imported from South Africa in an effort to improve carcass weight of local bred of sheep and goats through crossbreeding. Under experimental conditions, the growth rates and carcass weights of crossbred animals have been improved; however, the impact at the farmer level is yet to be verified. Breeds specific to the highland areas where LMD will be focusing include: cattle breeds of Horro, Arsi Bale, Begayt; Sheep breeds of Dangela, Horro, Arsi Bale, and Bonga and Goat breed of Arsi Bale.

SANITARY-PHYTOSANITARY (SPS) FOR MEAT AND LIVE ANIMALS

In 2005, Ethiopia lagged far behind competitors such as Brazil, Australia, India, Namibia and others, which had already met international Sanitary-Phytosanitary (SPS) requirements for meat and live animal exports. Beginning in 2005, under a cooperative agreement between the Borlaug Institute at Texas A&M and USAID and in collaboration with the Ethiopia Ministry of Agriculture and Rural Development [49], the Ethiopian government established the Sanitary and Phytosanitary and Livestock and Meat Marketing (SPS-LMM) Program. The program supported the National Animal Health

[46] LMD Research, 2013
[47] Gebremedhin et al, 2007
[48] Solomon Gizaw (2009) through LMD Research, 2013
[49] Debrew, 2011

Diagnostic and Investigation Center (NAHDIC) in developing its capacity to undertake export livestock SPS testing and certification along with other critical support services. The SPS-LMM's final report concluded that Ethiopia was rapidly improving all its systems to meet international standards and rated Ethiopia as a country with "a very rapidly improving animal health system of commendable quality."[50]

CERTIFICATIONS AND QUARANTINE

Ethiopian SPS regulations state that cattle for export must be quarantined for 30 days and vaccinated against CBPP, anthrax, black-leg and FMD (Elias Mulugeta et al 2007). The Gulf Cooperation Council (GCC) countries, however, do not recognize Ethiopian quarantine regulations, and those exporters shipping animals to GCC countries must re-quarantine them at the port of export. For animals that go through the Djibouti quarantine, an Ethiopian certificate is neither required nor seen by the final recipient, as exporters must re-certify all their animals as Djibouti origin.[51]

Implementing and enforcing the livestock Sanitary and Phytosanitary requirements of international buyers would significantly enhance the quality of Ethiopian livestock and as a consequence, the quality of the hides, skins, and leather that companies can process into higher value items.

SERVICES

The use of Artificial Insemination (AI) to improve the productivity yields of beef animals, sheep, and goats have been of little importance. The National Artificial Insemination Center (NAIC) currently collects and processes semen from Borena bulls and distributes it to beneficiaries, though this has chiefly been to improve milk production; as Borena cattle are also better milk producers compared to other local breeds.

Animal health services by and large used to be provided by the government. The Bureau of Agriculture (BoA) in respective regions and woreda level is involved in acquisition of drugs. There are animal health clinics, approximately one for every 3 kebles, and animal heath assistants are responsible for the diagnosis of the disease and treatment. The assistants are supported by veterinarians stationed in the woreda Bureau of Agriculture offices. Lack of transport and the very limited budgets assigned for purchasing drugs, hinders smooth service delivery. In some woreads, there are also Community Animal Health Workers trained by different NGOs to provide primary animal health care.

RESEARCH AND TRAINING

In the LMD project areas, there are federal as well as regional research institutes working to generate technologies and contribute to livestock development. The research institutes mainly deal with feed, health, genetic improvement and husbandry issues. Research in the area of animal production is also undertaken within learning institutes that mostly involve graduate students. In most cases, experiments are applied in nature and those which are government funded must solve an immediate dilemma in the sector. Training related to livestock is given in Universities and Agricultural Technical Vocational Training (ATVT) colleges.

Graduates of ATVTs become Development Agents (DA) and work directly with producers. Unfortunately, the inadequate ATVT facilities in conjunction with the curriculum decisions inhibit the DA instruction. Most notably, the lack of abattoirs impairs the ability to properly study carcass

[50] Ethiopia Sanitary & Norman Borlaug Institute for Internal Agriculture, and the Ministry of Agriculture (MoA), 2011
[51] ACDI/VOCA (2008) through LMD Research, 2013

fabrication. The same arguments hold true for university graduates studying animal sciences/production or food science and technology.

Other organizations that play an important role in the improvement of animal production include the National Veterinary Institute, responsible for production and distribution of vaccines and the Animal Health Research and Diagnostic Institute, whom hold a regulatory function as they undertake disease surveillance.

ANIMAL HEALTH

Diseases

The livestock diseases commonly encountered that are economically important to livestock production include Foot and Mouth, CBPP, Anaplasmosis, Enterotoxaemia, Lumpy-skin disease and Haemorrhagic Septicaemia. Other diseases, such as Blackleg and Anthrax, occur sporadically. Liver flukes and gastro-intestinal worms (e.g. tape worms) cause significant production loss as well as mortality. Ticks represent the main livestock health hazard, as they inhabit the lowlands in high numbers and serve as major vectors for many epidemic diseases[52].

The diseases that cattle in feedlot commonly contract include, Bovine Respiratory Disease (BRD) caused by *Mannheimia haemolytica*, *Pasteurella multocida*, and *Haemophilus somnus*. *Arcanobacterium pyogenes* and *Mycoplasma* species frequently appear in chronic cases. Various viruses, especially IBRV, BVDV, BRSV, and PI_3, often play a significant role in BRD outbreaks. Respiratory tract disorders in feedlot cattle represent the most common cause of death, totaling 57.1% of all feedlot deaths. Treating these disorders remains paramount to operating a successful feedlot operation. Other diseases include: Hemophilosis, Acute Interstitial pneumonia, digestive disorder, Buller syndrome, and coccidiosis[53].

Vaccines

Vaccination campaigns are carried out by government and private veterinary service providers for some diseases such as anthrax, blackleg, hemorrhagic septicemia, pleuro-pneumonia and small ruminant pasteurellosis in some areas and sporadically in others. Only 50,000 doses of FMD vaccine are produced annually[54]. A new strain of FMD has been detected in Egypt however, and there are no vaccines for this strain of FMD produced in Ethiopian and hence it needs to be imported.

The vaccine production center, the National Veterinary Institute (NVI), situated in Bishoftu, claims that it produces most of the vaccines that control livestock diseases. NVI produces 16 types of livestock vaccines and since 2006 has produced over 65,460,000 doses annually, with current plans to increase production up to 140 million doses per year. The Center has benefited from hosting the PANVAC laboratory, and currently PPR, Rinderpest and CBPP vaccines produced by NVI have received PANVAC certification[55].

Veterinary Services and Non-Government Organizations (NGO's)

The modern sources of veterinary skill development include farmer training centers, TVET centers, vocational high schools, extension services and institutions of higher learning. Currently there are 10 universities that graduate over 200 veterinarians every year. NGO's have helped the animal health sector in many ways, including training animal health workers who can deliver primary animal health

[52] Tam Consult, 2008
[53] Status of Animal Health Services in Ethiopia, 2006
[54] Rich et al, 2008
[55] Status of Animal Health Services in Ethiopia, 2006

care in their communities and supporting veterinarians animal health assistants to establish rural drug shops.

Challenges in Animal Health

The reason behind training Community Animal Health Workers (CAHWs) and supporting the establishment of rural drug shops is that regional veterinary services fail to reach the majority of livestock keepers. Reasons for this include the static nature of the services located at woreda clinics and substations and the lack of funds for current expenditures and investment.

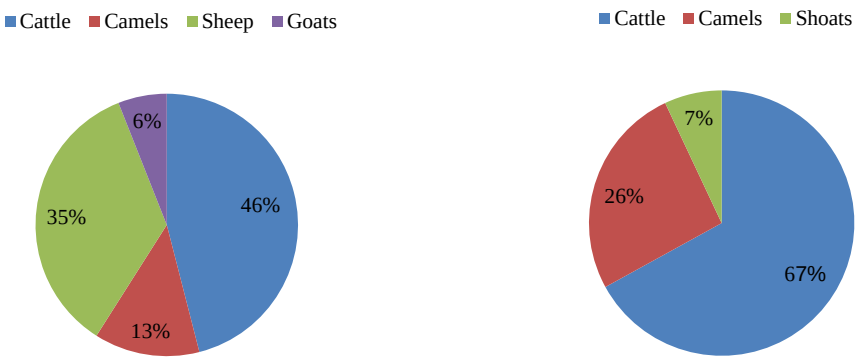
In fact, most woreda clinics have so few funds that they can only purchase veterinary medicines to satisfy the demand for a limited number of farmers who live within a 10 Km radius for 4-6 months of the year. Consequently, some believe that where the demand for services and veterinary inputs would support a financially viable private service, the government should allow the private sector, such as the CAHWs, to serve that area.

NGOs support rural veterinary drug shops because CAHWs live in remote districts and could access veterinary drugs and equipment without travelling to major towns. Some CAHWs have abandoned their services because they could not have easy access to rural drug shops.

FORMAL AND INFORMAL TRADE

Through both formal and informal trade channels, Ethiopia is a major supplier of live animals to Somalia, Djibouti, Kenya, and Sudan as well as to Saudi Arabia. Ethiopia is the largest livestock exporter in Africa with a value of formal exports of USD 190 million, followed by Namibia which exported USD 149 million in 2011. During the same period Ethiopia exported 472,000 head of live animals (16,877 MT), of which 46% were cattle, 35% sheep, 13% camels and 6% goats. In terms of revenue, however, cattle contributed 67% whereas camel contributed 26% and shoats garnered 7% of the total revenue, demonstrating the value contribution live cattle exports have for the Ethiopian economy.[56]

Figure 6: Percent of Total Live Animals Exported | Percent of Total Export Revenue[57]



Although it is near impossible to capture the numbers and amounts of informal trade, by most estimates, the informal trade in live animals from Ethiopia accounts for 75-80% of all live animal trade and a value that is double the reported numbers. Using the above figure as a basis, the total number of animals exported in 2011 would be approximately 1.5 million, with a value in excess of

[56] SPS-LMM, 2011
[57] SPS-LMM, 2011

US$400 million. Table 8 below shows the estimates of informal trading through the years. The connections across these frontiers pre-date formal establishment of national boundaries and have long been transit routes for livestock and other goods into North and East African and Middle Eastern markets. By skirting formal entry points, traders also escape meeting health and SPS standards, and are able to bypass the quarantine requirements in Djibouti.

Table 8: Estimates of Informal Livestock Exports (head)[58]

Source of data	Reference period	Cattle	Shoats	Camel
Concerned Ministries 1983	1981 - 1982	225,450	758,200	Na
Min. of Foreign Trade 1987	1985 - 1986	260,000	1,200,000	Na
FAO 1993	1987 - 1988	150,000	300,000	Na
World Bank 1987	1987	225,000	750,000	100,000
MEDaC 1988	1998	260,000	1,200,000	Na
Belachew and Jemberu 2002	2001	325,000	1,150,000	16,000
Author's research 2013	2010 – 2011	575,000	1,150,000	126,500

However, the government of Ethiopia must find a way to address the prevalence of such large volumes of informal trade across the border for several reasons. One reason is because export abattoirs in Ethiopia are operating at less than 50% of installed capacity, which limits the amount of meat they can produce for the domestic and export markets. This also creates an inadequate supply of hides and skins. By stopping even 25% of the informal trade and keeping the animals in Ethiopia, abattoirs and tanneries could have 375,000 more animals/hides and skins from which to produce meat, leather and leather by-products. Another reason to address the informal trade is that if even 25% of the informal live animal trade were to become formalized, that would generate over USD 140,000,000 in additional exports and USD 21,000,000 in additional VAT tax revenue (and this does not count the additional tax revenue from income and other taxes as a result of additional 'formal' jobs in both the abattoirs, tanneries and leather goods industries).

There are a number of key factors that contribute to informal trade in Ethiopia. They include:

- Formal exporters must obtain an export license and pay 15% VAT to the Government of Ethiopia for the export of live animals
- Informal traders do not need to meet the Government regulation that bans the export of cattle weighing less than 320 kg body weight
- Informal trades usually involve lower transaction costs and lower transportation costs because there is no costs for quarantine and related SPS expenses and lower transport costs because most of the informal trade is conducted near the border requiring less transportation
- Informal traders do not need to follow quarantine requirements
- Informal traders can get around foreign currency and banking clearance controls in Ethiopia, for instance, formal exporters must deposit USD 500 per head/ox, with the Ethiopian Revenues and Customs authority, that are being exported and he will be paid back in Ethiopian ETB

[58] Solomon et al, 2010 and LMD Research, 2013

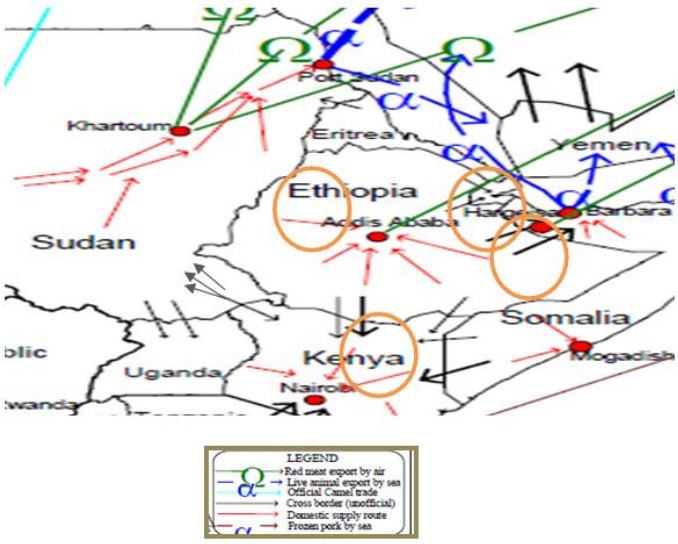
TRADE ROUTES

The map below shows that there are four primary points for the informal cross-border trade of livestock from Ethiopia. They include the following:

1. **Metema – Sudan route end market** where an average of 100,000 to 190,000 heads of oxen cross through Metema customs into Sudan annually. According to officials interviewed for this project, it is estimated that as many as 1000 heads of cattle are smuggled daily or as many as 365,000 a year. This includes cattle of all ages and categories from calves to heifers and cows. A total of 1,200 heads of cattle were caught by the Revenue and Customs station of Metema while trying to be smuggled during the last six months of the current fiscal year.

2. **Dire Dawa – Djibouti route end market** where in 2011, a total of 16,304 shoats, 8,203 camels and 1,390 oxen were legally exported through this customs route. In the last six months 26,400 shoats, 7,122 camels and 170 oxen were exported legally via this route. Estimated numbers of informal trade was not available. On the other hand, 400 heads of shoats and 155 heads of cattle were caught by the customs officials while trying to be smuggled across into Djibouti during the last six months.

Figure 7: Map of Formal and Informal Livestock Trade Routes



3. **Jijiga/Togochale Somaliland route end market** through which the main export animals are shoats, camels and oxen, which is the primary legally exported animal of which on average 1,700 heads are exported per day in the peak periods at USD 500/head. A total of 103,725 heads of oxen, 8,713 camels, and 34,931 shoats were exported legally in the previous fiscal year. Similarly, 55,655 heads of oxen, 1,568 camels, and 31,748 shoats were exported legally in the first half of the current fiscal year. Although officials informed the research teams that "huge numbers of animals are also smuggled illegally" through this frontier, total numbers were unavailable.

4. **Southern Ethiopia into north and northeastern Kenya.** The project's field teams did not visit this border and were unable to obtain detailed formal and informal export figures for this specific post.

ENABLING ENVIRONMENTS

There are a number of policy and regulatory issues that directly impact the meat and live animal businesses in Ethiopia. These business enabling environment (BEE) areas include access to finance, commercial registration and business licenses, access to land, grades and standards, investment areas reserved for domestic investors, informal cross border livestock trade, animal health regulatory issues and access to some basic infrastructure. Below is a summary of some of the key BEE issues many of which are taken from the report *Assessment of Business Enabling Environment in the Ethiopian Meat*

and Live Animal Value Chains, commissioned by LMD and available though the LMD offices in Addis.

The Ethiopian commercial Registration and Business Licensing Proclamation No.686/2010 requires separate licenses for wholesale trade, retail trade, export trade and input supply. The proclamation states that the list of commercial activities for which the Ministry or the bureau issues business licenses is be determined by the Ministry based on international commodity or services or industrial classifications. According to the ministry livestock rearing, fattening, feed production and processing and processing of animal products lie in different business categories needing different trade licenses. Therefore an integrated livestock business – for instance, one that raises livestock, and fattens them with their own feed – would need to obtain three different licenses for each of these three business operations; even if all of these activities operate under the same corporate umbrella.

Business Registration and Licensing Proclamation No. 686/2010 states that business licenses should be renewed within four months after the end of the budget year. The renewal process requires submitting the application form together with a clearance statement written to the appropriate authority at its address for the payment of income tax, other taxes, land use fees, employee's income tax, municipality services fees and any other payment due to be paid to the government. The period for the renewal of these licenses happens to be during the months of Hamle-Tahisas (July-December), which coincides with a period during which business are otherwise engaged in closing their business financial accounts, dealing with government audits, calculating and paying taxes; and obtaining clearance from the Inland Revenue Authority or Regional Offices. It is strongly suggested that government relax the time limit that is already fixed in the proclamation to slack times of the year so that business people will have ample time renew their licenses.

Though agriculture is a dominant sector in Ethiopia, business firms operating in this sector are highly constrained by lack of access to finance, especially the livestock sub-sector in general and the meat and live animal trade in particular. Among the two value chains, it is very difficult to get credit for livestock feeding and domestic livestock trade as livestock are not considered as collaterals for bank loans. The directives on the establishment and operation of National Bank of Ethiopia (NBE) bills, market directive No. MFA/NBE BILLS/110/2011 requires all commercial banks other than the Commercial Bank of Ethiopia to purchase National Bank of Ethiopia bonds equal to 27% of each loan disbursement. This further exacerbates the liquidity problem making a tight credit market even tighter because banks will rarely loan money to projects that are not deemed very low risk, which precludes almost the entire agricultural sector.

Further to the issues noted above, live animals export value chain actors can get short term loans by submitting export licenses, Letter of Credit (L/C) and contractual agreements as collateral, with the amount of the loan depending on the value of the L/C. However, discussion that the LMD team had with several commercial banks revealed that some exporters have withdrawn shipments after collecting loans from banks. Since these short-term loans have no fixed assets or securities linked as collaterals, the bank has difficulty in recalling the loan or collecting repayment for the disbursed loans through the L/C holding mechanism. Such fraudulent behavior is further straining access to financial instruments needed by exporters and others along the value chain who require credit to operate their businesses.

Prior to 2012 investment laws prohibited foreign companies from investing in the import and export trades unless they were specifically in adding value to certain commodities or the commodities that they produced were from their own investments. These prohibitions also applied to live animal exports as well. However, Investment Proclamation no.769/2012 and the Council of Ministers Regulation on Investment Incentives and Investment Areas Reserved for Domestic Investors No. 270/2012 have made changes in the area of investment reserved for domestic investors. According to these laws, feedlot operations and live animal exports are no longer the sole domain of domestic investors. However, the new proclamation and regulations have not been well advertised and are not

well known to most implementing institutions with the GOE which results in many of them still following the previous regulations limiting foreign investment.

On the other hand, a draft live animal marketing proclamation, which is being discussed by different stakeholders within and outside of government, would reserve the live animal trade exclusively to Ethiopian nationals. The draft regulation also includes articles that will enforce the sale of animals at two marketing tiers through auction based on newly established quality standards. The draft proclamation also includes articles which would regulate the movement of animal including the use of dedicated trucks, quarantine regulation and health certificate requirements. However, there are no commercial transport service providers using such trucks and purchasing such trucks is not duty free, which would likely limit extent to which trucks could be purchased by private, commercial services.

FINANCIAL SERVICES

Though agriculture is a dominant sector in Ethiopian, business firms operating in this sector are highly constrained by lack of access to finance. According to the World Bank's Doing Business Survey (2012 report) Ethiopia ranked 111th out of the 183 countries on ease of getting credit. This is a general observation for all agricultural business activities; however, the situation for the livestock sub-sector in general and the meat and live animals trade in particular is even worse. For those in the meat and live animal business it is very difficult to get credit for cattle feeding and domestic livestock trade since livestock are not considered as collateral by banks for making loans. This issue has been a concern of not only those working in the value chain but also among top level policy makers making this a moment of opportunity to fully and finally address the issue of limited access to finance.

Loan application requirements

According to lending institutions, loan application requirements are straightforward and consistent. They require: a business plan and collateral of equal value to the loan amount. However, although official rules require 1:1 collateral value, bank practices often require value equal to 1:1.5 or even 1:2.

Commercial banks in Ethiopia, as elsewhere, are extremely risk averse and are often uncomfortable with what they view as high risks in the livestock sectors. Some of these risks include the potential for crisis in the industry due to transmittable diseases detected within a value chain that does not closely follow appropriate SPS requirements at all stages; drought or other climatic condition; being landlocked with no control over other seaports with points of export being mainly terrestrial land posts and a history of contracts not being fulfilled or enforced among actors along the value chain.

Difficult access to working capital and long-term investment credit remains a persistent concern of actors in the livestock value chain. Lending institutions claim to be willing to lend to farmers and other small actors as long as the loan application requirements are met (see related box).[59] Smallholders and small businesses in particular claim that they have difficulty in obtaining credit. They argue that available credit in the system is not very flexible and often requires collateral that livestock producers cannot provide. Items such as equipment, land or buildings, while a business plan has to be justified in terms of market access and expected sales; justification that most farmers cannot conceivably articulate.

Private bank loans currently offer market rates of around 13% while micro-finance institutions offer short to medium term loans at around 18%. Such rates from micro-lenders can vary from 9 to 24%, depending on the lender. Many financial institutions have focused on peer lending as a way to address lack of smallholder collateral.

[59] Sections excerpted/adapted from Land O'Lakes, 2010

Ethiopia has 16 private banks and three government-owned banks (Commercial Bank of Ethiopia, Development Bank of Ethiopia, and the Construction and Business Bank)[60] Commercial banks offer a variety of loan products, including overdraft facilities, term loans and loans for letter of credits. The Development Bank of Ethiopia grants loans for long term investments; particularly to sectors privileged by current policy. The Commercial Bank of Ethiopia is the largest bank of all. It operates in many parts of the country is the dominant financier of major private investments. For small holders, microfinance institutions are often the more suitable (and often only) source of finance. However, because of size and single borrower limit issues, the amount of loan that can be granted to a single borrower is often too small for further investment at small scale level. In Ethiopia, there are about 30 microfinance institutions.

Several Ethiopian financial institutions are relatively more accessible to smallholder farmers. Amongst these, many of which are supported by the GoE, NGOs or international donors, they include:

- Oromiya Cooperative Bank (the only financial institution dedicated to providing finance to cooperatives and that has experience in agricultural sector lending)
- Oromiya Credit and Savings Share Company
- WISDOM Micro-Financing Institution S.C.
- Amhara Credit and Savings Agency (Ethiopia's largest microfinance organization)
- Awash International Bank (which participated in USAID's Agricultural Finance Program) and Dedebit Microfinance (with branches throughout Tigray Region).

Most private banks have related insurance companies as well. Insurance companies offer policies to cover physical property, manpower risks and a few have livestock insurance policies. However, these policies are not relatively inflexible and are yet to respond well to the variety of needs of the livestock value chain.

IDENTIFICATION AND/OR TRACEABILITY SYSTEMS EMPLOYED IN ETHIOPIA

With the recent events in Europe on the discovery of horse and other meat traces in products claimed to be 100% beef, the Ethiopian livestock industry will need to comply with what is expected to be even stricter traceability requirements in order to enter most markets in the world. These requirements will almost certainly be put into place in major Middle Eastern markets and are likely to be followed by several African markets as well.

In Ethiopia, however, only the largest of commercial farms export cattle that are fattened in feedlots and dairy farms. In addition, animals associated with research and learning institutions use methods of identification and tracking. The most commonly used method of identification is plastic ear tags, however, the problem with ear tags is that they can be easily lost, particularly when animals are grazing. Some of the research institutes use ear tags along with tattoos to mitigate this problem. Most pastoralist and small scale highland farmers do not use any form of identification or traceability systems, even though their animals will often end up in the export value chain. There is draft regulation under development in regards to animal identification and traceability.

[60] Sections excerpted/adapted from Felleke et al, 2011

MARKET STRUCTURES AND GOVERNANCE

Most livestock markets in the study areas are administered by the respective towns' municipalities. Most woredas have just one livestock market and it is usually in the capital of the woreda. These are known as secondary markets and feed into the terminal markets which are located in the large, regional cities. Some secondary market places are fenced but do not have any infrastructure. Others have not even fencing; merely a designated area from which market activities are conducted (e.g. Yetnora, in Dejen woreda of Amhara region). In some cases, the same fenced area is used for both large and small ruminants (such as in Fiche). In others, separate enclosures are used for the different species (such as in Kuyu). Two security personnel are assigned at each gate along with a tax collector. The trucks which transport the animals to the Addis Ababa market for instance, pay ETB 40 to get access into the enclosure for loading. On average, there are about six to ten trucks that get access to different markets per day.

In all LMD woredas decisions for selling animals are made by herders for different reasons. The major reasons herders sell animals include commercial, cash needs, restocking, lack of feed, drought and fear of cattle raid.

MARKET SEGMENTS, PRODUCTS AND TRENDS FOR MEAT

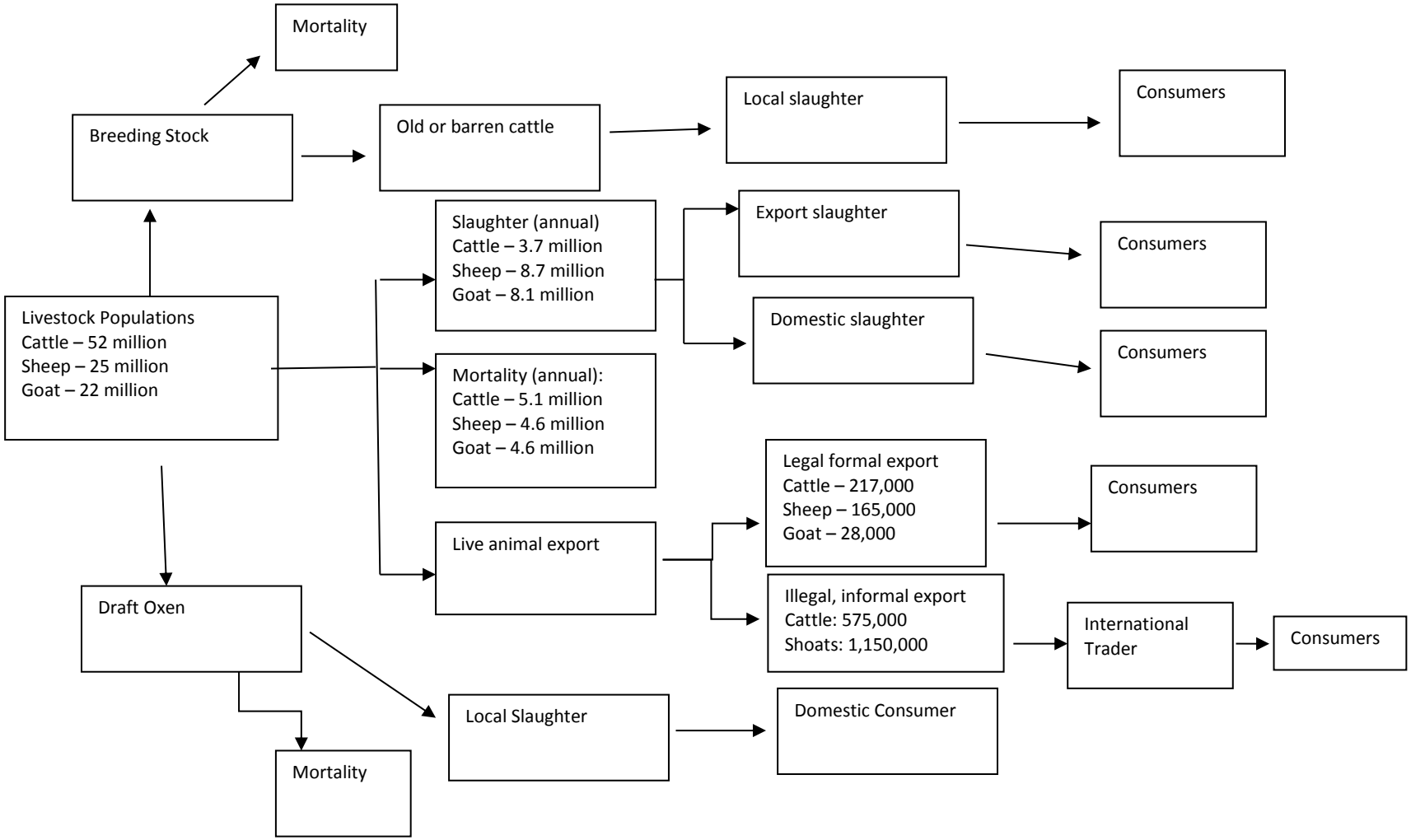
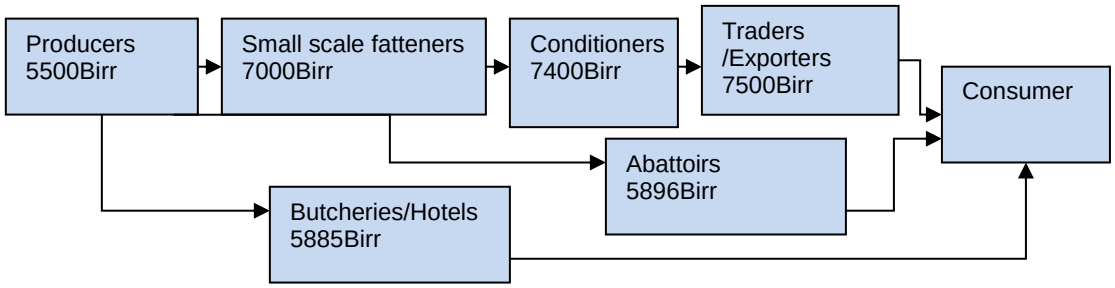


Figure 8: Contribution of chain segments to total value of meat and live animals in LMD woredas



EXTENSION SERVICE

Ethiopia has a densely developed agricultural extension system that is designed to cover each one on the nearly 18,000 rural kebeles in the country. According to the Ministry of Agriculture, there are at least 21 development agents (DAs) for every 10,000 farmers, with even more being located in the high-potential, high-growth areas. However, most of these DAs are focused on crop extension leaving livestock farmers deprived of sufficient and effective extension services. The field research highlighted the desire of value chain actors to receive more and improved extension services – including training in livestock management, business skills and technical assistance. The research also indicated the disappointment of the rural population with current extension services and the March 2013 MSPs all highlighted improved extension as one of the high priority requirements. Furthermore, the recently released Strategy for Strengthening Ethiopia's Agricultural Extension System: Vision, Systemic Bottlenecks, Interventions and Implementation Framework, developed by the Agriculture Transformation Agency and the Ministry of Agriculture, which is designed to be the framework for development of the extension system through to the end of the this decade, barely mentions livestock in the document and does not address any of the special needs of the value chain participants, including issues related to animal health, feedlot enhancement or breeding and artificial insemination. The challenge, of course, is to be able to deliver such services given constrained government budgets.

An approach that Ethiopia could pursue is to deliver remote agricultural extension services using smart phone and tablet technology, similar to that being delivered in Kenya, Tanzania and Uganda. The goal would be to deliver livestock agricultural extension services remotely using smart phones and ruggedized tablets. The key challenge this approach addresses is the need to deliver extension services to rural livestock farmers in remote areas of Ethiopia who otherwise cannot access such services for a number of reasons i.e. 1) prohibitively high cost of establishing enough extension points around the county to make an impact; 2) too few well-educated and qualified extension officers are available to in rural/farming areas of Ethiopia and therefore services cannot effectively be delivered to farmers in real time; and 3) there is little desire (and wherewithal) by national and local politicians to support expanded budgets for an extension system that would requires tens of millions of ETB. With the proliferation of 3G networks through the country and low priced smart phone handsets – some now below USD 20 – there is a unique opportunity to develop such a system for Ethiopia

ICT

Most farmers in Ethiopia are often located in rural areas where access to market information, technology solutions, physical infrastructure such as roads and consistent electricity is lacking; however much of Ethiopia is 'wired' for mobile telecommunications. Market and pricing information

is difficult and often impossible to come by leaving the farmer/producer at a distinct disadvantage when negotiating a price at his nearest market location. There are a number of technology solutions that should be considered by LMD and the GoE as it develops the livestock value chain. These include the following:

Ethiopia Livestock market information system (ELMIS)

The ELMIS was developed in 2005 by the USAID-funded Global Livestock Collaborative Research Support Program (GL-CRSP), which was implemented by Texas A&M University[61]. The work was done under the GL-CRSP sub-project LINKS (Livestock Information Network Knowledge System) in coordination with EMDTI. The ELMIS was originally established in 47 markets (see Annex 1). Once established, livestock prices were broadcast through the media twice a week with radio becoming the most popular method for distributing this information. After LINKS completed its project in 2011, EMDTI took over the collection and transmission of the market data. The situation today, however, is that data in not being collected for most of these 47 markets. Officially, data collection for all 47 markets ceased between July and September 2012 due to a shortage of funding. Although sporadic data collection still occurs in some markets and is put up on the LMIS website, wide scale broadcasting of market prices and conditions is not happening at present.

According to EMDTI, the per person cost of collecting, analyzing and distributing market information is approximately ETB 300 per person, per month. Based on this estimate the cost to bring the ELMIS fully back on line in the original 47 markets is approximately ETB 169,200 or USD 9,400 for one year.

Potential Data Solutions

Mobile app based data collection: Data can be collected using multiple smartphones via a mobile app. All collected data can be synchronized from such devices and then viewed by other mobiles or through a central website.

Mobile Market Information: Once a centralized market information network is established, it would be possible to develop a mobile application to fetch data from a centralized database. The mechanism of fetching market information data can be via a very short text message to the system whereby the system will return the price per cattle, volume per head, and last reported date. This would be unlike the LMIS system, which requires a very long text entry to receive market information.

Mobile Banking: So far mobile banking is not well developed in Ethiopia. However, the government and software companies have started to engage with the sector. Mobile banking concepts can be implemented within the VC process, e.g. farmers can deliver their cattle to collection centers and the system automatically sends a report including the number of cattle, breed type, and their total amount to the farmer and to the mobile banking platform, so that the system will automatically transfer the money to the farmer's bank account.

Collaboration would necessitate producers, banks, consumers, and software development vendors work together to ensure sustainability and ownership. Further details are underway as we prepare to consult with companies (Apposite and Kifiya) that know what can be done in the livestock sector in this manner.

Traceability: Web based national cattle identification and registration systems can be made at the woreda level and centrally synchronized. Alternatives exist in identifying animals and their products.

1. Labeling or tagging a unique identifier on the ears of an animal to identify its origin, health history, and where it is slaughtered and processed. Animal products could also be included in the traceability process.

[61] http://www.e-agriculture.org

2. Installing chips in animals to emit signals that can be traced by detection devices that are installed in collection centers, and quarantine control stations, which then would centrally aggregate the signal feedback for public use.

Awareness Creation: TV and Radio programs hold the positive potential to influence and teach actors in the value chain to adapt best practices and utilize all available ICT solutions.

ENVIRONMENTAL ISSUES

Some feedlot operations are located along the sides of valleys and upstream from population centers. Waste management and disposal systems are not developed in Ethiopia and in a majority of the cases both liquid and solid waste are disposed without consideration to its impact on the physical, biological and social environment. The same is true for small and medium municipal abattoirs.

A significant degree of air, water and soil pollution caused by organic matter and chemicals manifests as a result, creating a hazard to humans. Local biodiversity is affected and agricultural soil may risk contamination. Various management practices are required to reduce these adverse impacts on the environment. Methods that include but are not limited to:

- Create a regulatory framework that not only establishes clear guidelines for how businesses should dispose of waste, but create an enforcement mechanism that has clear 'carrots and sticks' tied to it
- Support creation of new businesses using the waste and byproducts from the feedlots and abattoirs
- Use organic material when practical
- Employ 'reduce, reuse and recycle' methods
- Organize awareness events, facilitate trainings and introduce new, appropriate technologies in waste management

GENDER

There are various policy documents that support gender equality in Ethiopia, yet in practice, the 'equality' women have and can exercise varies greatly across the country and even within the regions in which LMD will be operating. In some (limited) areas, women can actively participate in the ownership and management of commercial operations. In others, problems with control of land and access to finance limit the participation of women in value chain activities. In some limited areas of Ethiopia, women are not even allowed to leave the house by themselves, thereby keeping them from almost all income generating activities. Women generally do not have good management or business skills, hindering them from full participation in the value chain.

Encouragingly, female entrepreneurs are entering into the value chains of dairy, animal fattening and hides with increased incidence. However there remain a number of constraints which include:

- In fattening and breeding, most of the work is done by women, but they don't have control and full rights over use and sale of animals
- The participation of women across the livestock value chain is mostly in the production of animals and not in more value added activities. This limits the upside potential of women in the chain

- Since the value chain concept is relatively new in Ethiopia, understanding the role of men and women in the area is very important. Gender analysis and assessments are required to collect information that can aid in the facilitation of women as accepted operatives in value chain activities
- The limitation of women in the workplace and at home must inform programs to appropriately accommodate for the inadequacy of the current constraints. This can be done by offering day care, subsidized transport, literacy and numeracy classes
- Few financial institutions provide credit and loan services to women. When financing is available, women are much less likely to get formal financing than men even if they have comparable skills and businesses
- Although women are intimately involved in the rearing and fattening of shoats, it's usually their husbands and sons who take the shoats to the market for sale
- Most women do not own land which can present a major obstacle to the development of their own businesses. Women generally find it difficult to rear animals on rented premises (they usually end up sharing the same space with the land's owner). Those who own land have full control to the land and can do with it as they please
- Fattening requires women to leave the house in order to buy, sell, and market livestock, products. Women are thus prone to shy away from being involved in livestock fattening due to their household responsibilities

Case study of woman dairy producer

A female head of household dairy farmer offers a roadmap for other women to follow:

She started several years ago with 7 local breed cows and now has two cross breed dairy cows. The cows produce 15 liters/day from two milkings. Her cows can be milked for 10 months if pregnant and as long as 12 months if not pregnant. She sells as much as 10 liters per day for 7 to 8 ETB per liter and uses the remaining 20 liters to process butter and other products for household consumption and sale. She processes butter, local cheese and whey two times a week consuming about 20 to 25 liters of milk each time and uses "kubet" as a by-product to be used for fuel in the home. In addition to the raw milk that she sells for 7-8 ETB/liter, she also sells yogurt (ergo) for 5 ETB per 300 ml container and butter for 100 to 120 ETB/kg. She can sell cheese (Ayib) for 15 to 20 ETB/kg.

Management practices: Nourishing the animals is done through stall feedings; from the hay she collects in September, October and November. She also purchases and uses wheat bran (furska). Breeding is by artificial insemination. She receives health services from the MOA's extension services, and the woreda agriculture vet department provides vaccinations and medicines for the most common diseases.

Opportunities: There is high demand for milk and other dairy products in her hometown of Michew and she has the use of land that can expand her operations.

Challenges: Lack of market for milk products during fasting time; inconsistent source of feed all year and lack of information and financing to purchase milk processing equipment such as a cream separator.

BARRIERS TO GROWTH AND COMPETITIVENESS

The matrix below provides a summary of key findings that impede the competitiveness of the meat and live animal value chain in Ethiopia.

Table 9: Key Barriers to Growth and Competiveness

	Issues ADD: INFORMAL TRADE	Public	Private
Exports	• Current processed meat exports are low value products and of low quality. Quality standards are poor		X
	• Most processed exports are sheep and goat; little or no beef exported in processed (versus live) form		X
	• Despite government efforts to provide greater control, live animal exports tend to be with high levels of informality	X	X

	Issues ADD: INFORMAL TRADE	Public	Private
Maximizing value	• The value from slaughtered animals is not maximized. Export markets for offal, intestines, meal and other animal parts are not being fully tapped		X
Lack of Competition	• There is little competition within the value chains; the market and pricing power is retained by the traders • The many unlicensed middlemen, brokers and traders within the value chain, each of whom takes profits from the value chain • Abattoirs and slaughterhouses operate well below capacity • Abattoirs do not work with suppliers to maximize quality and animal value or to assure greater supply • Actors in the value chain have little understanding of meat quality standards that export markets are willing to higher pay for	X X X	X X X X X
Poor animal management and lack of price incentive	• Tremendous value is lost because of non-optimum (from the perspective of animal yield) animal management, particularly with respect to the age of the animal when sold. Animals are not managed so that owners sell at age and weight that are optimal to maximize the economic value • The market does not offer producers a variety of choices as to how to raise and own the animal, so that best practices can emerge and be accepted	X	X X
The value chain lacks specialized service providers	• Current animal management and value chain services are lacking in terms of proper feeding, fattening, animal health care and other services. These weaknesses impact production and off take. There are numerous opportunities to provide specialized services along the value chain, on a collaborative or for-profit basis. Examples of such services include: o Commercial feed production and provision o Fattening o Feed lots o Animal health services o Logistics and transport o Mobile abattoirs	X	X
Investment	• New investment is needed to better inform and link Ethiopia to international market requirements, and to supplement Ethiopia's current capability to develop and apply more integrated and high value methods	X	X
Weak policy and the enabling environment	• Policies and regulations are needed that encourage MLA value chain competitiveness and growth, particularly in export markets; value adding investment and new business formation within the value chains and improved productivity.	X	X

	Issues ADD: INFORMAL TRADE	Public	Private
	• In some cases the introduction of policy or regulation is sudden and has not been fully discussed and planned with the value chain actors	X	X
Restricted opportunities for women	• While women are often responsible for the care of the animals, they have little role in cooperative management, business management or trading	X	X
ICT and mobile applications	• The Livestock Market Information System (LMIS) has not been operating since mid-2012 due to lack of funds and an understanding of the value it can have. A globally integrated, well-managed MLA value chain will require numerous IT and mobile applications and tools – for business management, traceability, access to market and price information, access to technical information, point of sale payment, etc.	X	X
Access to finance	• Difficult access to investment and working capital	X	

RECOMMENDATIONS

1. Develop the feedlot sector in the highland areas to stimulate commercialization of live animal raising. A highland fattening sector – anchored by commercial feedlots – can play a central role in both pushing supply (i.e. catalyzing greater feed productivity and converting weaker animals to quality products) and pulling demand (i.e. by creating a strong and consistent demand for young male calves).

2. Develop demonstration productivity and commercialization interventions in highland areas of Ethiopia. Increasing productivity and commercialization of highland farmers will require a series of synchronized demonstration activities that will be viable in high-potential highland areas with access to inputs, feedlots and transportation links to markets.

3. Take aggressive steps to dramatically slow the formal and informal export of live animals while simultaneously taking steps to encourage and develop approaches to steer these animals into the value added channels of meat, and HSL production. Doing so will alleviate much of the shortage of hides and skins on the market while encouraging more robust meat processing and hides, skin and leather industries. This will also add move jobs to the communities and tax revenue to the government's coffers.

4. Develop export markets for offal, intestines, meal and other animal parts which have not been fully tapped, previously. Abattoirs in Ethiopia and elsewhere make profit from their operations based on the extent that they can market and sell the by-products that come from the slaughtering process. With established markets in the Middle East and potential markets opening up in Asia – mainly China – there is potential for Ethiopian processors to sell into these markets.

5. Address the serious problem of so many unlicensed middlemen that have become a burden on the profitability and perhaps viability of the meat and live animal value chain. As the report

demonstrated the number of middlemen is excessive and they take value from the value chain without contributing an equal amount of value.

6. Develop live animal auctions to improve the transparency of the market, facilitate the creation of a grading system and improve pricing signals for both producers and traders. Other advantages to a live animal auction would be that the problem of unlicensed middlemen would be mitigated further as more live animals end up through the auction rather than the 'brokerage' system.

7. Tackle selected cross-cutting constraints that obstruct the development of the livestock value chain: Easing constraints to 1) investment and working capital, 2) accessing foreign exchange in order to import raw materials and spare parts to remain globally competitive, and 3) effective logistics and transportation services, etc. will improve the effectiveness of the meat and live animal value chains.

8. Strengthen back ward linkages within the value chain, particularly from abattoir back to the feedlots and farmers, which would not only support increased meat production designed to meet growing market demand, but also provide more hides and skins into the resource-constrained HSL value chain. This could involve the government providing tax incentives for abattoirs to directly connect with and/or invest in feedlots and commercial farming operations.

CONCLUSION

Meat production and consumption drives much of the rest of the livestock value chain in Ethiopia, particularly hides, skins and leather. Ethiopia's challenge has been and continues to be that the booming formal and (particularly) informal trade of live animals across the frontiers of neighboring states keeps significant numbers of animals from reaching abattoirs in Ethiopia. This means there is less meat processed, thereby limiting the number of hides and skins that reach the tanneries. Ethiopia has the potential to make a sharp impact on the regional and global markets for meat (and leather) in the next five to ten years if the public and private sectors can create a partnership and work closely to achieve a number of breakthroughs together. Realizing these market opportunities is hampered by a number of overlapping constraints that taken as a whole seem to have a paralyzing effect on the industry. Value chain actors and stakeholders have taken some steps to address these constraint including increasing the export of offal and becoming more aggressive in locating markets abroad, particularly the Gulf States. However, more needs to be done.

The promise and potential of the Ethiopian livestock value chain is to become a thriving industry that can produce packaged meats destined for Middle Eastern, European and East African markets, or fashion gloves and shoes that sell in volume on the high streets and boutiques of Europe. To reach this level of growth and development, operators and investors along the value chain might consider how to improve the quality and value of meat exports by establishing a standardized grading system for meat and live animals; encouraging more supply into the abattoirs to increase capacity utilization thereby lowering costs, improving cost competitiveness and providing more raw material for leather producers; and introducing proper and improved feeding, fattening, animal health care and other services while encouraging foreign and domestic investment at all points along the value chain. By addressing the many constraints discussed in this report and taking advantage of the opportunities laid out before them, the MLA value chain can make significant strides in expanding into and developing new markets.

HIDES, SKINS AND LEATHER VALUE CHAIN FOR ETHIOPIA

INTRODUCTION

The hides, skin and leather is a critical strategic sector for the economic and industrial development of Ethiopia. It has an abundant and renewable resource base in Ethiopia's large population of cattle, sheep and goats. It is labor-intensive with the potential to be a major source of employment all along its value chain. The government of Ethiopia has made the leather and leather products value chain among the top four most promising industries in the country due to its strong backward linkages to the rural economy, and potential for poverty reduction. To date, over 10,000 formal jobs have been created as have thousands of informal handicraft and trading activities. The country has 25 commercial tanneries of which 23 are operational, 17 foot wears and 8 leather goods producing factories[62]. Out of the 17 big shoe factories, 14 are engaged in exporting; and 1000 small and microenterprises are also engaged in the production of footwear. Today the sector consists of over 850 legal hides and skins traders, 6515 workers in tanning, 5400 workers in foot wear and leather goods factories.

The Ethiopian leather industry is one of the leading generators of foreign currency in the country and an important creator of jobs. Until 2006/07 exports of pickled sheepskins and wet-blue goatskins ranked second only to coffee as a source of foreign exchange. However, with the advent of the law that applied a tax on the export of semi-finished leather, the exports of these products declined in 2008/09, and in 2009/10 no semi-finished leather was exported from Ethiopia, which also coincided with the lowest level of leather and leather product exports from Ethiopia in nearly a decade (see table 1). However, as the global economy recovered and the tanneries in Ethiopia began to invest more in finishing capability, the level of leather exports recovered and in 2011/12, reached records of USD 112 million. Despite this recovery in the export levels of finished leather, tannery capacity is still significantly underutilized with most tanneries producing at well below 50% of their installed capacities.

Table 10: Leather Exports (USD million)[63]

Year	Export Earnings (from Leather)
2004/05	68
2005/06	75
2006/07	89
2007/08	102
2008/09	76
2009/10	56
2010/11	105
2011/12	112

[62] LIDI, 2011
[63] LIDI

The global market for leather and leather products is huge, yet Ethiopia has but a small fraction of the total global market for such products. In 2010 world imports of leather were valued at USD 19.9 billion, with USD 6.3 billion worth going to China (including Hong Kong), USD 2.3 billion into Italy and USD 1 billion into Vietnam[64]. Ethiopia has direct and (in some cases) long-term links to many of these markets, including Italy, China, United Kingdom, Russia and Hong Kong, which collectively account for about 75% of all leather exported from Ethiopia[65].

Meat consumption drives the supply of hides and skins to the market in Ethiopia and all over the world. Maintaining ever larger herds of animals is a traditional sign of prosperity, heightening the social status of the owner while contributing to a continual shortage of hides and skins in the leather supply chain. In addition to a shortage of supply, the quality of sheepskin in Ethiopia is generally low due to poor flaying habits as well as the proliferation of ectoparasites, known as "ekek" in Ethiopia. Nearly 80% of all sheepskin from the highland areas of Ethiopia is affected by ekek, while most of the rejected sheepskin is due to defects as a result of ekek.

The leather and leather products industry is hobbled by supply, quality, market, skilled labor and finance constraints. The leather supply chain is characteristic of a non-integrated chain in which most participants operate independently instead of interdependently across the value chain. Prices do not reflect premiums for different grades of quality. The industry is still operating with out-dated equipment as little new technology has been introduced and capacity utilization is low. Important issues facing the industry as it strives to strengthen its capabilities in the face of increasingly fierce global competition include lack of sufficient supply of hides and skins to meet demand, lacks of a price incentive that reflects premiums for superior quality; limited foreign and domestic investment in the value chain and lack of access to operating capital; lack of specialization necessary for accessing key niche markets in Europe and Asia; low worker productivity and weak backward and forward linkages.

BACKGROUND AND GLOBAL CONTEXT

LIVESTOCK POPULATION

The Ethiopian government believes that agriculture will serve as the catalyst for future economic growth and contribute significantly to enhancing food security, increasing employment and reducing poverty. As part of that promising sector, this value chain analysis focuses on hides (which owners flay off their cattle), skins (which owners flay off their sheep and goats) and leather products. According to its Central Statistics Agency, in 2012 Ethiopia had 52,129,000 cattle; 24,221,000 sheep; and 22,613,000 goats. FAO recorded similar numbers for the year before, placing Ethiopia as having the eighth largest overall livestock population in the World (Table 1) and one of the largest in all of Africa (Chart 1).

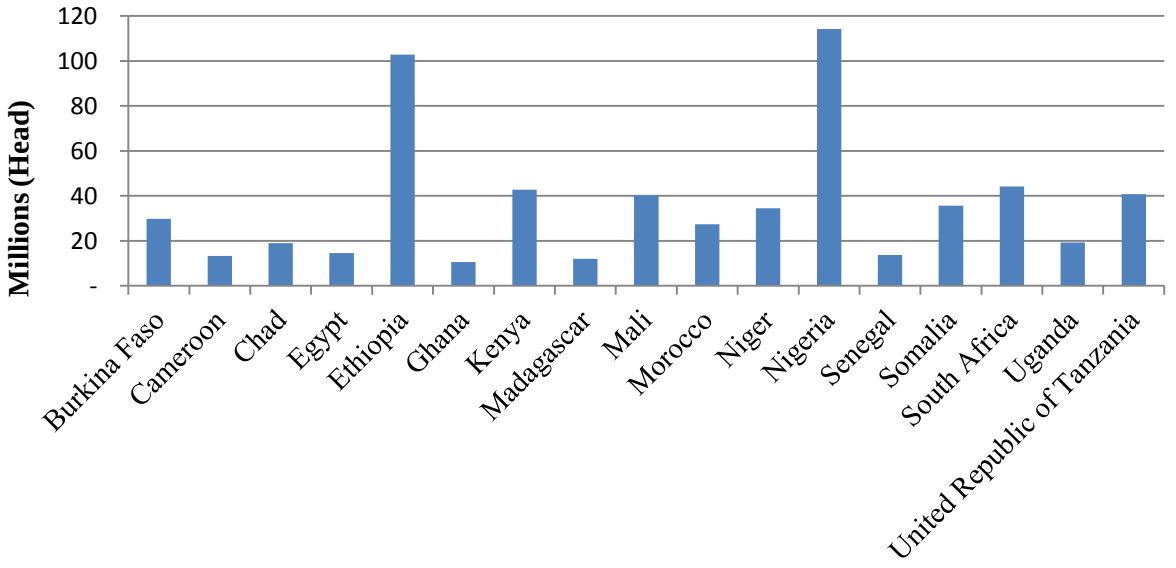
[64] UN-International Merchandise Trade Statistics
[65] (KPMG International, 2010)

Table 11: Top Ranking Livestock Populations in the World[66]

Rank	Country	Cattle	Sheep	Goat	Total	Global Share %
1	India	320,800	66,440	127,394	514,634	14.42
2	China	104,947	132,746	157,448	395,141	11.07
3	Brazil	219,457	17,135	9,341	245,933	6.89
4	Pakistan	66,000	28,168	59,843	154,011	4.31
5	Sudan	41,850	52,194	43,806	137,850	3.86
6	Australia	27,500	77,888	3,426	108,814	3.05
7	Nigeria	16,600	35,344	56,190	108,134	3.03
8	**Ethiopia**	**52,000**	**27,096**	**22,904**	**102,000**	**2.86**
9	USA	92,582	5,541	2,959	101,082	2.83
10	Bangladesh	24,000	1,870	65,487	91,357	2.56
	World	1,591,500	1,096,500	881,600	3,569,600	100.00

From the above livestock population numbers, Ethiopia now ranks sixth in the World for cattle population, seventh for goats and tenth for sheep which collectively put Ethiopia among the top eight producers of these animals altogether globally. The global share of Ethiopia in the above population reached 2.9%. This enormous population of livestock promises an ample opportunity for the development of the leather industry in the country.

Figure 9: Livestock Populations in African Countries with more than 10 Million Head[67]



[66] FAO 2011

[67] FAO Stat; Sums Camels, Goats, Sheep and Cattle

LIVESTOCK AND LEATHER EXPORTS

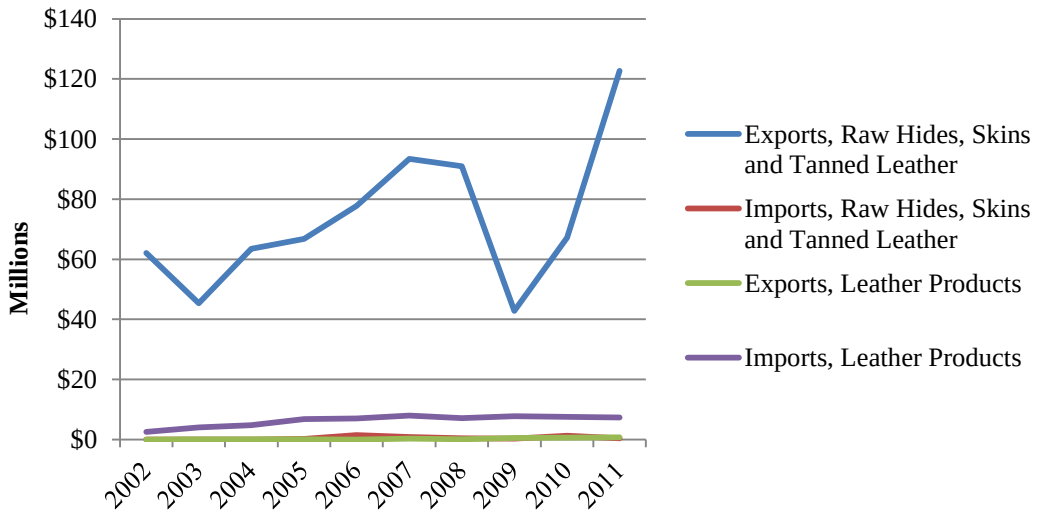
Currently Ethiopia's agriculture sector contributes between 45-50 % of the country's total GDP In the 2010-11 fiscal year, live animals generated USD 147.9 million of Ethiopia's foreign exchange, leather and leather products generated USD 103.8 million, and Meat and Meat Products generated USD 63.3 million, ranking 6th and 8th and 9th respectively of Ethiopia's top foreign exchange earning agricultural exports as noted in table 2 below:

Table 12: Ethiopia - Major Sources of Foreign Exchange ('000 USD)[68]

	Amount	Share
Goods Exports	2747.1	
Services Exports	668.1	
Major Agricultural Export Goods		
Coffee	841.8	31%
Gold	461.7	17%
Oilseeds	326.6	12%
Chat	238.3	9%
Flowers	175.3	6%
Live Animals	147.9	5%
Pulses	137.9	5%
Leather & Leather Products	103.8	4%
Meat & Meat Products	63.3	2%
Fruits and Vegetables	31.5	1%
Others	219.1	8%
Agricultural Exports	**2066.4**	**75%**

Ethiopia's livestock and leather production stand high in strategic economic importance because of their numbers, diversity, important place in the rural economy, and their present and future economic contribution to generate employment, wealth, tax revenue and foreign exchange.

Figure 10: Ethiopian Imports and Exports of HSL[69]



[68] National Bank of Ethiopia, 2010-2011 Annual Report
[69] UN ComTrade

Concomitant with Ethiopia's interest in strengthening its livestock sector for food security and economic growth is the global demand for leather and leather products. Two of Ethiopia's leading leather products trade partners – Italy and China – are in the top five of the leather and leather products importers in the world while two other leading trade partners – United Arab Emirates and Turkey – are in the top 25. As Africa's fourth largest leather exporter endowed with significant populations of livestock, Ethiopia has the potential to increase its share of the regional and global leather trade as demand for leather accelerates with population growth.

Table 13: Ethiopia's 2011 Rank Among the Top Ten African Exporters of Raw HSL[70]

Rank	Country	Export Value
1	Nigeria	$779,489,712
2	South Africa	$256,237,244
3	Egypt	$152,274,390
4	**Ethiopia***	**$122,712,875**
5	Tunisia	$46,198,348
6	Uganda	$33,066,990
7	Zimbabwe	$28,957,609
8	Namibia	$20,335,780
9	Tanzania	$15,483,953
10	Rwanda	$7,555,877

** Almost all of Ethiopia's exports are finished leather; this figure varies from LIDI data, which may be due to different "fiscal" years.*

Insights gained from this value chain analysis confirm that the inadequate supply of livestock of the desired quality will continue to limit the development of the downstream meat, dairy and leather industries. While the trends in the previous figures and tables portray the economically positive contribution made by Ethiopian hides, skins and leather, a deeper analysis indicates problems embedded within and throughout the value chain.

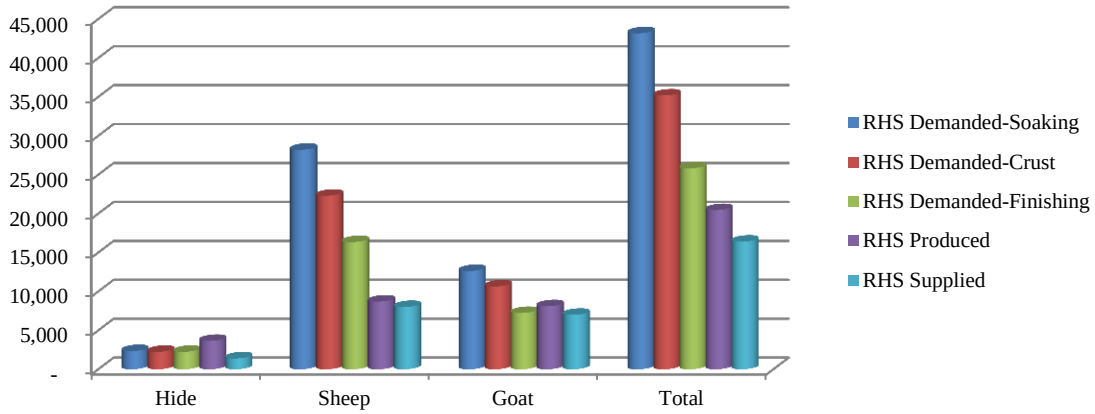
Therefore, we first examine the main processes of the HSL value chain, from animal husbandry and hides/skins availability, through hide production/collection, trading, tanning and finally, leather goods production. In the process, we address the major issues that constrain the competitiveness of Ethiopian HSL products at each stage. Finally, we map the major actors of the value chain and then highlight the overarching constraints of the value chain.

SUPPLY AND DEMAND

As this report will explain, the data indicates that each of the three animals face a different situation with regards to their hides/skins production, collection and delivery to the tannery. Cattle rawhide production at the producer level exceeds tanning capacity, yet traders supplied too few of those hides to tanneries. The tannery collection-to-production rate approximates to 38% for cattle; 92% sheep skin, and 86% for goat skin. For cattle hides, the issue appears to be a matter of collection – since production levels at 3,649,000 hides would meet tannery capacity.

[70] UN ComTrade

Figure 11: Raw Hides and Skins (RHS) Varying Demand



Traders, on the other hand, collect an estimated 92% of all sheepskins produced. At first glance, this does not surprise most HSL actors, as the sheepskins sell at a higher relative price, and leather manufacturers use them in their most valuable high-end products.

Table 14: Hides and Skins - Average Size, Weight and Prices (First Quarter, 2013)

Wet Salted Hide or Skin	Avg size / piece (sq. ft)	Avg weight / piece (kg)	Avg Tannery Price (ETB)	Avg Price / Weight (ETB/kg)
Sheepskin	5 sq. ft	1.5-2.0 kg	90 / piece	51.43
Goatskin	5 sq. ft	1.5-2.0 kg	52 / piece	29.71
Cowhide	22 sq. ft	10.0-12.0 kg	112 / piece	10.18

Driving the differences in hide and skin prices are the end uses for each. While cattle hides make for strong shoe uppers and versatile domestic market home use, e.g., floor mats, bags, ropes, etc., buyers of sheepskins use them in high end gloves and leather goods that they typically sell in high end retail outlets in Europe, United States and other countries.

Even though tanneries received 92% of all sheepskins produced, that number still amounts to only 48.9% of finished leather capacity for sheepskin.

For goats, tanneries receive 86% of all the skins produced and almost 97% their finishing capacity. However, this amount of skins only fulfills about 66% of tannery crusting capacity and 55% of its soaking capacity rendering excess goatskin crusting and soaking capacity which may sit idle.

In short, value chain inefficiencies in all three livestock categories resulted in lost income, employment and market opportunities for:

- cattle hides because of insufficient collection;
- sheepskin due to insufficient collection and production; and
- Goatskin from both insufficient collection and production.

Short, intermediate, and long term plans to alleviate the underutilization of tannery capacity for hides/skins can be approached and developed. Initially the GOE, traders, abattoirs and tanneries could incentivize the availability of more hides and skin to the tanneries through the enhanced collection of the already produced hides and skin. This must be complemented by exploring import possibilities from neighboring countries. The GOE could also adopt policies and procedure that encourage imports of raw skins and semi-processed leather. To this end, the encouragement of foreign owned tanneries;

notably China, India and Turkey, to leverage their expertise in RHS importation would be a good starting point.

Long term solutions however depend upon the development of a commercialized livestock subsector that supports the emergence of a robust meat industry. It would also assist abattoir and tannery processing were the GOE to discourage live animal exports; particularly sheep and goats.

The capacity utilization by tanneries should also be done iteratively and step by step. The first step is to make tanneries at the very least perform at a total output equitable to their finishing capacity. This doesn't necessarily require new capital investments, but rather a coordinated effort to make use of established finishing capacity through inter tanneries trades of semi finished leather which is minimal currently. Once operating at collective finishing capacity, tanneries could invest in raising their finishing capacity so that it meets their current crust capacity levels, and eventually operate all tannery processes at full capacity.

Parallel to this encouraging the investment and expansion of leather goods manufacturing is essential to develop the HSL value chain via a "demand-pull strategy".

The relatively small size of Ethiopian hides and skins compared to those of other countries presents another vexing challenge for Ethiopian tanneries. For instance, the average Ethiopian hide size is 22 - 24 square feet while the average European hide size is about 50 square feet; more than double the size of Ethiopian hides. A larger hide offers a better cut value and hence more flexibility to produce wide range of products including upholstery leather with the high and growing demand by automotive and household furniture producing industry. Similarly in the case of sheep and goat skins, tanneries also receive skins so small that they reject them.

Compounding the small size problem for modern tanneries is that traditional tanneries manufacture all kind of products widely used by the rural household that do not require large, well-preserved, or unblemished hides/skins. Therefore the traditional tannery, the demand for whose products remains strong, can purchase a large volume of all types and sizes of hides and goat skins before they ever circulate in the formal HSL value chain for purchase by modern tanneries. In some areas, traditional tanneries operate as the most convenient buyer for small producers, since producers can sell to the traditional tannery whatever type and grade of hide or skin they have.

For instance, more than 3,200 traditional tanneries operate in the Amahara region alone:

Table 15: Traditional Tanning in Amhara[71]

Number of Traditional Tanners in Amahara	Number of Hides & Skins Processed	Share of Amhara Hides & Skin Processed by Traditional Tanneries
3,294	**344,520**	**37%**

[71] LIDI 2012

PRODUCTION PROCESS

ANIMAL HUSBANDRY AND HIDES/SKINS AVAILABILITY

Hides and skins only result from animal slaughter performed by the meat industry, a by-product correlated to the animal slaughter / off-take rates. To increase the number and quality of hides and skins, the data suggests that the approach and purpose of livestock husbandry must change to include raising animals with a more commercial focus while starting to build the necessary market linkages into which producers can sell their meat, hides and skins.

Consequently, to grow the hides/skins value chain; i.e. to increase investment in it and receive greater income, employment and exports from it, one must first increase the number of animals slaughtered for meat. To do this there must be both a sufficient supply of animals to slaughter, as well as sufficient demand for the meat. These primary drivers for the HSL value chain appear in the Meat and Live Animals value chain analysis, with some additional information covered in the next few paragraphs.

From the following chart, based on the *World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear*, the off-take (kill) rates in Ethiopia for cattle, sheep and goat in 2011 are 7.12%, 31.11% and 35.37%, respectively. The 7.12% off-take rate for cattle falls significantly below the African average of 12.71% and the world average of 20.31%. While the off-take for sheep ranks slightly below the average for Africa, the off-take for goats ranks slightly higher than the Africa average, though both remain well below the world average. The following table summarizes the animal population, production of hides and skin and the average off-take by selected regions of the world.

Table 16: Populations, Hides and Skin Production and Off-take Rate by Selected Region[72]

	Animal Population (millions)			Hides/Skins Production (Millions)			Off-take Rate (percentage)		
	Cattle	Sheep	Goat	Hide	Sheep Skin	Goat Skin	Hide	Sheep Skin	Goat Skin
WORLD	1,592	1,097	882	323.2	542.5	424.6	**20.31**	**49.48**	**48.16**
Developing	1,277	756	838	213.0	361.1	406.4	16.67	47.78	48.51
Africa	205	206	242	26.3	72.1	76.0	**12.82**	**35.07**	**31.44**
Near East	81	205	109	12.0	83.0	37.8	14.87	40.51	34.58
Far East	584	258	452	93.2	184.4	282.6	15.95	71.58	62.48
Other Developing	314	341	44	110.2	181.4	18.2	35.08	53.23	41.55
Developed Countries	109	7	3	38.1	3.4	0.7	35.12	51.52	22.58
Europe	54	87	17	23.5	35.1	3.9	43.60	40.16	23.08
Ethiopia	52	27	23	3.7	8.7	8.1	**7.12**	**32.11**	**35.37**

Such low off-take rates suggest that the farmer needs his animal(s) as productive assets, e.g. as draught power and milk provision, more than the income he could earn if he sold them into the market. For example, if the average Ethiopian farmer in the Central Highlands can only afford to keep one milking cow, 2 oxen for draught power, plus 5-6 shoats (which he would keep for festivals, cash emergencies, and wealth building/prestige), there exist no other animals to slaughter for extra income, nor an incentive to slaughter one of the animals upon which he relies to provide milk to his family or power to plow his fields or transport his goods. This may help explain why on average, out

[72] World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear, FAO 2011

of 100 cattle, Ethiopians slaughter only 7 of them in a given year. Yet to confirm this hypothesis, we examine the following data - Ethiopian Livestock Reared by Purpose.

Table 17: Ethiopian Livestock Reared by Purpose[73]

Purpose	Cattle	%	Sheep	%	Goat	%	Total	%
Breeding	10,976,813	21.06	12,241,793	50.54	9,889,326	43.73	33,107,932	33.45
Draught Power	13,007,786	24.95	0	0.00	0	0.00	13,007,786	13.14
Milking	7,172,478	13.76	0	0.00	872,734	3.86	8,045,212	8.13
Other Purposes[74]	1,870,007	3.59	167,073	0.69	100,783	0.45	2,137,863	2.16
Meat	497,471	0.95	586,321	2.42	653,694	2.89	1,737,486	1.76
Wool	0	0.00	57,179	0.24	0	0.00	57,179	0.06
Population of Matured Age[75]	33,524,556	64.31	13,052,365	53.89	11,516,536	50.93	58,093,457	58.70
Total Population	52,129,017		24,221,384		22,613,105		98,963,506	

As noted in the data above, the principal purposes for rearing cattle are draught power and breeding, while the primary purpose given for raising sheep and goats is breeding; yet raising animals for commercial reasons is not a major consideration for livestock owners. For example the share of livestock being raised for the purposes of meat production is less than 1% for cattle; 2.42% for sheep and 2.89% for goats.

Death Rates

Interestingly, the off-take rates for Ethiopian sheep and goats seem much higher than the "Livestock Reared by Purpose" data suggests, until one examines the Death Rates.

Given current husbandry practices, Ethiopian livestock owners incur major livestock losses (alongside the indirect opportunity losses of lost meat, meat byproducts and skins/hides to sell) due to a surprisingly high death rate, which is double the African average. The following data illustrates this fact.

Table 18: Death Rate among Ethiopian Animals is Double the African Average[76]

Livestock	Total Population	Annual Deaths	Death Rate
Cattle	52,129,017	5,049,944	9.69%
Sheep	24,221,384	4,593,976	18.97%
Goats	22,613,105	4,582,057	20.26%
Total	98,963,506	14,225,977	14.37%

Livestock owners state that they raise 51% of their sheep and 44% of their goats for the purpose of breeding. By examining the mortality chart above, we note that approximately 19% of their sheep

[73] CSA March 2012

[74] Other purposes include raising livestock to generate wealth, creating a "savings account" from which owners can withdraw (via sales or slaughter); having an animal to slaughter during festivals or special occasions; and/or building prestige in the local community.

[75] Matured age considered for cattle is 3 years and above while for sheep and goat is 2 years and above.

[76] CSA 2011

and 20% of their goats die annually. It is plausible that the owners need to breed a large percentage of their herd because their herds experience such high death rates. This continuous loss from death may stifle any effort in raising and selling more sheep and goats for slaughtering purposes, which would produce more meat and skins along the value chain for other actors. Livestock owners incur sheep and goats losses continuously. When weighed against the expense of animal gestation and growth, many owners are likely stretched to where they can barely keep even or ahead; with just enough sheep and goats to slaughter for an occasional religious or family festival, or a quick cash infusion.

The combined average livestock death rate reached 14.4%, or 14,225,977 animals. This represents a huge loss not only for the livestock industry but also for the downstream industry including meat, dairy and leather industry. Reducing the death rate by half would generate over 7 million of heads of animals for the meat and dairy industry and the equivalent pieces of raw hides and skin to the leather industry.

Unfortunately for tanneries and leather producers, it is precisely the sheep and goats - with especially high death rates - that provide the highest value skins. High death rates are killing efficiency and growth opportunities throughout the Ethiopian hide-skin-leather value chain, not to mention that of meat and live animals.

A number of reasons can explain the high mortality rate among livestock in Ethiopia. These include:

1) Since most Ethiopian livestock owners farm at a subsistence level with very low income, these livestock owners might not be following the best animal husbandry practices in regards to feeding, watering, breeding, vaccinations and other animal health necessities, which risks their animals more to disease;
2) they will likely use an animal for draught power until it dies, or becomes very old, and then dies in retirement;
3) poorly fed and watered animals become weak, as their immune systems lack the nutrition to adequately fight diseases and infections; and poor access to formal (veterinary) or informal (CAHW, Animal drug shop) animal health care, Artificial Insemination (AI) services for better breeding, and other extension services.

Diseases Affecting the Skin of Animals

Beyond contributing to high death rates and low off-take, a poor animal husbandry practices can reduce the quality of hides and skins that do make it to market, primarily through fomenting and failing to treat disease. In cattle, the most common skin diseases are caused by tick bites and demodex mange mites, and lumpy skin disease also occurs in large herds. Other diseases are sporadically encountered, such as streptothricosis, papailomatosis, trichophytosis and parafilariasis. Among sheep, the most common and economically most significant skin disease is ekek which is caused by lice and keds and mange. Sheep pox which is commonly seen in highland flocks that have not been vaccinated and others include ecthyma, corynebacterialpustular dermatitis and tick infestation. Among goats, pox can be seen in large proportion in areas where no vaccination has been carried out. Ticks, lice and mange are also commonly seen in lowland regions. Although these diseases affect the skin directly, many other viral and bacterial diseases cause emaciation, leading to and/or death and deterioration of the skin structure.

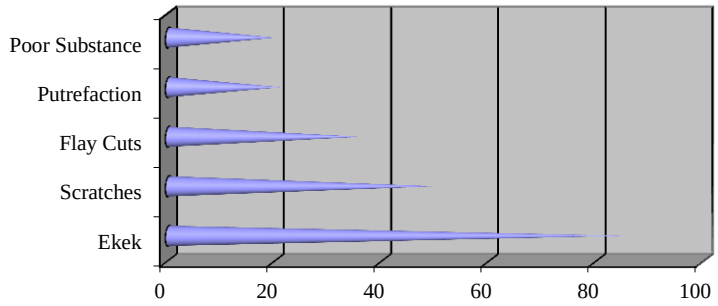
Diseases like sheep ekek, which greatly affect the HSL industry, require persistent treatment. The adult animals should be treated thoroughly every three months so that their off springs would not be infected by the parasites. The treatment of the off-springs should also continue till they are slaughtered. However, such treatment is limited by the many factors that constrain animal health services in rural areas.

Branding and Other Skin Damage

Traditionally, livestock are branded to mark and identify them from others animals, or as treatment and/or prevention from disease. This common practice reduces the quality of hides and skins and results in lower prices. Similarly, animals are often left to graze in brush areas, leaving scratches and scars on the skin surface, and limiting its use for production of quality products.

Chart below illustrates the percentage of hides damaged by different causes.

Figure 12: Defects on Pickled Sheep Skin[77]



PRODUCTION OF HIDES AND SKINS

There are a number of ways hides are produced in Ethiopia – individual households, rural slaughter slabs; municipal slaughter houses and mechanized, modern abattoirs. Individual households residing in Kebeles across Ethiopia produce most of the country's hides and skins, most often slaughtering their animals in their backyard[78].

Image: A Municipal Slaughter House in Shay Bench

Rural slaughter slabs produce a sizable volume of hides and skins, as well. Their slaughter areas typically consist of poor equipment and a slab of concrete, under a shade. These operators usually locate in small towns adjacent to butcheries or near centralized trading centers without third party inspection or supervision. Municipal slaughter houses (medium-sized abattoirs) function in medium to large towns and cities. Local meat inspectors supervise the activities of these units which have larger local markets, more processing capacity and often a more consistent quantity of water than their rural counterparts (Annex 3). Many of these municipal operations still remove hides and skins from animal carcasses by hand. Manual removal of hides and skins can cause extensive damage to the hide/skin via cuts and holes, substantially reducing their value. A typical machine-flayed hide, which if done correctly seldom has cuts or holes, frequently receives higher prices than a typical hand-flayed hide, which will usually have several cuts and holes.

The nine export abattoirs that are currently operating possess a potential capacity of processing 60,000 cattle and 1.5 million sheep and goats (18,000 tons of beef meat and mutton) per annum. However,

[77] ELIA
[78] Ethiopia Livestock Master Plan, 2007

the five meat-exporting abattoirs operate at less than 20% of capacity and are not major sources for hides and skins.

The various rates on production and collection and differing practices of slaughter and collection provide insights into the challenges faced by the leather industry. By animal, the following Addis Ababa example illustrates slaughter volumes between abattoir and backyard slaughtering:

Table 19: Animal Slaughter Practices for Addis Ababa 2011/12[79]

Animal Type	Slaughtered in Abattoirs (Total)	Slaughtered in Abattoirs (Percent)	Slaughtered in Backyards (Total)	Slaughtered in Backyards (%)	Total Slaughtered in Addis Ababa
Cattle	216,889	78%	62,178	22%	279,067
Sheep	107,558	24%	348,048	76%	455,606
Goat	26,751	18%	120,114	82%	146,865

The above table illustrates a predictable pattern, yet to a greater degree than one might expect. First, large animals are usually slaughtered by butcheries that retail it to the household. This means it is supplied to the public and is strictly required to have it slaughtered in accredited slaughter houses where pre-, peri-and post-slaughter inspection is mandatory in the interest of the public health. In addition the larger the animal, the greater size and weight make it cumbersome to slaughter in a backyard, yet not impossible and more likely it will be slaughtered in a slaughterhouse. Urban cattle owners in Addis Ababa still slaughter more than 1 out of 5 cattle in their backyard.

Nearly 76% of sheep and 82% of goats are slaughtered in the backyard, and there are a number of factors that discourage slaughtering in slaughter houses in favor of backyard slaughter. First, the policies noted above do not apply to small ruminants such as sheep and goats, and there is a general lack of lack of enforcement of policies that do prohibit backyard slaughtering. Secondly, there are very few slaughtering facilities available in the country compared to the populations. Nationally there are about 175 slaughter facilities for over 85 million of the population residing in over 18,000 kebeles.[80] Therefore, there is about one slaughter house to every 450,000 people. In rural area there is only one slaughter facility for about 1 million in population. Finally, in certain religious, festive and family practices, slaughtering sheep and goats in the backyard further represents a common practice, and preferred over slaughter houses by many.

While one might expect that backyard slaughtering leads to fewer hides collected, the national data on the following table reflects just the opposite. Based on LIDI 2012 data all Ethiopian tanneries receive on average 38% of the cattle hides produced, while for sheep and goats, they receive 92% and 86%, respectively.

The Woreda field visits confirmed the data previously discussed that animals are by and large being slaughtered in backyards. This particularly true for sheep and goats, for which slaughtering is almost exclusively done in the home for household meat consumption and by small hotel businesses who cater food for guests. In the case of cattle, slaughter services are provided at the municipal slaughter slabs for butchers who retail meat for the dwellers in their respective towns. Although butchers are required to have their animals slaughtered at slaughter facilities administered by the municipality, we were informed in some instance butchers also slaughters cattle in their own backyard. We were also informed that households also slaughter cattle home during festivities such as holidays, weddings and even mourning individually and also in group.

[79] CSA March 2012
[80] MoARD, 2005 and CSA 2007.

COLLECTION

Table 20: Dispersion of Commercial Supply/Production[81]

Hide or Skin	Cattle	Sheep	Goat
Production (in thousand pieces)	3,649	8,700	8,100
Commercial Supply [to Tannery] (in thousand pieces)	1,400	8,000	7,000
Commercial Supply/Production	38.4%	92.0%	86.4%

As evidenced from the chart above sheep and goat skins are collected by commercial tanners at a considerably higher rate than cattle hides. As this data is based on Addis Ababa, national extrapolation is not perfect, yet still reasonable, as people in smaller cities, towns and rural areas are far more likely to slaughter animals in their backyard than those who live in a large city.

On the other hand the modern sector prefers quality raw hides and skin at the lowest price (high quality-low price) while the traditional sector is less sensitive to quality and at the same time pays commensurately higher prices (moderate quality and moderate price scenario). This suggests that the conventional reasons mentioned in different fora and literature such as awareness problems and infrastructure for low level collection of hides and skin needs to be critically reassessed in light of the above facts while designing intervention strategies to enhance collections.

At the same time, the household slaughter of animals may lead to many more cuts, holes and other defects on the hide than a professionally slaughtered animal, making the hides/skins less valuable, even if traders collected more of them. Figure 3 illustrates the percentage of hides damaged by different causes.

Due to the low volume of hides/skins generated per producer, where hides and skins merely represent the by-product of an occasional slaughter, the relationship between very small producers, e.g., herders, farmers, households, and traders, is merely transactional, much like a sale taking place on the "spot market." On the other hand, small producers such as butchers, hotels and restaurants, may have a frequent and long-term customer relationship with a trader, which in some cases may involve producers selling on credit and/or traders extending advance payments. Yet in both cases, because of the rather infrequent sale of hides/skins and the small quantity given when sold, producers tend to be price takers, i.e., accepting the price offered to them by small traders/collectors.

Small traders/collectors include those who go door-to-door to collect raw hides and skins from individual households and other suppliers, such as hotels and restaurants. Federal government trade offices license a hide/skin trader; after the trader meets certain qualifications and demonstrate that they have adequate resources such as storage and preservation facilities for raw hides and skins. The trade office also registers traders so that the government can collect Value Added Taxes (VAT). Only a licensed trader can request a work permit for a designated agent, and once issued, the work permit must be renewed every three months.

The fact that agent/collectors receive their work permit under the auspices of a trader makes the relationship between them strong and binding. The agent/collectors also receive advanced payments from larger traders that serve as working capital to purchase raw hides and skins from different hide producers.

While the licensing of traders serves to professionalize the hide and skin trading practice and ensure the financial wherewithal of its traders, the annual expense of licensing, quarterly expense on agent-collector work permits, and continuous cost of the Value Added Tax results in another problem: an extraordinary number of illegal traders. These illegal traders; seeking to avoid government controls,

[81] LIDI 2012

license and permit requirements, and VAT payments, operate with relative freedom, much to the chagrin and financial detriment of legal traders. As indicated in the Table below, more than 3,000 traders operate illegally, while approximately 1,880 operate legally.

Interestingly and perhaps related, one researcher learned that out of the 2,000 wet-salted hides/skins that traders planned to collect in Endemohene Woreda, traders only collected 150. Of the 1,850 hides/skins that did not enter the formal HSL value chain, sector experts estimate that 20% of the hides/skins stayed with the owner for home use, while traditional tanneries purchased the remaining 80%. While this is but one example and the initial collection goal may have been overly ambitious, it does illustrate the large percentage of hides/skins that do not enter the formal HSL value chain, limiting the economic contribution they could make to individual producers, laborers, traders, tanners and leather goods manufacturers.

PRESERVATION

Immediate after flaying, the raw hides and skin need to be taken care of to prevent any further deterioration of its quality. There are different ways of preservation of hides and skin, the most common being frame dried and wet salted. However wet salting is relatively more expensive but better quality compared from frame drying. Ideally hides and skins needs to be preserved within four hours after the animal is skinned so that it maintains its quality. Otherwise, as the raw hides and skin is still a fresh biological material it is susceptible for bacterial and other microorganism attacks, damaging the fiber structure of the resulting leather. The preservation should be followed by a proper storing until the raw hides and skin is supplied to tanneries.

However in most cases the hides and skins remain unpreserved until it reaches the trader. This problem is more serious if the animal slaughtered in a backyard, where the raw hides and skins may remain in the hands of the household for a day or more without being transferred to the trader. Similarly, if the animal is slaughtered in rural areas, the hides and skins remain unpreserved until the owner delivers it during the weekly market.

In the Wordas visited by LMD, fresh hides and skins are neither collected in a timely manner nor preserved where they are produced. The preservation of hides and skin is undertaken only after the goods reached the traders. Nearly all sheep skin are preserved through wet salting techniques while goat skin and hides skins are preserved in both wet salting and frame drying methods.

The price of salt for preservation is a persistent issue. Wet salting, which requires 8-12 kg of salt for the average cattle hide plus labor and a local facility adds value to fresh hides and skins, pushing prices up in the marketplace by approximately EBT 20-30 per hide. In resource-limited rural and town economies, however, the extra cost of wet salting hides/skins gives a purchasing advantage to local traditional tanneries and handicraftsmen, since they do not require wet salting. As a result, the traditional tanneries can out-compete modern tanneries for more air-dried hides and goat skins which, as stronger leather, make for better traditional products than sheep skin. These traditional products typically include: drums, child carriages, bed sheets, floor mats, bags, sacks and bindings for other household items.

The current wet-salting ingredients used in Ethiopia, however, may limit the international sales of its leather products. The salting process as currently practiced, starts with sodium chloride (NaCl), the same salt typically used for food seasoning. Traders usually provide this salt for free to their household producers of hides/skins, to incentivize the preservation of their product via wet-salting. Naturally, they do not want this salt diverted to home consumption; and as of consequence, tanneries/traders sometimes denature the salt by contaminating it with DDT. The DDT not only discourages human consumption of the salt, but also kills beetles and insects in stored hides and skins. While such outcomes may be of mutual economic convenience and benefit for tanneries, DDT traders, and the hide producers who utilize it, many countries ban DDT because of its toxic effect on people

and the environment. Therefore, the government and private sector may need to find alternatives to DDT if they intend to export more HSL products.

HIDES AND SKINS MARKETING

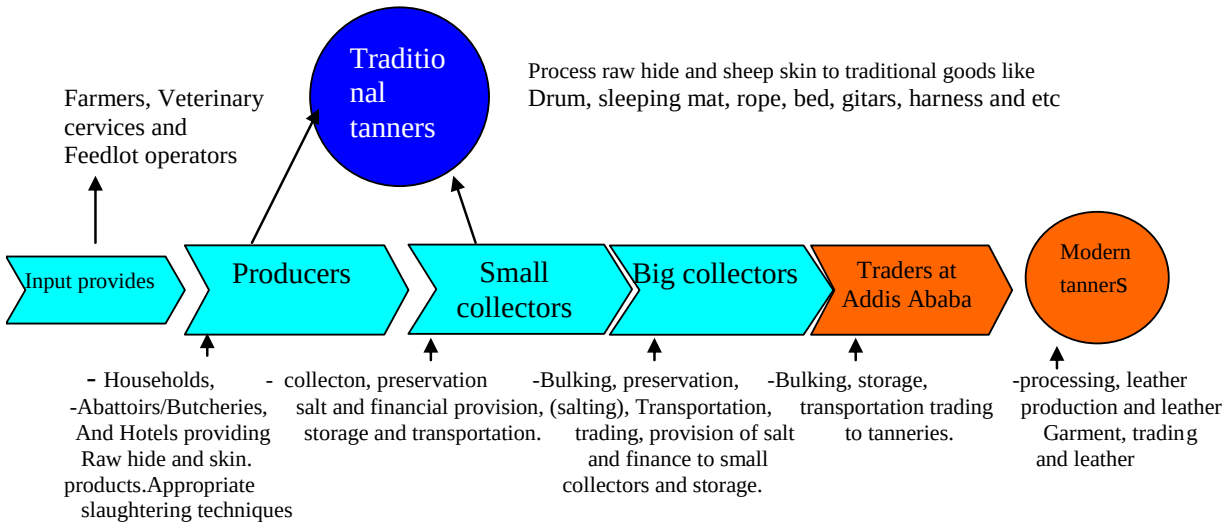
Hides and skins change hands several times before they reach the tanneries, since traders collect them in small quantities over a large geographic area. During holidays and festive meals, citizens consume more meat and therefore create and supply more fresh hides. During these holiday and festival periods, tanneries will often purchase hides and skins directly from established producers or temporary purchasing posts.

The marketing chain, and the resulting pricing system, is a reflection of the poor marketing system and the lack of appropriate and effective institutional framework to regulate the system. As soon as the hides and skins enter the market, they are transported to their destination - either to the tanneries or big traders – or usually by truck. In order to optimize the cost of transport goods are consolidated into larger shipments. There are different market channels in the trade of raw hides and skins prior to their reaching a tannery. The most common channels are:

- Channel A:-Producers---Local tanners
- Channel B:-Producers---Collectors--------local tanners
- Channel C:-Producers---Collectors---Small Traders-----big Traders ----M Tanneries
- Channel C:-Producers----Small Traders----- Big Traders--------Modern tanneries
- Channel D:-Producers----Big Traders--------Modern tanneries
- Channel E:-Producers----Modern tanneries

Channel C is the most common trading channel in the modern Ethiopian tanneries while the traditional tanneries usually trade through Channel A.

Figure 13: Marketing Relationships in HSL Value Chain



One interesting observation made during the field visit is that the raw hides and skins are often not supplied to the nearest tanneries in terms of location. For instance, the nearest tannery for the woredas visited in Tigray is Sheba Leather Industry PLC and ideally, the raw hides and skins collected in the nearby woredas would be supplied to this tanner, especially given considerable transport costs. Instead, there are a number of occasions that the tannery buys complementary goods from traders in Addis Ababa and transports them back to the tannery in Wokuro, Tigray.

TANNING AND LEATHER PROCESSING

Tanning is the process of transforming the raw hides and skin which is a biological material into in to a non biological material called leather. Tanning involves a series of processes which are commonly divided into four distinct stages: pickling, tanning, re-tanning and finishing. The corresponding products of these stages are pickled pelt, wet-blue leather, crust leather and finished leather, respectively. The product could be sold in any of these stages. Although there is very little inter tannery transaction in Ethiopia, tanneries used to export these different staged products. A more detailed description of the tanning and leather-making process can be found in Annex XX.

The commercial tanning industry in Ethiopia started over seventy years ago mainly in response to the growing domestic market demand for leather shoes and other leather products. For this purpose the first two tanneries were vertically linked to shoe factories – Asco Tannery & Shoe factory (the present Addis tannery & Tikur Abay) and Darmar Tannery and Shoe Factory (Present Awash & Anbessa shoe factory). Both Tanneries were producing finished leather for their local shoe factories and semi processed skins for export market. Dofan Ethiopia (Present Modjo Tannery) was established to process crocodile skins for parent company Dofan Paris. When the Ethiopian Government banned crocodile hunting in 1973, tannery operations were shifted to skin processing. Ethiopian Pickling and Tanning, a pickle sheep skin producer, started operation in 1972. Ethiopian Tannery was set-up in 1972 as a project with the then Czechoslovakian credit and technical assistance.

Underutilized Tannery Capacity

Currently 27 Tanneries in Ethiopia produce all forms of hides and skins and finished leather for the domestic and export markets (Annex 2). These tanneries have an average daily soaking capacity of 107,850 pieces of sheepskin, 51,550 pieces of goatskin and 9,800 hide. Based on 300 working days per annum; common among tanneries in Ethiopia, the annual capacity reaches an estimated at 48 million (32.4 million sheep and 15.5 million goat) skins and 2.9 million hides. Current capacity to process hides and skins greatly exceeds domestic supply, particularly for raw sheep and goatskins.

Ethiopia's tanneries process an average of 16 million skins and 2.4 million hides per year, yet this represents only 64% of their installed finishing capacity for skin processing and 63% of the capacity for hides processing (see Table 4 below), while some tanneries run as low as 30% capacity. This "low supply"/"high demand" of hides and skins creates shortages that often result in a lack of competitiveness among domestic suppliers and produces hides and skins of mediocre quality. Lower quality hides and skins negatively impacts not only tanneries, but also Ethiopian footwear and other leather goods producers who sell their product domestically and abroad. To help ease the shortage of hides and skins, some tanneries have begun to import semi processed hides.

CSA data that tracks total tanning capacity against actual production notes a significant output deficiency, as derived from the following chart:

Table 21: Capacity Utilization of Raw Hides and Skins (RHS), in '000 pieces[82]

Ethiopia Tanneries	Hide	Sheep	Goat	Total
Capacity - Soaking	2,340	28,208	12,629	43,177
Capacity - Crust	2,238	22,291	10,649	35,178
Capacity – Finished leather	2,240	16,351	7,231	25,822
RHS Produced by Farmer	3,649	8,700	8,100	20,449
RHS Supplied to Tanneries	1,400	8,000	7,000	16,400
Rate of RHS Supplied to Amount Produced	38.4%	92.0%	86.4%	80.2%
Rate of RHS Supplied to Finished Leather Capacity	62.5%	48.9%	96.8%	63.5%

TANNERY EXPORTING

Ethiopia banned the export of raw hides and skins in 1989, when tanneries needed them for their pickling and wet-blue processing. Since that time until 2005, Ethiopian tanneries exported a product mix of approximately 40% as pickle sheep skin, 33% wet-blue goat skin and wet blue hide; less than 15% as crust and less than 5% as finished leather and leather products.[83]. The government introduced a prohibitive export duty of 150%: first on pickled pelt and wet-blue leather exports in 2008, and then on crust leather in 2012, which nearly halted the export of all semi-processed leather.

The introduction of export taxes on pickle, wet blue and crust leather has gradually prompted commercial tanneries to invest in facilities and technologies to process pickle pelts and semi finished leather into finished leather. While this has happened, the other effect that such taxes have had – is that it has transformed former Ethiopian semi processed exporters / suppliers - into competitors of their former customers. That may be one reason why exports sales dropped in 2009/10. It may have taken longer than expected for the same tanneries to find new customers for their new finished leather product.

Yet field research confirms that insufficient volume and quality of hides/skins, erratic prices, lack of quality equipment components and inadequate customs services cause tanneries' low capacity utilization and limit export sales. For instance, one of the general managers of a tannery in the Debrebrhan woreda made this comment:

> "Our capacity is 3,000 sheep and goat skins per day, but right now we're processing 2,000 sheep and goat skin per day, [and only] when we receive orders from our customers. This is due to many reasons, like the shortage of capital for the purchase of raw skin and other chemicals. Even if you find the capital, it will be a great problem to purchase 3,000 sheep skins per day [for] there is continuous supply problem…"[84]

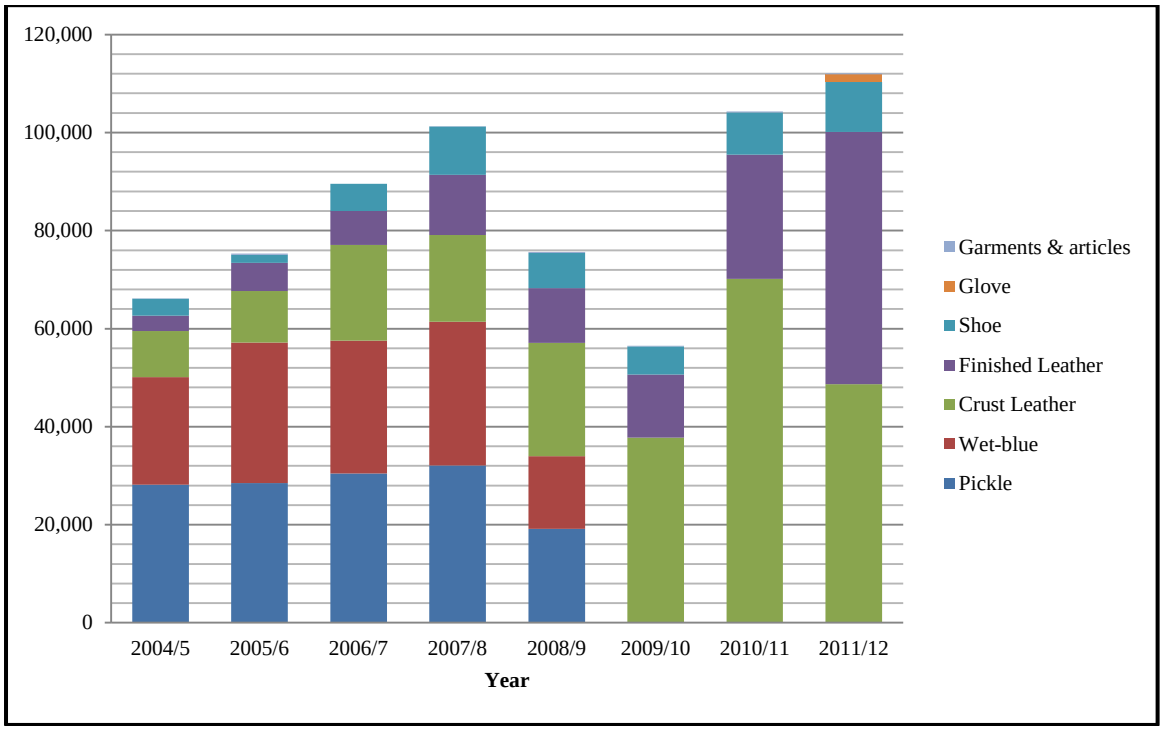
Yet today, Ethiopia's leather industry stands at the forefront of the industry in Africa. The tanning industry in Ethiopia produces and exports all types of finished leather from hides, sheepskins and goat skins, while also providing leather to domestic producers of shoes, gloves, and other fashion and consumer items.

[82] CSA March 2012
[83] LIDI, 2012
[84] Quote from an Ethiopian Tannery owner, who asked to remain anonymous.

Sheep and goatskins represent the bulk of Ethiopian leather production. Ethiopian highland sheepskins and hides provide a strong base for finished leather and leather products production. Ethiopian sheepskin in particular has a reputation for its fiber strength and other qualities attractive to the international market, making them ideally suited for dress gloves and shoe uppers. Ethiopian goatskin is most suitable for sewn leather, and mainly used for shoe upper and leather goods. Leather from cowhides is mainly used for shoe uppers.[85]

The February 2013 product inspection and partner exploration visit by Consorzio Toscana Shoe Components of Italy, gives evidence of Ethiopia's rising stature as a world supplier. To quote Soloman Getu, Board Chairman of the Ethiopian Leather Industries Association (ELIA) on Consorzio Toscana's visit "The company seeks lasting strategic partnerships with Ethiopian companies to have a sustainable supply of products from the country. They are even assessing expansion products of companies".[86]

Figure 14: Export of Ethiopian Leather and Leather Products (in USD '000's)[87]



Domestic Markets

Ethiopia's tanneries produce a range of products including semi-processed leather in various forms and processed leather that includes wet blue, crust and finished leather. Ethiopia's leather goods industry sells finished leather in the form of shoe uppers, leather garments, stitched upholstery, backpacks, purses and industrial gloves.[88] The domestic demand for leather and leather products is so great that most leather-containing shoes, garments, gloves and bags, easily sell into the domestic market.

[85] Ethiopian Leather Industry Association, 2012, (http://www.elia-aalf.com).
[86] Getu, Soloman; Capital Ethiopia, March 3rd 2013
[87] LIDI 2012
[88] UNIDO and MoTI, 2005

Export Markets

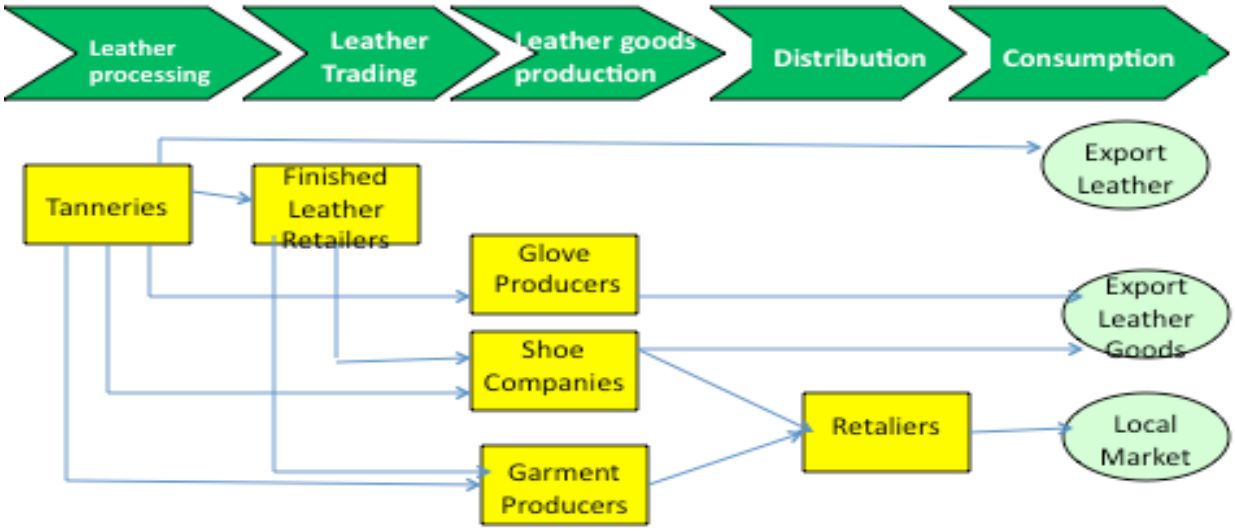
Ethiopian leather products manufacturers export to markets in Europe (especially Italy and the UK), the United States, Canada, Japan, China and other Far Eastern countries and the Middle East. They also export leather and leather products to African countries including Kenya, Nigeria and Uganda (www.ERCA.gov.et). Major leather and leather product export competitors include Italy, Republic of Korea, US, Germany and Argentina, with Italy topping the list at a 26 percent share of total global leather trade. The second largest exporter, the Republic of South Korea, has a 10 percent share of the global market followed by the United States with 7 percent.[89]

China imports the most leather, with a 15 percent global market share, while Hong Kong stands as the second largest importer of leather. Italy, the largest exporter of leather, also takes the position of the world's third largest importer. Leather products manufacturers in Italy typically convert most of their leather imports into value-added leather products exports. The United States also consumes 9 percent of the world's imported leather. China, Hong Kong, Italy and the U.S. together import more than 50 percent of the world's total leather production.

LEATHER GOODS MANUFACTURING

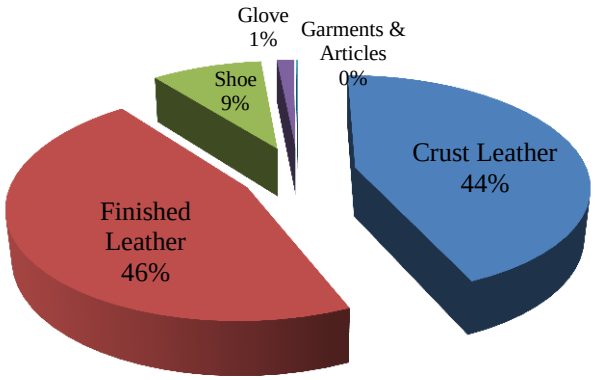
Leather goods manufacturing includes footwear, leather garments, gloves and other consumer leather products.

Figure 15: Distribution of Leather and Leather Goods



[89] EIA, 2008

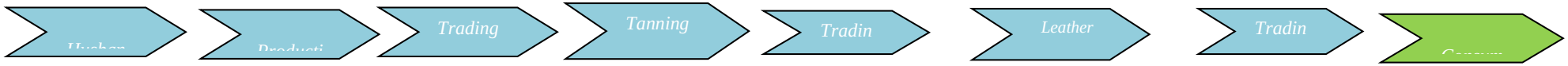
Figure 16: Percentage Share of Exports in 2011-12[90]



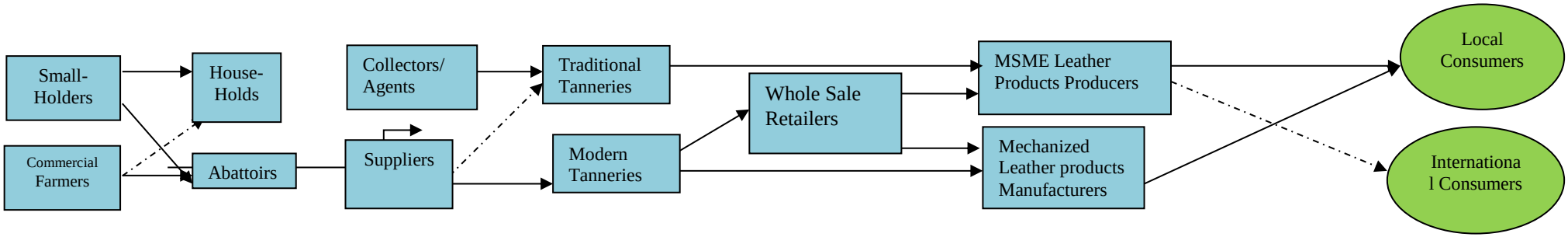
The leather goods industry functions as the least developed subsector within the leather industry. The Ethiopian leather goods production remains at such a small volume that it cannot satisfy domestic demand; which is now being met by imported goods and substitute products. ELICO is the only domestic company that currently operates an industrial leather goods production facility.

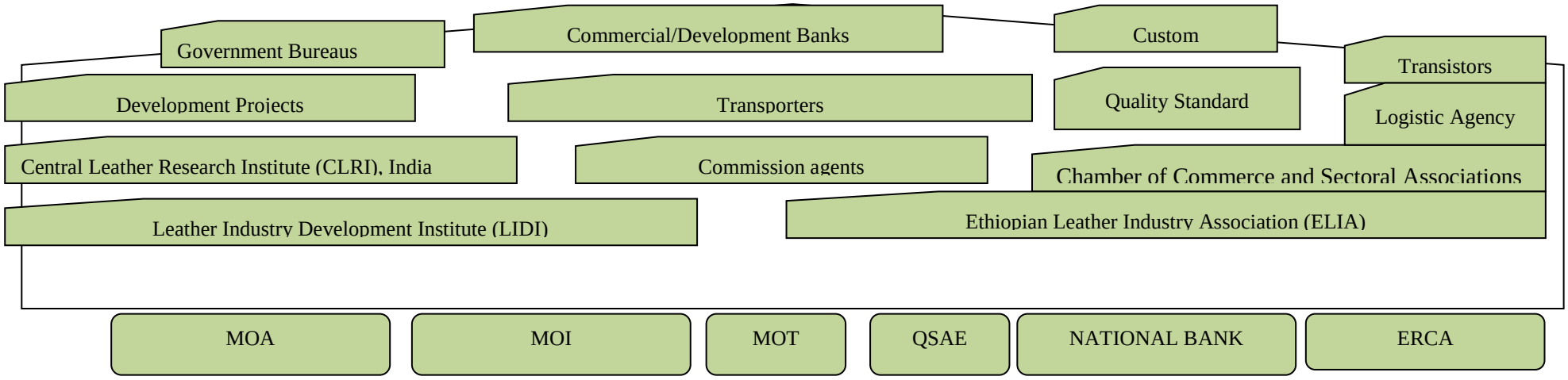
[90] ELIA

MAP OF HSL VALUE CHAIN



Husbandry	Production	Trading	Tanning Leather Mfg	Trading	Leather Product Mfg	Trading	Consumption
Rearing	Slaughtering	Selecting/Buying Collecting Transporting Preserving/Storing Selling Transporting	Selecting/Buying Soaking and Liming De-liming and Tanning Summing and Shaving Re-tanning/Finishing Grading/Measuring Packing/Storing/Selling	Buying Transporting Storing Distributing Retailing	`Design /Pattern Making Clicking/Sewing Lasting /Closing Attaching Accessories Finishing, Packing and Labeling Selling	Buy Transporting Storing Distributing Retailing	Consuming





SUMMARY OF VALUE CHAIN ACTORS

MICRO-ACTORS

Farmers

Ethiopia has more than 10 million smallholder farm households, which produce over 95% of the country's agricultural output (Fisseha, 2010). According to IFPRI, there are 21.8 million adults active in agriculture (IFPRI, 2010). Farmers are the main users and providers of extension services. They play a major role in defining the priorities of extension services and relevance of technologies to their conditions. Farmers are not a homogenous entity: they differ in socio-economic status and needs, so extension services should endeavor to meet these diverse needs.

Producers

Households

The major producers of Hides and Skins are individual house holders residing in the different Kebeles across Ethiopia. The great majority of sheep and goats (90 per cent) and most of the cattle (70 per cent) are slaughtered informally in homesteads for consumption by the owner or in a small community where no formal slaughtering facilities exist. No data exist on the informal slaughtering activities, and it is largely beyond the reach of government considerations.

Rural Slaughter Slabs Operators

The operators in rural slaughter slabs produce a sizable volume of hides and skins, second to the individual household. Theses operators use poorly equipped slaughter points, where the infrastructure is sometimes a slab of concrete, under a shade or using poles for hoisting carcasses. These operators are normally located in small towns adjacent to butcheries in various trading centers. More than 80 percent of such facilities are established in Oromiya (54%) and Amhara Regional State (27%). Such facilities are scattered in rural towns and often without adequate supervision. The tools used in these facilities are usually rudimentary and of inferior qualities causing damage to the hides and skins during flaying/slaughter. In many cases running water is not available and hides are not watered off after slaughter. Most often, all operations are carried out on the floor.

The general situation, however, varies greatly from region to region depending on the capacity and availability of meat inspection services as well as the directives governing the operation of these facilities at the regional level.

Municipal Slaughter Houses Operators (Bigger and Medium Abattoirs)

Cattle hides are recovered by hand from the carcass, causing extensive damage in the form of deep cuts and holes. Cuts and holes reduce the value of a hide or skin. The difference between a machine-flayed hide, which presents no cuts or holes, and a hand-flayed hide, with cuts and holes, can reach 20-30% of the hide's value.

The Static Flaying Frame (SFF) assists flaying and can produce, at very little cost, a perfectly machine flayed hide without holes or cuts. There are no special requirements, maintenance, nor power needed. The SSF could be introduced to slaughter houses and abattoirs. UNIDO and COTANCE support the dissemination of this promising technology. The greatest appeal of the SFF is that artisans without external supplies can produce it cheaply and locally.

These facilities are better attended by local concerned officials, in particular meat inspectors, as there is continuous supervision and inspection of their activities. They are bigger in size and often located in medium to bigger towns. They are also relatively better equipped than rural slabs as far as water provision is considered.

Mechanized Abattoirs (Export Abattoirs)

The five existing exporting abattoirs have a potential capacity of processing 60,000 cattle and 1.5 million sheep and goats (18,000 tons of beef meat and mutton) per annum and plan to export 30,000 tons of meat and mutton annually in the future. Meat export in 2003/4 earned 6.3 million USD and increased to 17.5 million USD the following year. However, the five meat-exporting abattoirs are apparently operating at less than 20% of capacity. They do not kill until they have orders, which is a major organizational problem.This estimate of MoARD is a very conservative one when compared to the current performance of the mechanized abattoirs.

Raw Hides and Skins Recovers and Collectors

The hides and skin changes several hands before it reach the tanneries except on holidays, where tanneries establish temporary purchasing posts in Addis Ababa and collect directly. The most important operators in the recovery and trade of hides and skin include the following among other:

Village level collectors/ Traders Agents

The hides and skin from the sources (usually the household across the country) are normally collected by the village level collectors or trader agents. The trader agents collects the raw hides and skin by going door to door in case of urban area and by setting temporary collection point at most accessible spot in case of rural areas. The village collectors are not licensed but in some regions such as Tigray, are provided with a three month renewable work permit and identity card up on submission of proof of designation as an agent ship from the licensed trader to work under the trader.

Small Traders

The small traders are the next level traders above to the village collectors who work under them directly. They collect raw hides and skin through the village collectors and also directly from the producers. They collect, handle/preserve, store and transport the skins to their respective wholesalers. These traders are obliged to have facilities to be used for preserving and storing raw hides and skin they received. They use salt for preservation of the skins in their stores. However they usually use dirty and insufficient amount of salt with improper grain size.

The small traders are licensed for their activities by trade offices. They are even being registering for VAT. The Agricultural offices to assure that the trader own the requisite facilities such as storage and preservation bed for raw hides and skin trade. The designated agents have the work permit renewable every three months. The work permit is given only to work as an agent of the licensed traders with the request of the licensed trader. The traders are of the view that the application of VAT for hides and skin will push the prices further making them price competitive.

Table 22: Hides and Skins Traders /Collectors by Regional States[91]

No	Geographic Area	Certificated Regional Traders	Non-registered (illicit)	Total	Remarks (Shades)
1	Tigray Regional State	115	170	285	105
2	Afar Regional State	2	20	22	-
3	Amhara Regional State	905	1,200	2,105	1065
4	Oromiya Regional State	595	1050	1,645	638
5	Somali Regional State	3	50	53	-
6	Benshangul-Gumuz Regional State	7	70	77	-
7	SNNP Regional State	220	475	695	280

[91] Government of Ethiopia; Livestock Master Plan, 2008

No	Geographic Area	Certificated Regional Traders	Non-registered (illicit)	Total	Remarks (Shades)
8	Gambella Regional State	3	30	33	-
9	Harari Regional State	3	NA	3	-
10	Addis Ababa	22	NA	22	45
11	Dire Dawa	8	30	38	12
	Total	**1883**	**3095**	**4,978**	**2145**

Intermediary Traders / Collectors

The intermediary collectors or small local traders frequently act as agents for larger suppliers (wholesalers) based in larger towns and cities. These wholesalers, in turn, regularly supply hides to tanneries. Intermediary traders collect, handle, preserve, store and transport the skins they purchase on behalf of their respective wholesalers. In many cases, however, observers report that both small and intermediate traders / collectors use insufficient amounts of salt and/or an improper grain size, which inadequately preserves hides and lowers their value.

The intermediaries usually collect, salt and store skins in their own facilities. They often transport hides/skins in such a way as to minimize cost by optimally matching the quantity shipped with the size of the truck used to transport them.

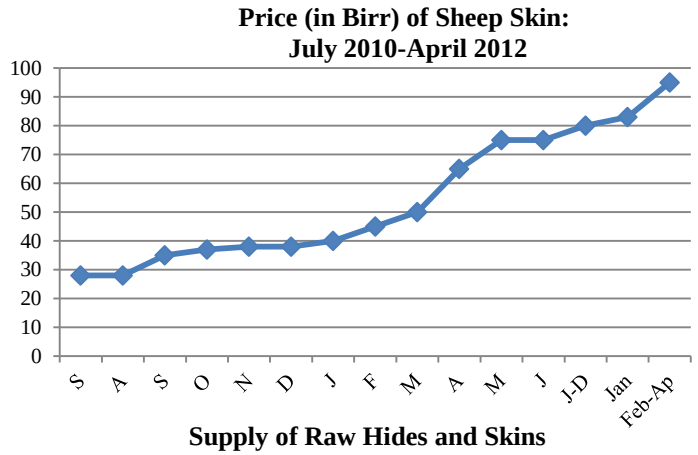
Interestingly, many small, intermediate and large traders have often built long time relationships among themselves, and frequently share resources, extending to one another's working capital, finance, information and transportation.

Large Traders / Wholesale Suppliers to Tanneries

These suppliers usually own storage and transport facilities with which they source the raw hides and skins that they then supply to tanneries. The relationship between large traders and tanneries has evolved over time. In the early 2000's, tanneries used to advance to the traders who supplied them; funds of money and/or salt in exchange for hide collection. Since then however, trader enterprises have grown to whereas they no longer require advances in salt or currency. As is now often the case, it is the traders instead who supply credit to the tanneries in addition to their hides and skins.

Most trader/tanner relationships experience tension. Tanners, forced to pay rising prices (chart below) to buy mixed grade [and often lower] quality skins, do not feel compelled to pay their invoices promptly. Part of the tanneries leverage in delaying their payments to traders is the fact that traders cannot hold even preserved hides "forever", since traders must sell their hides to generate the cash flow needed to continue buying. The tanneries also resent being a price taker, as the shortage of hides and skins forces them to bid aggressively against other tanneries in effort to purchase the necessary raw materials.

Figure 17: Sheep Skin Prices July 2010-April 2012[92]



In addition to this "financial leverage' tanneries have over traders, large tanneries also face the real financial issue of having more and more of their long term capital tied up in finishing or upgrading their plant and equipment capacity (as required by law and driven by export tax policy), and more of their short term capital tied up in work-in-process inventory, since finishing leather requires more labor, chemicals and time than the semi processed leather they sold previously.

In some instances, tanneries have sizable invoice payments due to traders that stand 2 – 6 months unpaid. Since traders often extend substantial credit to tanneries, they have less capital to lend to small traders to collect hides on their behalf. This endemic capital constraint; affecting livestock owners/farmers, households, small traders, large traders and tanneries, restricts working capital, and limits the purchase of animals and hides for use in the formal HSL value chain.

Tanner/Trader Relations

The high degree of competition among tanners also lowers the quality of the hides and skins. Tanners, desperate for raw material, feel it necessary to buy all grades of hides and skins. In the past, tanneries paid a premium for higher quality hides. Now, however, larger traders will often mix lower quality skins in with higher quality skins, and insist that the tannery buy the entire mixed grade lot. If the tannery does not buy the entire lot, the trader usually takes the hides/skins to another tannery to sell them. Consequently, tanneries now feel that they have little bargaining power in purchasing hides, or the opportunity to pay more for quality skins

Since the supply of hides and skins regularly falls short of demand, fierce price competition builds between tanners. Desperate for supply, tanners often bid up the price of hides and skins to the point that it seriously undermines their profitability. (Note: since small traders buy a modest number of hides and skins from producers covering a large area, they typically do not experience the strong competition that tanners face). Moreover tanners, with more land, building, capital equipment and human resource costs to cover than normal traders, feel greater pressure to secure supply, process leather and sell product.

In addition, traders do not necessarily sell their raw hides and skins to the tanneries located closest to them. On occasion, due to the lack of good relations, trust, and/or information between tanner and trader, redundant transaction costs may occur along the value chain. E.g., a trader in a particular Woreda may sell hides and skins to a larger trader in Addis Ababa, who then sells the same hides and skins to a tannery operating in the same Woreda as the initial trader. Both the initial Woreda trader and the tannery lose, since they each forfeited a trading margin and between them both, and paid for transportation twice. Such is the cost of unlinked buyers and sellers.

To add further price distortions, wholesale traders and intermediaries sometimes speculate on hides/skins, anticipating their prices to rise. These traders and intermediaries speculate by hoarding

[92] ELIA

hides, which requires additional hide storage and handling, causing hide quality to deteriorate even further. Yet tanneries, wishing to keep good relationships with wholesalers in order to receive "guaranteed", continuous supplies, tolerate this occasional practice.

Because of short supplies of hides and skins, tanneries tend to function as price takers. However, once they receive delivery of the hides or skins, the bargaining position shifts to their favor. As a result, tanneries often take as long as 2 – 6 months to pay traders for the product they delivered.

Tanneries/Leather processors

Currently there are 27 Tanneries which produces crust for export market and finished leather mainly for domestic market. Theses tanneries have an average daily soaking capacity of 107,850 pieces of sheep skin, 51, 550 pieces of goat skin and 9,800 hides and considering 300 working day per annum which is common for tannery in Ethiopia, the annual capacity is estimated at 48 Million skin (32.4 sheep and 15.5 goat) skins and 2.9 million hides.

The Leather Goods Industry

Footwear Industry

The Ethiopian shoe industry consists of two distinct groups: smaller manufacturers that produce for the local market; and medium and large scale manufacturers that produce for the export market. Currently 13 mechanized Ethiopian shoe companies produce for the export market. Eleven of them operate in Addis Ababa, one in Tigray and the other in Oromia (Annex 4).

Small scale shoe manufacturers represent an important component of the Ethiopian footwear industry. An estimated 1,000 small scale Ethiopian shoe manufacturers have a combined capacity of 5 million pairs of shoes per year (Annex 5). These small scale shoe manufacturers produce entirely for the domestic market, which has grown steadily. According to expert estimates, more than 90% of small shoe enterprises concentrate themselves in Addis Ababa.

Figure 18: Ethiopian Shoe Manufactures 2012 (Annex 5)[93]

Until recently, Ethiopian entrepreneurs owned all domestically operating shoe companies. Yet within the last few years, three foreign firms, one each from Germany, China and Italy - have established shoe manufacturing facilities in Ethiopia and have started exporting as well (Annex 5). In addition, three new shoe manufacturing projects are under construction.[94] Foreign companies have found Ethiopia an attractive country to invest in, given lower labor and other operating costs, government incentives, preferential tax treatment zones, etc (Annex 6).

Despite the very high potential, the Ethiopian footwear industry is found at a very low level of development in terms of production capacity, products offering, technological capability and penetration of the international market and even in satisfying the domestic demand. This is because of the existence of wide range of constrains, including:

- Low managerial, supervisory and technical skill
- Low productivity of workers
- Insufficient international exposure and little access to international market

[93] Annex 5; LIDI, 2012
[94] LIDI, 2012

- Limited product offering to international markets
- Absence of domestic components and accessories
- Low capacity and lack of flexibility to meet international demand
- Weak design and product development capacity
- Shortage of good quality of leather from the local tanneries
- High cost of finished leather from local sources

The Leather Glove Industry

Domestic leather glove production has just started in Ethiopia in the last two years. Two foreign investors have propelled this sector with their capital, production experience and proven marketing channels that distribute fashion and working gloves. Currently two foreign companies operate glove production facilities, and one joint venture also manufactures gloves. Two more foreign owned glove factories are under construction (Annex 7).

Observers expect that the infant Ethiopian glove industry will grow fast in the years to come as more investors discover the high quality Ethiopian sheepskins. These skins have the reputation as some of the best materials in the world for making fashion and sports gloves (Leather Sector Master Plan, 2005). Ethiopia offers a competitive advantage to glove manufacturing investors because of the high labor required to manufacture gloves and the large supply of inexpensive labor.

The Leather Garment Industry

Small, made-to order establishments dominate the leather garment industry in Ethiopia. Most function in Addis Ababa and sell their products to local residents and expatriate personnel. At present they have negligible penetration in the international market.

Only a handful of medium scale industries operate in this market segment, and they include firms such as ELICO – Universal Leather Articles Factory, Genuine Leather Craft, Joy leather and Modern Zege Garments. Ethiopians own all leather garment businesses except one, Pittard (Annex 8).

Pittard, a UK based company, bought one tannery from the government and has recently established a glove stitching unit and a garment factory in Addis Ababa. It represents the first foreign owned leather garment company.

MESO-ACTORS

Farmer Training Centers

At the field level, extension is provided through FTCs, which serve as information, training and demonstration centers. In principle, three DAs are deployed to an FTC and provide advisory services to groups of farmers. However, in practice, the number of DAs at FTC may fall short of three and in some cases my exceed it. Typically, an FTC consists of a building with a training room and DA offices, a demonstration plot and sometimes DA housing. More advanced FTCs have started generating different types of revenues, such as oxen fattening or beekeeping.

Cooperatives

Farmer organizations play a major role in the supply of inputs and product aggregation. Because of their fundamental mandate of serving farmers' interests, they are well positioned to produce and distribute improved seeds that will maximize the benefit to their members. While only a few farmer organizations produce certified seeds, many serve as distribution outlets for public and private seed producers. There are around 160 agricultural cooperative unions in the country. Furthermore, there are three cooperative federations formed by the cooperative unions in Oromia, SNNPR and Tigray. There are around 10,000 primary agricultural cooperatives in Ethiopia.

Non-Governmental Organizations

Non-Governmental Organizations (NGOs) play a role in agricultural and rural development. Many of the NGOs implement programs in food security and natural resource management. NGOs such as Oxfam America and SG 2000, among others, are working in agricultural extension and capacitating FTCs.

National Agricultural Research System

The National Agricultural Research System (NARS) plays a foundational role in the extension system by developing new technologies and improved practices that are multiplied and delivered to farmers. The NARS is comprised of EIAR, Regional Agricultural Research Institutes (RARIs) and higher learning institutions (HLIs).There are 55 research centers, sub-centers and testing sites located at different agro-ecologies of the country.

Agricultural Technical and Vocational Education and Training/Higher Learning Institutes

ATVET and HLIs play a role in producing the human resources required for extension service delivery. Twenty-five ATVETs and seven HLIs give agriculture-related training. Agriculture-related HLIs in Ethiopia support the sector in several areas, with a primary focus on training and cultivating talent to work within the extension system and conducting analysis and research. These knowledge institutions also play a role in technology transfer.

Mechanization Players

Technology multipliers are key actors in the technology value chain. These include TVETs and private firms. They manufacture as well as multiply technologies generated by research institutions. Farm mechanization, seed multiplication, etc. are major multiplication roles played in the technology system.

Agriculture Development Partners Linkage Advisory Council

Agriculture Development Partners Linkage Advisory Council (ADPLAC) is a linkage forum for the actors in the technology system. Council-members include representatives from extension, research, input supply and marketing services, who come together to improve the efficiency and effectiveness of the technology generation and dissemination process. Besides the federal level, ADPLAC offices are set up in 55 zones of the country and 302 woredas as per mid-2012. Since ADPLAC has the potential to bring all the agricultural development actors together and enhance agricultural output, it has to be established in the woredas where it is missing and enable it to be functional.

MACRO-ACTORS

Private Sector

There are many macro, level organizations. The following are listed in the order of perceived impact/importance:

Ethiopian Leather Industries Association (ELIA)

Private sector organizations formed the Ethiopian Leather Industries Association (ELIA) with the primary objective of providing services to its members that will enable them to develop their manufacturing capacities and to increase their global market share. Specific programs appear in the web address footnoted below:[95]

Based on meetings with various leather producers, it appears the Association plays a merely representative role and does not affect or improve any of the crucial aspects of the industry. Support services related to the penetration of new markets and/or the distribution of knowledge is few, if any.

[6] http://www.elia.org.et.

Leather Industry Development Institute (LIDI)

Established by the GOE, the Leather Industry Development Institute's (LIDI's) mission is to provide transparent, efficient and sustainable services in investment, production and marketing so that Ethiopia receives the full benefit from a fully developed leather sector.

Services include chemical and physical testing and overall industry support, such as marketing and feasibility studies and education and vocational training. LIDI offers these services from the investment and production phase through to the marketing phase as detailed below:

- Collect, analyze, share and disseminate all necessary updated information in regards to the leather sector.
- Prepare & promote project profile for investment opportunity.
- Provide feasibility study services.
- Provide consultancy services in (a) technology selection and management; (b) in building construction, installation and commission of new leather sector facilities

Services Provided under the Production Phases (abridged)

- Provide training to enable the sector to compete in both productivity and quality on the world market.
- Provide research and development service to remove bottlenecks in the sector.
- Provide benchmarking services, collecting, analyzing and disseminating the information that
- Would enable the Ethiopian leather sector to equal or exceed the world index.

Services Provided Under the Marketing Support Phases

- Extend support in the creation of input and output linkage.
- Conduct market studies for leather and leather products industries products.
- Identify technologies that can be developed and undertake product development activities.

Financial Services

Accounts receivable credit exists between (a) traders and collectors; and (b) traders and tanneries. While this facilitates trade, it often restricts trade, as capital internal to the value chain remains tied up in loans, limiting expansion.

Capital for use within the value chain also comes from friends, family and sometimes a local lender.

Third party lending, such as banks, accounts receivable financing / factoring, would provide financing external to the sector, and help reduce capital as a key restraint in the growth of Hides, Skins and Leather.

Micro enterprise share companies also exist, which often take a loan from a commercial bank for their initial capital.

Government Stakeholders and Regulations

Local, regional, and national governments oversee the HSL subsector through a variety of programs. Take the following for instance:

Ministry of Trade

Established in October 2010, the Ministry of Trade (MoT) handles all domestic and international trade matters. MoT and its respective offices act as the responsible body for trade related issues and have as one of its operational objectives to promote and facilitate the leather and leather products trade both in the domestic and international market arenas.

Outstanding constraints, which limit the efficiency of the marketing system in Ethiopia, include high and unpredictable prices of raw hides and skins, and hence finished leather as main input of the leather products manufacturing. No adequate legal instruments now exist to safeguard such unpredictable market transactions. In addition, the sector lacks appropriate development plans, along with appropriate storage facilities and quality standards to regulate production, processing and storage amongst others.

Ministry of Industry (MoI)

In October 2010, the Government of Ethiopia re-established the Ministry of Industry (MoI) as a new ministry independent from MoT. The MoI promotes the production of industrially manufactured goods. It also facilitates and creates a policy environment conducive to the expansion of agro-processing and manufacturing facilities, which would transform raw agricultural products, such as raw hides and skins, into industrial and consumer goods. The MoI directly and through LIDI, supports the leather and leather products industry. MoI's key activities include promoting more value added manufacturing; facilitating business investment; enhancing processing and manufacturing capacity; promoting productivity, skills and benchmark projects; and market-led product development and manufacturing.

Ministry of Agriculture

The Ministry of Agriculture, with its regional and woreda structures, is at the center of the sector strategy. The MoA will oversee the overall implementation of the strategy and coordinate participation of other major stakeholders in various areas, for example, through developing guidelines and manuals. The MoA also facilitates linkages among development partners through linkage forums down to the woreda level. This positions the MoA to take into account factors that determine farmers' ability and incentives for adopting technologies. Linkage forums also serve as feedback mechanism so that research can address problems that are identified by the sector.

Agricultural Transformation Agency (ATA)

Established by Federal Regulation in December 2010, the Agricultural Transformation Agency (ATA) serves as a catalyst for positive, transformational, and sustainable change. ATA's primary aim is to promote agricultural sector transformation by through the support of existing structures of government, private sector and other non-governmental partners. This is to address systemic bottlenecks in delivering on a priority national agenda for achieving growth and food security.

Ethiopian Standards Agency (ESA)

Establishes quality standards for all industries (Annex 4).

Ethiopian Metrology (EMA)

Sets the guidelines for all industries on size and measurement standards.

Livestock Agency (LSA)

At the regional level LSA deploys extension, health, and distribution workers with public relations and management personnel in the regional office. At the Kebele level, one Animal Health expert typically serves livestock producers in 3 different Kebele. Other activities performed by LSA include:

- Intensive and practical training planned for Livestock subsector, including feed ration formulation
- Laboratory analysis
- Rearing centers for sheep and chicken
- AI production and training
- Feed Research
- Revolving Loan Funds

Regional Trade and Transport Bureaus

These bureaus function as an extension of the National Ethiopian government.

The main mandates of the Regional Trade and Transport Bureaus include:

- Livestock Market Promotion
- Livestock Market Linkage
- Infrastructure Development for Livestock Market
- Market Research

Regional Cooperative Bureaus

As another extension of the government, the main mandate of such bureaus includes:

- To establish cooperatives and link them to markets.
- Inspect zonal level cooperative bureaus.
- Monitor cooperatives' business plans and provide training.

Agriculture and Rural Development Office (ARDO) & City Administrations Agriculture Office (CAAD)

The ARDO and CAAD utilize standardization manuals to oversee the construction of storage facilities for hides/skins and its handling. They also provide technical support during the construction of storage and handling facilities; and a "Letter of Competence" to collectors who meet the criteria set in the standards manual.

Ministry of Health

Health extension agents are deployed in each kebele. About 16 health extension packages are implemented in the country, some of which have a direct relationship with the agricultural sector.

Ministry of Education

The Ministry of Education implements both formal and informal education programs in the country. Functional adult literacy programs have particular relevance to the agriculture sector. The Ministry of Education also works with the MoA in developing occupational standards for FTC trainings. Moreover, the Ministry has radio stations for educational programs which can also be used to transmit agriculture-related information. Finally, in Tigray, there are examples of schools which introduced agriculture programs in partnership with development agents. This improves the practical nature of school curriculum and students' agricultural skills, which they can transfer to their parents.

Regional and Zonal Bureaus of Agriculture

Regional Bureaus of Agriculture develop packages and provide support to woreda offices of agriculture in delivering extension services. They also facilitate coordination and alignment across development partners so that coordinated agricultural development services are delivered at the woreda level. In some regions, zonal offices of agriculture play coordination and technical support role for woreda offices of agriculture. There are nine regional administrations and 69 zones, including Harari regional government.

Woreda offices of Agriculture

The woreda is the administrative structure where extension services are designed, financed and delivered. Including the 10 woredas in Addis Ababa, there are around 740 administrative woredas in the country, serving as a node where regional and local level planning is synchronized.

Federal, Regional and Woreda level AGP Coordination offices

The Agriculture Growth program (AGP) is a broad based program that attempts to improve the whole range of production, marketing and agro-processing of agricultural products through enhancing productivity, value addition, and market and irrigation infrastructure. It includes 83 woredas in the Amhara, Oromia, Tigray and Southern Nations, Nationalities and Peoples (SNNP) regions of the country. The objective of the AGP for Ethiopia is to increase agricultural productivity and market access for key crop and livestock products in targeted woredas with increased participation of women and youth.

CONSTRAINTS AND OPPORTUNITIES

HSL competitiveness is constrained at every level of the value chain, and in many of the transactional and information-sharing relationships that would otherwise facilitate energetic growth.

LIMITED SUPPLY OF SKINS

Hides and skins are a by-product of the meat industry and as such, the supply of hides and skins is rather inelastic to the demand of the same commodity. Thus, the production of hides and skins is determined by the stage of development of the meat industry, which in turn depends on the living standard and eating habits, and on the trade of meat and meat products.

The volume of production of hides and skins depends on the size of the livestock and the take-off or kill rate. The estimated off-take rate of 7% for cattle is significantly below the African average, estimated at 15%. The estimated off take rate is 35% for shoats, which is relatively better although still low. Therefore although Ethiopia has the highest number of livestock in Africa and is among the top ten global producers of livestock, the quantity of hides and skin produced is incommensurate to its huge resource by any standard.

Moreover, Ethiopian animals are relatively small, and yield small hides and skins. For instance, the average size of leather produced from Ethiopian cattle hide is about 22 square feet, less than half the size of European cattle hides, at 50 square feet. The shortage of production is compounded as large numbers of hides and skin go uncollected, partly due to the considerable demand by the traditional sector.

In recognition of this shortage and its constraining effect on the HSL value chain, the GTP envisaged helping alleviate this problem by *importing* rawhides and skins, and semi processed leathers, and upgrade the capacity utilization of of the tanneries to 90%. However, during the last two GTP years, imports have not remained low and tanneries continue to operate far below capacity. Increasing the supply of hides and skin would help expand production, competitiveness and employment.

POOR QUALITY OF HIDES AND SKINS

Quality is the most important variable in the leather industry as the product market is highly differentiated. The quality problem of hides and skins mainly derives from poor animal husbandry. Animal husbandry practices in Ethiopia are not oriented toward good quality meat output, let alone byproducts such as hides and skins.

Poor animal husbandry is compounded by the inadequacy of key services such as disease control, veterinary and extension. This has resulted in the spread of epidemic disease, such as Ekek, which significantly deteriorates quality and reduces export revenue, particularly for high priced sheepskin..

Post-mortem practices also contribute to poor quality hides and skins. Backyard slaughters, which are common in both urban and rural areas, result in hides and skins with flaying defects, unpreserved or

improper preserved hides and skins due to improper salting, preservation methods and/or late preservation, and poor transportation and storage. It also hinders collection. . The effective utilization, upgrading and expansion of slaughterhouses in cities and towns, which also cater services for small animals like sheep and goats would go far to address particularly post-mortem quality problems. The private sector hides and skin dealers and tanneries should be encouraged to invest individually and/or in partnership with municipality, to establish more productive and sustainable slaughter services.

LACK OF PRICE INCENTIVES

The existing raw hides and skins market does not operate efficiently. One issue is that there exists excess tanning capacity relative to commercial supply and even that of production in some cases. This is particularly true when it comes to the skin tanning capacity, where there is a large shortfall of supply relative to demand. This raises prices. in a broader perspective, the market in raw hides and skin should have also prevented over-investment in tanning capacities.

The other important issue to note is that hides and skins are not differentiated by size or quality , which are very important in selling of finished leathers This practice in effect reduces the overall quality Ethiopian hides and skins, and contributes to issues with limited supply. Conversely, the market also fails to give proper value for small and low quality skins, which are often rejected and not collected.

The dysfunctional market contributes to the deterioration of quality of raw hides and skins at in two primary ways. First, it eliminates the possibility of using quality and size as a competitive strategy. Secondly, it fails to send price signals to hides and skin producers, traders and dealers along the supply chain. Proper price signals would encourage size and quality.

CAPITAL AND FINANCE THROUGHOUT THE VALUE CHAIN

Several issues related to finance constrain the ability of tanners and manufactures of leather goods to ensure profitability, invest, and expand operations. Notably tannerslack the working capital to purchase additional hides and skins. While this may result from several causes, tanners in particular cite the long delays in importing needed chemicals, accessories, and spare parts as a strain on working capital, preventing them from investing capital elsewhere. A second reason is that tanneries require considerable working capital to maintain buffer stocks of raw materials, intermediary inputs, goods in process and finished goods. This ties up a lot of capital, eroding the capacity of tanneries to pay traders on time for the already hides and skin supplied. As a result, tanneries maintain sizable credits with traders; payments can be between 2-6 months overdue. This has seriously limited the collection of raw hides and skins and exacerbated the already existing supply shortage, as traders run out of working capital for collecting additional raw hides and skins. Therefore, the limited access to commensurate finance is among the top reasons for under-capacity operation, low productivity and lack of price competitiveness due to missed economies of scale.

Tanners also experience a shortage of foreign exchange to import necessary inputs. As tanning chemicals and other manufacturing inputs must be imported, companies require foreign exchange to purchase these items from abroad. Inflation and a lack of foreign exchange can increase costs for tanners and manufacturers considerably.

LACK OF SPECIALIZATION AND COMPETITION

Another constraint is the lack of specialization in the middle of the value chain. In tanneries and footwear manufacturers, there is hardly any specialization, in raw material, operations or even products. In case of Sheba, which was visited by the project, the factory uses all types of raw materials, carries out all operations from beam house to the production of footwear, and produces a

wide variety of types of footwear for children, women and adults. The same is true of many of the tanneries and footwear manufacturers.

Without specialization, firms fiercely compete over the same territory, and hence do not collaborate by sharing resources or information, nor so they outsource operations to increase productivity and hence competitiveness. The perception of competition is that it exists at odds with cooperation. This hinders areas where the industry could achieve collective aims, such as the area exchange foreign market information.

LOW WORKFORCE PRODUCTIVITY

The shortage of skilled workers and managers at the tannery and manufacturing levels results in costly high turnover rates. It also means that per worker productivity is low and that many managers lack the technical and supervisory skills to facilitate design and production development.

OPPORTUNITIES

These challenges offer a number of opportunities to address constraints in leveraged ways. Examples include:

1. **Improving animal health** to lower incidences of diseases and death rates.
2. **Diverting live animal exports** to meat production. The hides and skins from animals slaughtered for meat would thus enter into the formal HSL value chain.
3. **Improving and regulating slaughtering** practices and locations.
4. **Encouraging collaboration between tanneries and abattoirs/slaughterhouses**
5. **Improving preservation and storage of hides and skins**
6. **Improving collection of hides and skins**
7. **Offering price-based incentives based on size and grades of hides and skins**
8. **Mobilizing existing and innovative financial instruments**, including value chain financing, to add capitalize the HSL value chain, providing working and investment capital, leading to improved payment arrangements and opportunities to expand volumes
9. **Coding and tagging of all livestock** [and their meat, by products and hides/skins] to establish traceability, animal recordkeeping, herd management, vaccination scheduling, breed and feed records, food security. Ensure that this information is available to all members of the value chain so that they benefit by participating/cooperating with the coding/tagging effort, e.g., animal health, price, and other information.
10. **Encouraging more private sector investment in** the animal health sector to extend the reach and benefit of animal health research, drugs, clinics and services.

Pilot testing by the private sector could be an important means of encouraging these opportunities. One or more tanneries or their association, working with one or more abattoirs, sponsor or implement studies and tests of these types of initiatives.

MSP meetings, stakeholder workshops and conferences, and other networking and informational events will help to build value chain linkages.

CONCLUSION

Hides, skin and leather is an important strategic sector for the economic and industrial development of Ethiopia. It has an abundant and renewable resource base in Ethiopia's large population of cattle, sheep and goats. It is labor-intensive with the potential to be a major source of employment and global market opportunities all along the value chain. Perhaps most importantly is that Ethiopia is endowed with a certain breed of sheep that is highly sought after around the world for its skin that eventually becomes one of the most supple, yet strongest leathers available anywhere. Unfortunately this unique resource has not been taken good care of and the market is demanding more of it with each passing year; yet there does not seem to be enough supply of the sheepskin to satisfy demand.

The challenges along the chain are many and revolve around two key issues: 1) supply issues - insufficient supply to meet even the most minimal market demand, and 2) poor quality (e.g. scarred, diseased, improperly flayed) hides and skins, which directly limit the market potential of the downstream products such as shoes, gloves and apparel. These challenges are implicated with the low tannery capacity utilization, lack of price incentive for producers along the chain, and limited specialization and competition.

The leather value chain's potential is to become a leading supplier of leather and leather based products to fashion houses in Europe and Asia. This is not a huge leap for Ethiopia given its 80-year history of working with European producers and the newly created supply links into China. By addressing several shortcomings, including increasing the supply of animals into the abattoirs, improved collection and introducing quality standards, the promise of accessing the globe's leading buyers of leather can be realized

DAIRY PRODUCTS VALUE CHAIN FOR ETHIOPIA

INTRODUCTION AND BACKGROUND

Ethiopians produced 3.3 billion liters of milk in 2011/2, worth $1.2billion and imported an additional $10.6 million of dairy products.[96] At 19 liters per annum, per capita, annual milk consumption is well below the world average of 105 liters and the African average of about 40 liters.[97] However, Ethiopia has the largest cattle population in Africa, at 52 million, including 10.5 million dairy cattle.[98] Households that produce milk typically produce such a small amount that it is consumed entirely by the households. Ethiopian families are very conscious of the nutritional importance of milk, particularly for children.[99]

Overall, Ethiopia has a complex dairy value chain, with both formal and informal channels. Only 5% of the milk produced in Ethiopia is sold in commercial markets.[100] The dairy value chain has a variety of entrepreneurial actors – smallholder and commercial producers, small and large processors, service and inputs providers, farmers' organizations and cooperatives. The dairy sector is growing in Ethiopia and is receiving new investment, although the demand for investment exceeds the supply.

The Ethiopian dairy production and market systems face severe constraints. The average milk production per cow is 1.5 liters per day, well below international benchmarks (see Table 3).[101] Poor genetics, insufficient access to proper animal feed and poor management practices all contribute to the low productivity levels. Similarly, dairy producers and downstream actors in the value chains face many challenges in getting milk to market. For the most part, milk collection, chilling and transport are not well organized and there are few economies of scale. Transaction costs are high and up 20-35% of milk is spoiled or otherwise lost[102]. Dairy cooperatives and some private processors seek to provide improved services and scale economies, although success rates have generally been on a local level only. Cooperatives are characterized as having poor records of service delivery.

There are twenty three (23) formal sector dairy processors in Ethiopia and four new processing facilities in various stages of development. Most processors benefit from urban and peri-urban milk supply systems, and in several cases have invested in their own dairy farms to insure adequate milk supply and quality. However, these processors only operate at 50-60% of capacity.

Consumers' ability to pay and milk market accessibility limits milk prices. Liquid milk is typically sold raw, or unpasteurized, to consumers in urban areas at 7-14 ETB (USD $0.38-$0.76) per liter, while pasteurized milk that is sold at supermarkets is priced between 16-20 ETB (USD $0.87-$1.08) per liter. By comparison, the average daily per capital income among Ethiopia's rural poor (approximately 80 percent of the population) is approximately 9 ETB (USD $0.50).[103]

Ethiopia's dairy value chain is thus constrained by low milk productivity at the farm level, inefficient logistics to link producers and processors, and low real demand – although demand does exceed supply.

These weaknesses present opportunities. Value chain actors are investing in milk production, collection and processing, and increased demand would likely lead to increased investment. Market opportunity is anticipated to lead to value chain deepening and upgrading, more solid horizontal and

[96] Production data from FAOSTAT, 2011, import data from UN COMTRADE, 2011
[97] FAOSTAT, 2007
[98] Livestock and Livestock Characteristics, 2012; FAOSTAT, 2011
[99] Land O'Lakes, Inc., 2010
[100] Livestock and Livestock Characteristics, 201
[101] IBID
[102] Felleke et al, 2010
[103] Hunnes, 2012. Converted at a rate of 1 USD = 18.4733 ETB, www.xe.com, 3/20/13.

vertical relationships, and investment in core value chain operations as well as needed services and inputs. There are many opportunities to improve yields per cow, to improve collection, reduce transaction costs, and to increase processors' capacity utilization. The dairy value chain does not require significant restructuring.

This value chain analysis (VCA) describes the market factors, investments, actors and relationships in the dairy value chain. It discusses the many challenges, in terms of both constraints and opportunities that these actors face, and suggests many potential entry points for market-based activities and business models that could help to expand the value chain and improve its profitability in ways that benefit all of its actors and stakeholders.

A primary purpose of this VCA is to inform the Livestock Market Development (LMD) project strategy, which will contribute to win-win outcomes for all actors and stakeholders. It will also provide a useful source of information and perspective to other actors, stakeholders, planners and practitioners in the dairy sector.

Approach and Perspective

As part of LMD's "pull" approach, the dairy value chain strategy targets market-focused actions that will generate demand, improve supply linkages, incentivize and create market relationships that encourage greater productivity, add value and promote investment throughout the value chain. This VCA thus employs a market-focused approach that considers the LMD-target regions to identify businesses, market forces and triggers that could incentivize the positive contribution of key value chain actors.

Information for this VCA was obtained from extensive interviews and other research in the LMD regions and the LMD-target woredas, and from prior reports on the dairy industry and value chain. LMD technical teams visited eleven woreda clusters[104] in four Regions (Amhara, Oromiya, Southern Nations, Nationalities, and Peoples' Region (SNNPR) and Tigray). The purpose of the research was two-fold – to further understand the regional patterns, opportunities and issues relating to the dairy industry, and to engage with the stakeholders and actors who will hopefully recognize opportunity in LMD, and become the project's partners and stakeholders. The VCA also incorporates information and perspective from the Multi-Stakeholder Platform workshops (MSPs) held in the four regions during March 6-9, 2013.

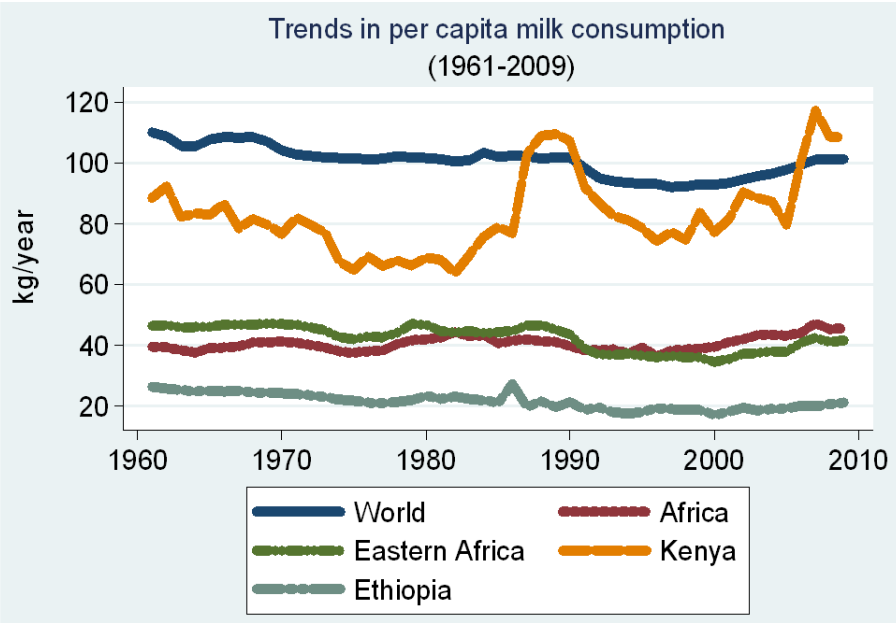
In addition to the field interviews and other research, the VCA in particular draws from two significant value chain-based dairy sector reports, which we wish to acknowledge and appreciate. These are: *The Next Stage in Dairy Development for Ethiopia*, Land O'Lakes, 2010, and *Inventory of Dairy Policy – Ethiopia*, SNV Ethiopia and Target Business Consultants Plc, 2010.

ETHIOPIAN DAIRY MARKET – DEMAND/CONSUMPTION

Higher incomes, larger urban populations and continued population growth will fuel higher demand for dairy products.[105] However, consumption during the last four decades ranged from 16 to 19 liters per capita (FAOSTAT), about half of the average African consumption rates (Figure 1), and well below the world average. The level of consumption has only increased slightly since 2000.

[104] The LMD clusters consist of 2 – 4 woredas that comprise a milk shed area, production or marketing grouping.
[105] LMD, 2013 and Felleke et al, 2010

Figure 19: International Diary Consumption[106]



A 2010 analysis by Land O'Lakes (LOL) projected that urban and peri-urban demand for milk and milk products will increase dramatically through 2020, and beyond. This demand was estimated to increase by 37% (low estimate) to 148% (high estimate, with nationwide consumption per capita of 27 liters). (See Annex 1).[107]

While many Ethiopians consume milk, they do not always use it as a staple food. They often regularly consume milk products, such as butter (*kibe*), yogurt and cottage cheese (*ayib)*. Most milk, approximately 95.31%, is consumed and processed at home, while only 4.69% is supplied to formal and informal markets.[108]

The major marketable milk products include:

- Fresh milk, which is produced by either small holder farmers or modern dairy farms, is the main product available in the market.
- Sour milk ("ergo" in Amharic) used as a soured milk. Soured milk keeps longer than raw milk, so this process is useful for storing milk during fasting days.
- Sour milk churned to make butter.
- Curd (defatted sour milk), by-product of butter churning. Called "ayib" in Amharic, this product is similar to cottage cheese.
- Ghee (heated butter).
- Processed dairy products including pasteurized milk, ultra-high temperature processed (UHT) milk, butter, various cheeses and yogurts.

The Domestic End Market Study, conducted by LMD in parallel to this VCA estimated the per capita milk consumption in four major towns of Ethiopia, based on data generated from a rapid 500 household survey. (Because of the small sample size, this data should only be considered as indicative.) Survey results show the average per capita consumption for the four towns to be 28.86 liters per annum. Consumption in Addis Ababa (51.85 liters) dramatically skews the results - consumption in Dire Dawa was 5.36 liters, Awassa was 4.92 liters and Bahir Dar was 3.01 liters. (See Annex 2). While the high per capita consumption in Addis Ababa may reflect the large number of

[106] FAOSTAT, 2010
[107] Land O'Lakes, Inc., 2010
[108] Livestock and Livestock Characteristics, 2012

higher income households and foreigners, it may also indicate an un-served demand in other locations.

Various factors act to depress demand for dairy products. Many middle and low-income consumers interviewed for the study stated that price of milk is increasing rapidly and they are finding it increasingly difficult to purchase milk and milk products. About 92% of the cafeterias/hotels and 91.46% of consumers covered in the survey stated very high price of dairy products as a major challenge. Pasteurized milk can cost more than 16 ETB (USD $0.87) per liter, which is unaffordable for most households.[109] Raw milk purchased in urban areas costs 7-14 ETB/liter (USD $0.38-$0.76).[110]

The Domestic End Market Analysis suggests that reasons low milk consumption include:

- Fluctuation in the demand of milk and other dairy products is in line with the various fasting periods observed by Orthodox Christians. There are 196 fasting days in a year.
- Milk is traditionally considered in many parts of Ethiopia to be a food item that is essential only for children and convalescent persons. Its nutritional benefits for normal adults tend to be overlooked.

Producers and processors have trouble responding to uneven demand and lower prices during the fasting periods. However, LMD interviews with stakeholders and experts indicate that the impact of the fasting periods may not be as extreme as is often described, and may be diminishing. Children of less than ten years of age, pregnant women, and the non-Orthodox populations (nearly 50% of Ethiopia's population) are not expected to avoid consuming milk products during fasts.

In **Tigray,** as in other regions of the Highlands, raw milk, ergo, cottage cheese, whey, butter and ghee (heated butter) are major marketable milk products. The majority of milk producers deliver their milk directly to end-consumers, while some also sell to retailers, hotels and cafes. Retailers' sell boiled and cooled milk or process it to ergo. Ghee is processed only by producers and is sold directly to consumers or local traders. Study interviews suggest that the trend of production, marketing and consumption of milk and milk products is increasing.

With land that is very suitable for dairy production**, Oromiya** region produces 40% of Ethiopia's cow milk, significantly more than the other three large dairy producing regions of the country (Table 6, below). Oromiya supplies the most milk to the market in large part due to its ability to serve Addis Abba.[111]

The main markets for processed milk are Ethiopia's main urban centers in Addis Ababa, Bahir Dar, Debre Zeit, and Awassa. However, the majority of the milk consumed by most urban and semi-urban homes is still supplied through the informal sector: smallholder milk producers and traders directly supplying households, kiosks, hotels and coffee shops. Urban consumption is constrained by price, quality and availability.

Milk consumption tends to increase as income levels increase. The 2010 LOL study found that the top 10% of earners in the Addis Ababa market consumed approximately 38% of the milk. The lowest income group – approximately 61% of the population – consumed only 23%.[112]

Table 23 shows rural smallholders' utilization of milk. Utilization depends on the ease of access to market.[113]

[109] LMD Research, 2013
[110] IBID
[111] Land O'Lakes, Inc., 2010
[112] IBID
[113] LMD research, 2013

Table 23: Percent Utilization of Diary Products by Peasant Farmers, 2011/12[114]

Product Type	Household Consumption	Sale	Wages in Kind	Traditional Processing and Other
Fresh Milk	46.61	4.69	0.35	48.36
Butter	61.44	34.46	0.34	3.76
Cheese	83.34	12.96	0.15	3.55

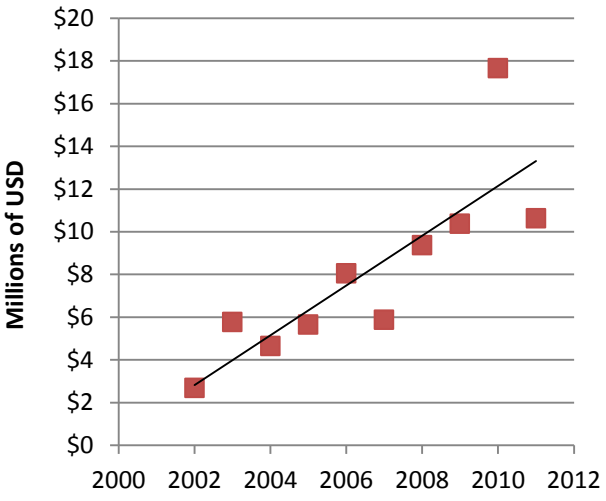
In non-urban areas, milk consumption varies by season and cow productivity. Consumed milk – preference is for whole, raw milk, is either from milk production at home or by neighbors. Processed milk is not available in rural markets. An estimated 40% is converted to butter, and 9% to cheese. Traditional butter can be kept for more than a year.[115] Milk and milk products are an important source of food security. Women often play a large role in decision-making regarding the processing and marketing of milk.

Ethiopia is an importer of dairy products (Ethiopia Dairy Market - Supply

Figure 20) but exports only minimal amounts. The value of milk imports doubled between 2005 and 2010.

ETHIOPIA DAIRY MARKET - SUPPLY

Figure 20: Ethiopia Dairy Imports[116]



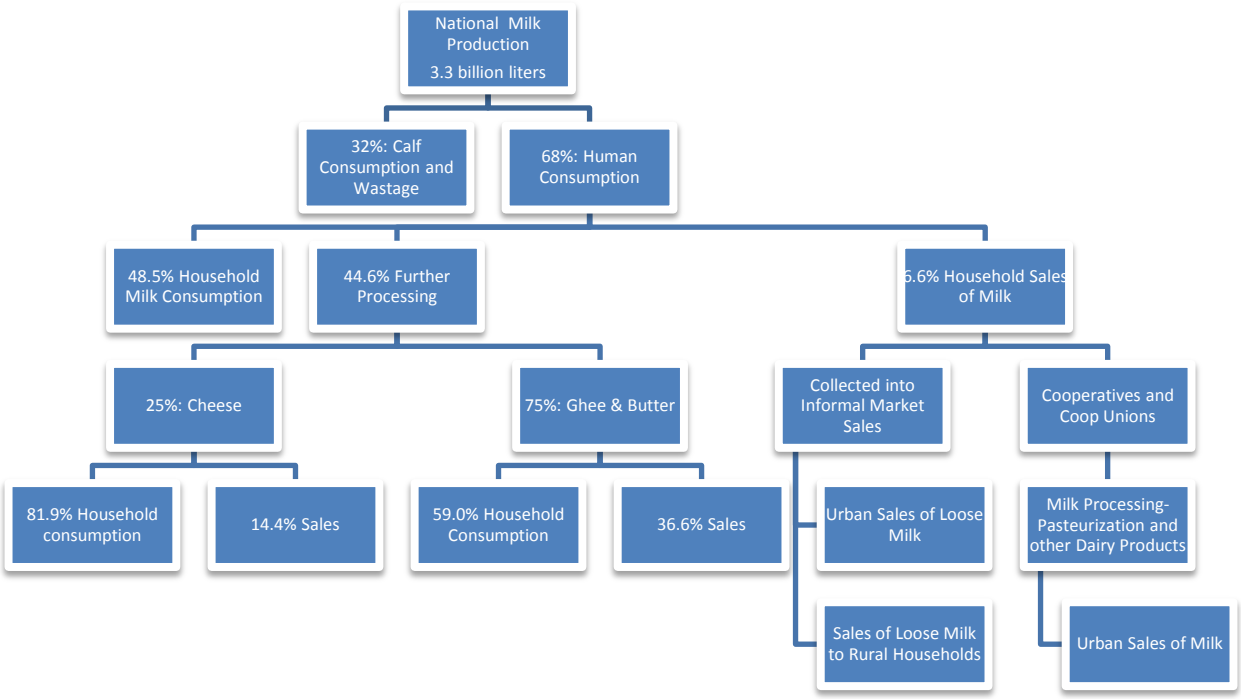
Ethiopian milk production has increased significantly since 2000. CSA data indicate that national milk production was 1.2 billion liters in 2000, 3.2 billion liters in 2007, and 3.3 billion liters in 2012. Ethiopia has 10.6 million milking cows, producing an average of 1.5 liters per cow per day over a lactation period of 180 days.

The farm-level value of the milk was estimated to be 1.16 billion USD in 2011 (FAO Stat). During peak production in the wet seasons, rural farmers who are not part of formal cooperatives face challenges marketing their milk as most regions experience a surplus. Surplus milk is processed at the home into butter and cottage cheese (*Ayib*). For most subsistence farmers in all cultures in Ethiopia, the daily decision on how to allocate milk is decided by the woman head of household and is dependent upon season, number of children in the household, presence of sick family members, and daily financial needs.[117]

[114] Livestock and Livestock Characteristics, 2012
[115] IBID
[116] UN COMTRADE, 2011
[117] Land O'Lakes, Inc., 2010

Of the total milk produced in Ethiopia, less than 5% of milk produced is marketed as processed fluid milk. Figure 3 describes the flow of milk in Ethiopia, from production to consumption/sale.[118]

Figure 21: Allocation of Milk Produced in Ethiopia[119]



Cow milk is the predominant source of milk consumed in Ethiopia (Table 2).

Table 24: Milk Production in Ethiopia[120]

Cow Milk Production	2009/10	2010/11	2011/12
Average Daily Milk Production (Liters/Cow)	1.688	1.857	1.543
Total Milk Production (Billion Liters)	*2.9*	*4.1*	*3.3*
Camel Milk Production	**2009/10**	**2010/11**	**2011/12**
Average Daily Milk Production (Liters/Camel)	5.053	4.266	3.413
Total Milk Production (Million Liters)	*150.3*	*262.8*	*176.4*

The level of Milk production per cow in Ethiopia is very low by international standards, as shown in

[118] Livestock and Livestock Characteristics, 2012
[119] Compiled from: Crop and Livestock Product Utilization, Agricultural Sample Survey, 2011; Livestock and Livestock Characteristics, 2012; FAOSTAT, 2011; Land O' Lakes, Inc., 2010;
[120] Livestock and Livestock Characteristics, 2012

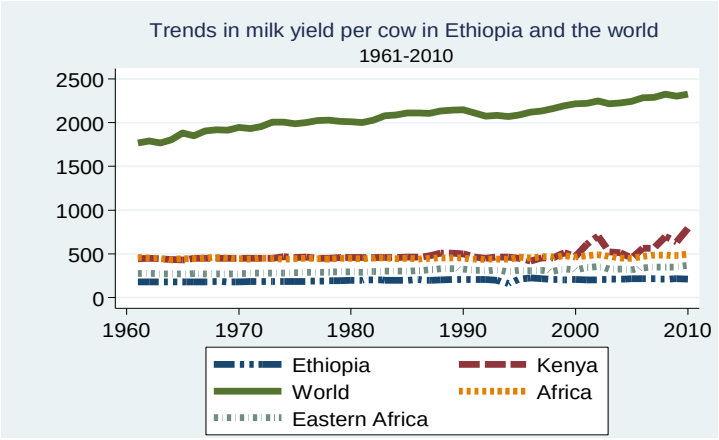
Table 25.

Table 25: Productivity per Cow[121]

Country	Yield (KG)
Republic of South Korea	9,616
Israel	9,583
United States of America	9,118
Sweden	8,152
Denmark	8,131
Algeria	1,320
Morocco	1,102
Egypt	997
Table Angola	482
Sudan	378
Ethiopia	**270**
Nigeria	240
Bangladesh	206
Tanzania	174

Table 6 suggests that there is only slight variation in productivity per cow amongst the four Regions.

Figure 22: Trends in Milk Yield per Cow[122]

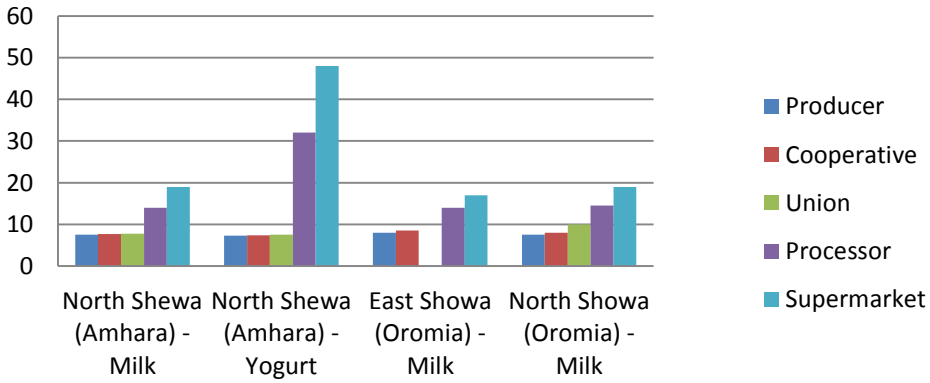


LMD research in **East Oromiya** found that production of milk and milk products is developing into an increasingly specialized business opportunity in the urban areas of East Shoa, Arsi, and West Arsi zones. Dairy businesses are encouraged by proximity to main markets, access to inputs at lower costs because of significantly shorter transport distances, and access to services. Dairy production in East Oromiya is mainly from private rural farmers that keep small numbers of milking cows in a mixed agricultural system.

In **SNNPR**, rural livestock producers, who are highly dispersed and considerable distances away from consumers in urban areas, face difficulties in marketing their milk. Milk may spoil en route to market, or be lost due to poor storage or handling.

The data in Figure 5 provide examples of price markups along the value chain, between producer and retailer.

Figure 23: Greater Addis Milk Shed Transaction Prices[123]

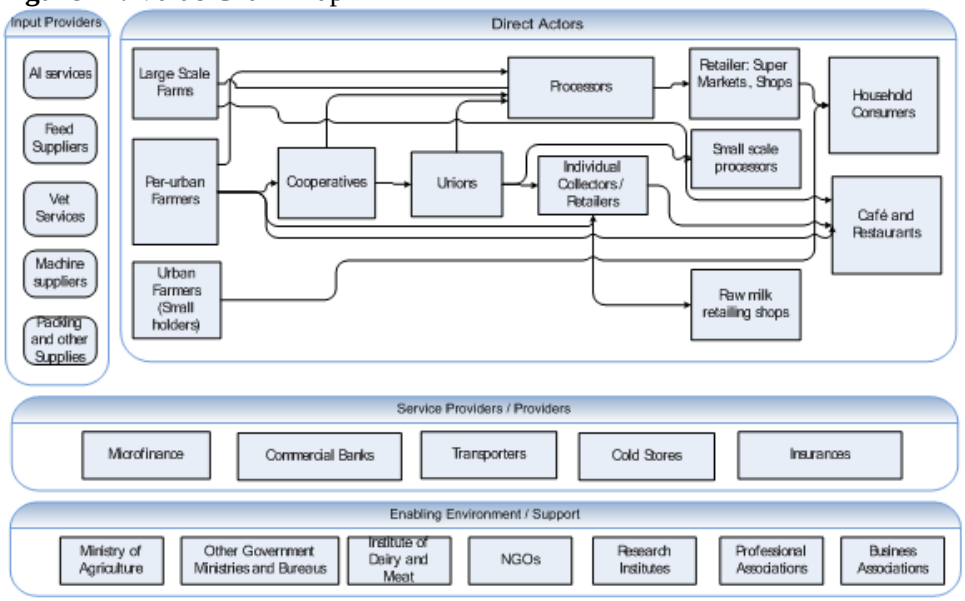


[121] Ethiopia data is IBID, all data is for production year 2006 – 2008, from Statinfo.biz <http://statinfo.biz/Geomap.aspx?act=6243&lang=2>
[122] FAOSTAT, 2011
[123] LMD Research, 2013. See Annex 4 for data.

DAIRY VALUE CHAIN MAP / SUMMARY OF ACTORS

The market chain map in Figure 24 describes the main relationships in Ethiopia's formal dairy value chain.

Figure 24: Value Chain Map[124]



The main value chain actors are listed in the following table.

Table 26: Ethiopia Value Chain Actors

Direct Actors several links between the farm (production) and the consumer (consumption). These actors involve in activities like procurement (collection), transportation, processing and packaging, storage and distribution, retailing, and food services.)
Raw milk producers E.g. rural traditional small holder producers (pastoralists, agro pastoralist, highland mixed farmers) and improved market oriented (urban, peri- urban and commercial) dairy farmers and dairy cooperatives and unions
Milk collectors and transporters
Dairy Processors
Distributors and retailers
Cafés, hotels and restaurants; institutional consumers
Final consumers
Input and service providers E.g. feed processors, veterinary drug and dairy equipment suppliers, vaccine, Artificial Insemination and health service providers, knowledge and skill providers, financial services providers
Meso and Macro level value chain actors: Organizations which provide support to the sector in the development and strengthening of the direct actors. Macro level actors: organizations or institutions which provide conducive dairy development environment by issuing rules, laws, procedures, guidelines and the like to facilitate the development, strengthening and regulation of the dairy sector.
Government organizations
Non-government organizations

[124] UNIDO, 2009

Business Associations
Professional and associations
Producers associations

Producers have four market outlets in addition to home consumption:[125]

- Sell surplus raw, fresh milk informally to neighbors in the informal marketing channel, through direct-delivery of to consumers in the immediate neighborhood and sale to itinerant traders and nearby institutions. Sell to dealers. The dealers also collect milk from farmers and transport it to nearby urban centers for direct sale to consumers (in some cases to retailers).
- Sell to milk group or co-operative to which s/he may or may not belong.
- Deliver to a milk-collecting center operated by a processor. The processors supply pasteurized milk and dairy products primarily to Addis Ababa and other nearby towns.

Value Chain Relationships in Amhara Region

Dairy products are channeled to markets using formal and informal channels. In the informal market, milk producers directly deliver raw milk to consumers or cafes and hotels. It is also a common practice for cafes and restaurant owners to keep their own dairy cows, mainly for their own supply. The volume of milk entering the informal market is unknown. The butter and Ayib produced traditionally are sold in the respective local markets on market days.
Many consumers prefer milk from the informal channel because it is full fat, exceeding 3.5% butter fat, and there is a trusted relationship between consumer and seller. Hard data is not available relative to the percentage of milk that enters the formal versus informal distribution channels. A commonly accepted figure is less than 10% enters the formal channel.

Cooperatives are the main actors in the collection and sales of milk in the regions. The dairy products are sold in bulk without being packed and branded, often using jerrycans and other simple containers. Embet cheese producer in Bahir Dar supplies its products to supermarkets in Addis Ababa as well as to Gonder and Welega markets. Overall, however, cooperatives or individual producers are not able to exploit the markets of the large cities such as Gonder and Bahir Dar because they do not have cold chains.

Although a limited number of processors and traders check milk quality by using alcohol tests and lactometers, visual inspection is the most common quality check. Consumers do not complain about milk quality as long as they do not suspect that the fat content is reduced. Processors complain that producers sometimes adulterate the milk.

Consumers purchase milk through retailers or by purchasing raw milk directly from producers. In urban areas milk is sold through shops, kiosks and direct sale. The milk and milk products sold are raw milk and traditionally processed products. Consumers purchase traditional products like butter and ayib at local market and butter shops.

Retailers also sell dairy products to buyers such as cafes and restaurants. Retailers in Debre Markos in particular were reported to be making significant margins; buying at 9 ETB (USD $0.49) per liter from the peri-urban producers/collectors and selling at 20 ETB (USD $1.08) to hotels in the urban towns. The milk sold in cafes and hotels is boiled milk or macchiato. In Tarma Ber, 190km (118 miles) north-east of Addis Ababa, there are shops that specialize in butter sales, and in Shewa robit town small multipurpose shops sell UHT milk imported from Yemen.[1]

Source: LMD Research 2013

Value Chain Relationships in SNNPR

In SNNPR, the informal market subsystem involves direct delivery of fresh milk by producers to consumers in the immediate neighborhood and sale to itinerant traders or individuals in nearby towns. In this subsystem, milk may also be supplied from producers directly or through two or more market agents. This marketing subsystem is characterized by many unlicensed individual retailers operation, low cost of running the business, high prices to the producers relatively when compared to the formal system, and with no rules and regulations to govern the operation of operate the business. The traditional processing and trade of dairy products, especially the traditionally soured butter, dominates the dairy sector marketing. Some of the butter is used for home consumption, and the surplus is for sale to small traders who transport it to urban areas for distribution by wholesalers and retailer butter traders. Ayib, a soft cottage cheese, is produced on the farm from sour buttermilk, for home use and for sale.
Source: LMD Research 2013

[125] Felleke et al, 2010

MILK PRODUCERS

Producers: **Rural farmers are the main milk producers in the LMD woredas.** These farmers keep a small number of milking cows in mixed agricultural systems. Production is dominated by smallholders with 1 -2 cows per household, located in woreda towns and in rural areas.

Eighty-three percent of all milk produced in Ethiopia comes from cattle[126]. The Central Statistics Agency estimated the sale of cow's milk to have been 3.3 billion liters in 2011-12.[127]

Productivity per cow is low, averaging milk yield of 1.3 lt. – 1.54 lt. per day for an average lactation period of 180 – 210 days. Cross-bred cows produce an average of 10 lt./cow/day.[128]

Dairy producers face high logistics costs arising from poor storage and transport, poor road infrastructure, and undeveloped collection and cold chain logistics. Forage/fodder supply is insufficient, and processed feed is also insufficient, and costly.

Market oriented milk production is centered in the highlands where rainfall, temperature, and soil types are conducive to forage production. (Figure 8) There are three main milk producing areas in the highlands; Greater Addis, Lake Tana, and Mekele / Humera. In 2010, 65% of the 516 million liters produced in these areas came from the Greater Addis milkshed.[129]

> "The Highland areas of Ethiopia raise 65 - 75% of livestock. For most cattle owners, cattle are primarily used to provide traction power for agriculture, and also provide food, manure, cash income as well as serve as insurance during times of drought or a household emergency. In highland areas, income earned from daily milk production is used to purchase agriculture inputs or hire labor and land, effectively increasing a household's food production potential and resiliency. Although the daily income earned is marginal, especially from the low milk producing local breed animals, milk sales and livestock ownership contributes to food security. Farmers without access or unwilling to join a cooperative will often contract to sell their milk to a neighbour, kiosk, or a local café. The buyer pays monthly while receiving milk daily. This monthly cash/barter transaction enables farmers to save small amounts of daily income for re-investment into household livelihoods or the purchase of other livestock." [130]

Table **27** describes the livestock population in Ethiopia and in the Amhara, Oromiya, SNNPR and Tigray Regions. Table 28 shows the estimated production value of milk in the country. Table 29 presents the milk production and productivity in each of the four regions.

Table 27: Livestock Production by LMDP Region[131]

Region	Cattle	Sheep	Goats	Camels
Ethiopia - National	52,129,017	24,221,384	22,613,105	979,318
Amhara	13,354,797	8,227,862	5,189,432	55,626
Oromiya	22,481,530	8,618,970	7,226,944	310,420
SNNPR	10,437,409	3,865,819	3,506,210	
Tigray	3,539,395	1,121,537	2,874,520	35,946

[126] MoARD, 2007
[127] Livestock and Livestock Characteristics, 2012
[128] Ethiopia Dairy Development Council (EDDC), as cited in Land O'Lakes, 2010
[129] Land O'Lakes, Inc., 2010
[130] IBID
[131] Livestock and Livestock Characteristics, 2012

By value, cow milk is the dominant form of milk produced. Table 29 illustrates how market value of Ethiopia's production has increased sharply since 2006.

Table 28: Production Value for Milk in Ethiopia (Millions USD)[132]

Item	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Camel milk, whole, fresh	$33	$46	$62	$31	$27	$33	$72	$47	$43	$75
Cow milk, whole, fresh	$711	$717	$698	$614	$665	$754	$924	$793	$844	$1,164
Goat milk, whole, fresh	$7	$8	$10	$11	$12	$14	$14	$14	$15	$15
Sheep milk, whole, fresh	$10	$11	$12	$13	$15	$17	$16	$16	$17	$17

Table 29 shows that while there is some variation in productivity amongst the 4 regions, such variations are minor. The low productivity is a phenomenon across all regions. Oromiya is by far the largest producer of milk. The region has 44% of Ethiopia's milking cows and produces 40% of the country's milk. (Annex 3 shows that Afar Region has the highest productivity/cow in Ethiopia.)

Table 29: Milk Production and Productivity by Region[133]

Geographic Area	Number of Milking Cows	Average Daily Milk Prod.	Average Lactation Period (Months)	Total Milk Production (Lt)	Percentage Share of Milk Production
Ethiopia	10,577,781	1.543	6	3,329,854,796	100
Tigray	654948	1.526	6	184,361,998	5.5
Amhara	2244552	1.505	6	740,347,957	22
Oromiya	4,650,990	1.423	6	1,320,007,337	40
SNNPR	2,484,993	1.755	6	884,109,110	27

The 2010 SNV report describes **five Ethiopian dairy systems**: pastoral (traditional pastoral livestock farming), agro-pastoral (Traditional lowland mixed livestock farming), mixed crop livestock system (traditional highland mixed farming), urban and peri-urban (the emerging smallholder dairy farming) and commercial (specialized commercial intensive dairy farming). [134] This value chain analysis is focused on the latter three, which are the primary systems in the AGP-LMD woredas.

Commercial Producers raise animals primarily to produce milk, and provide feed, other inputs and management to generate their income and profits from the milk. They regard their milk production as an important business, rather than as a sideline activity.[135]

Specialized, commercial dairy farming is concentrated in the central highland plateau. The system, comprised of small and medium sized dairy farms, uses improved dairy stock. The farms are mostly located around major cities and towns with high demand for milk and having population of more than 10,000.[136] Ethiopia's population of improved-breed dairy cattle (pure and quality crosses) is small,

[132] FAOSTAT, 2011
[133] Livestock and Livestock Characteristics, 2012
[134] Felleke et al, 2010
[135] Felleke et al, 2010
[136] Land O'Lakes, Inc. 2010

297,281 cross-bred and 41,590 pure bred animals.[137] In 2010, LOL identified 269 commercial dairy farms with 10 or more mature cows within the Greater Addis milkshed. Output for a pure bred cow can range from 1120 – 2500 lt per lactation.[138]

Peri-Urban and Urban Production in and near urban areas is primarily by smallholders, many of whom have improved breeds of cows. **The introduction of crossbred dairy heifers into the mixed farming system has proved successful in the highland regions. The largest concentration is around Addis Ababa with its substantial market for fresh milk; other urban areas are increasingly becoming well-served**.[139]

Due to limited landholding, and assuming availability, smallholder dairy farming will increasingly use crossbred and other improved dairy stock. Producers depend on artificial insemination (A/I) services for improved stock. A quality cross-bred bred heifer or bred young cow sells for approximately ETB 20,000 (USD $1,082) to ETB 35,000 (USD $1,895) or more per head.[140]

Because of the scarcity of land, cattle are maintained under confined systems where feed is provided directly to cattle. A large portion of this feed is purchased feed, and the economics of these operations are therefore heavily affected by increases in the prices of feed.[141]

Urban smallholders mainly supply to households or other customers (such as cafes and restaurants) though direct delivery. Delivery is often on a monthly contractual basis with minimum delivery size of half liter. Many urban smallholder producers have had to close because of the increasing demand of land for housing and industrial expansion, and municipalities' attention to health and environmental issues. However, six high potential woredas in Tigray are piloting an urban agriculture program, involving building of urban agriculture villages with rental dairy shades.

A value chain study conducted in 2006 by Technoserve for SNV, mostly of peri-urban producers, found that feeding (29%) and animal health services (22%) accounted for 51% of the sales price. The margin (return) from the sale was 14% of the sales price.

Rural Smallholder Milk Production is an integral part of the production system of small-scale, non-commercial subsistence-farms. Approximately 75% of the highlands' livestock population is held by smallholders. Farms are essentially subsistence operations with surpluses of crops and milk sold on the market. [142]

Rural highlands producers primarily keep zebu cattle. Zebu have lower milk production that some other breeds, but have low maintenance needs and are well-adapted to the environment and disease vectors in the highlands. Average milk production can range from 400 to 600 lt. for a 200-day lactation period (2–3 lt./cow/day). Livestock graze on communal pastures although forage and fodder production for both on-farm use and sale is becoming more common.[143]

Most smallholders do not invest significantly in their dairy production. Cash outlays are minimal-there is little investment in improving animal genetics, in supplemental feed, or in vaccinations or medicines. But this is by no means a universal picture. Progressive small-scale farmers in the various milk sheds are now maintaining higher productivity cross-bred, and sell their milk to co-operatives and commercial milk collectors and processors.[144]

shows the use of various animal products, including milk, butter and cottage cheese (*Ayib)*, sour milk butter (*Arera)* by smallholders. Small-holder producers sell their milk and milk products to urban

[137] Livestock and Livestock Characteristics, 2012
[138] Land O'Lakes, Inc. 2010
[139] LMD research, 2013
[140] IBID
[141] IBID
[142] Land O'Lakes, Inc. 2010
[143] Land O'Lakes, Inc. 2010
[144] LMD research 2013 and MoARD, 2008

areas (primarily through the informal market) when transport is available and affordable. Transporting small volumes of milk to population centers is a significant cost. Producers convert surplus milk to butter or ergo (fermented milk) which are consumed in the household or sold to their neighbors. Butter or local cheese is supplied to urban areas, as they are easier to transport and less likely to spoil than fluid milk.

Interviews from Tigray

A female dairy producer in Michew, who started the dairy business 30 years ago with seven local cows, is producing milk now with two crossbred cows. Currently, one of the cows is producing 15 liters of milk daily, part of which is sold as raw milk and part of which is collected and converted to butter, local cheese and whey. The cattle are fed with wheat bran and *atela* (a by-product from production of a local beverage). The producer does not cultivate her own forage nor does she purchase concentrates.

By contrast, Fenkil dairy farm, located in Mehoni, was established in 1989 with three local cows for the sole purpose of supplying milk to the household. The farm began by selling milk in its own tea shops. It is now producing 25 liters of milk daily from two cross bred cows, all of which is sold as raw milk. The farm currently owns nine cross bred cattle, obtained by government A/I services. However, Fenkils says that the technician has been transferred to another area and the quality of the A/I service has declined since then. The producer cultivates alfalfa, rods grass as well as maize in his backyard. The animals' dung is used as a source of natural fertilizer. They also explained there is also a limited supply of mill by-products that are brought from Mekele, Maichew, Desse and Gonder towns by traders. The farm is a model used by the government authorities in the woereda.

Source: LMD research

Data from Two Woredas in Amhara

Commercial dairy farms in the Eastern Gojjam area have an average holding of 20 dairy animals on 5- 10 hectares of land. The farms produce from 50 to 100 liters of milk per day

Commercial production in Baher Dar Ketema Woreda varies from 16 liters per day by a commercial farm owning cross bred animals to 4 liters a day by a dairy cooperative. The main dairy products are raw milk, butter and different types of cheese. Most of the producers tend to commercialize their whole production without retaining any for home consumption.

Source: LMD research

Table 30: Amhara Region, Livestock Product as a Percent of Utilization by Private Peasant Holders, 2011/12[145]

Type of Livestock Product	Total %	Percent utilized for			
		Household Consumption	Sale	Wages in Kind	Others
Milk	100	31.73	0.49	0.3	67.48
Butter	100	69.73	28.4	0.34	1.53
Cheese	100	98.56	0.0	0.0	1.44
Sour butter milk *(Arera)*	100	53.15	0.0	0.0	46.85
Beef	100	63.68	26.97	3.23	6.13
Skin	100	30.43	65.22	0.0	4.35
Hide	100	25.63	74.37	0.0	0.0

Profitability and Gross Margins

Figure **23** (above, page 85) illustrates the price markups through the value chain. Annex 4 provides additional price markup information.

Table **31** provides an estimated gross margin calculation for a 5-cow dairy farm in East Oromiya. The farm earns an estimated 14.7% return on its sales. The numbers indicate that scale is important to profitability, as is the productivity of crossbreeds.[146]

Table 31: Estimated Gross Margin in East Oromiya Farm[147]

Regional Perspectives

[145] Land O'Lakes, Inc., 2010

[146] LMD research, 2013

[147] Calculation based on information obtained from one farm with five cross-bred milking cows

In the **Amhara** region, like many other regions, the milk production system is predominantly a "butter system" and not a "milk system". Fresh milk is an important commodity only in the towns and cities. Many of the farmers in the areas collect small quantities of milk on daily basis and turn it in to butter and cottage cheese. There were 2.2 million milking cows in the Amhara region in the 2011/12 (refer to Table 29above). The region accounted for 21% of the total number of milking cows in the country and 22.3% of the country's total annual milk production. The daily average milk production was 1.5 liters.[148]

Operation Cost/Cow/Year		Assumptions:
Cost item	**Annual Cost**	5 sacks of dried dung sold per week at ETB 16
Feed cost	ETB 12,775	
Veterinary cost	ETB 250	Average production of milk: 12 liter/day and milked for 7 months and all are sold as whole milk
Water cost	ETB 1,825	
Labor cost	ETB 2,500	Price of Milk: ETB 8
Repair and maintenance	ETB 150	
Breeding cost	ETB 20	Veterinary cost/cow/ year: ETB 250
Total Operation cost	**ETB 17,520**	
Sales/Cow/Year		Feed Cost: ETB 45 /day
Sales from milk	ETB 20,160	Water Cost: ETB 5/cow/day
Sales from dung	ETB 500	
Total sale	**ETB 20,660**	Labor Cost: ETB 250/cow/year
Gross income	**ETB 3,140**	Repair and maintenance: ETB 150/cow/year

MILK COLLECTION AND TRANSPORT

Urban consumers buy milk for direct consumption mainly from the urban and peri-urban dairy farmers near settlement areas where demand for milk is high. The absence of organized market networks prevents large quantities of dairy product from reaching the consumer. Due to milk's perishable nature and makeshift equipment, spillage and spoilage contributes to waste in post-harvest delivery. Losses or spoilages of 20-35% from milking to consumption are reported. [149]

Oromiya: Transporters

Most of the producers transport the raw milk to cooperatives' collection centers or directly to retailers, cafes or hotels. After manual milking, the raw milk is transported by using donkey (for Horro woreda where there is limited road access connecting the farm with Shambu town) or bBajaj (for Diga and Guto Gida producers, due to the accessibility of road and transport). They use the plastic jerrycans to transport the milk. Some individuals are engaged in milk transport businesses in which they collect milk from the producers and transport it to consumers or points of sale. They do not deliver to bulking sites or processors, and there is no chilling.

Source: LMD research

Farmers near urban centers have advantages in having a major market for their milk. Urban consumers buy milk that originates within the urban and peri-urban dairy farmers. 73% Seventy three percent of the milk produced in urban areas is supplied to market, compared with only 4.69% for rural areas.[150]

In addition to wasted milk due to spoilage or handling, quality losses result from storing milk in unclean containers and contamination during milking and handling. In rural areas milk is transported by locally available means that may include transport by foot, donkey, or public transport. Milk can be collected either by the buyers or taken by the producer to the sales point, but generally, with the exception of a few commercial farms, farmers are responsible for the delivery of their milk into the market chain. Few farmers will travel more than an hour to supply milk to an urban market, or to earn higher prices.[151]

[148] Livestock and Livestock Characteristics, 2012
[149] Felleke, et al, 2010
[150] Crop and Livestock Product Utilization, Agricultural Sample Survey, 2011
[151] LMD Research, 2013

Poor road access is the most significant constraint for milk to enter the distribution channel beyond the local community. Milk is rarely collected or transported from producers further than 10 kms away from a paved road. A small number of commercial farmers, particularly those located in peri-urban areas, will have milk collected in bulk from the farm by a milk processor.

Cooperatives or milk processing companies often set up collection locations along main roads. Most collection points are rudimentary, although some processors are starting to place more emphasis on improved collection systems. Very few have a milk collection shade/house, and most have no cooling system. Collection/cooling centers are not operated as separate businesses.

Sebeta Agro industry (Mama Dairy), Lame Dairy and Selale Dairy Union transport milk from producers or collection centers to their own bulking and/or chilling centers (Selale's chilling center is currently not functioning.) Many individual collectors and traders supplement this system.[152]

Table 32 describes the chilling centers around Addis Ababa. Table 33 provides details about the operations of some of the processors that include milk collection in their operations.

Table 32: Examples of Processors that Collect Milk in Addis Ababa Milkshed (2011)[153]

	Name of processors	Chilling Center	Cold Trucks	Insulated Trucks	Ordinary trucks	Plan
.	Ada Cooperative Debrezeit)	-	-	2	2	To have 3 chilling units
2	Lame (Sholla) (Addis Ababa)	Five sites Total of 50,000 liters	One refrigerated truck capacity of 13,000 liters	3	-	To increase no of refrigerated trucks
3	Life Agro (Suleta)	-	-	-	-	Yes
4	MB (Family) (Addis Ababa)	-	-	6* air conditioned and insulated mini trucks	-	Yes
5	Yadeni (Bora) (Debrezeit)	In the process of establishing one	-	3* insulated vans for distribution	-	Yes

** These trucks are also used for milk distribution*

Table 33: Chilling Centers and Their Estimated Capacities Around Addis Ababa (2011) [154]

#	Location of Chilling Centers /Towns	Owner	Est. Capacity	Status
1	Chanco	Lame dairy	10,000 lt	
2	Chanco	Sebeta Agro industry	5,000 lt	
3	DebreTsige	Sebeta Agro industry	6,000 lt	
4	Muketuri	Lame dairy	10,000 lt	
5	DebreTsige	SDCU	5,000 lt *	Not functioning

[152] IBID
[153] IBID
[154] LMD research, 2013

6	Fecha	Lame Dairy	15,000 lt	
7	Debre Zeit	Sebeta Agro industry	8,000 lt	
8	Debre Brehan	Lame Dairy	10,000 lt	
9	Holleta	Lame	5,000 lt	
10	Addis Ababa (Megenagha)	Bora	5,000 lt	

DAIRY COOPERATIVES AND FARMERS ORGANIZATIONS

Cooperatives have been important in helping dairy smallholders to market their milk and lower their operating costs, providing scale economies. A 2006 analysis concluded that dairy cooperatives could reduce a farmer's transaction costs by 45%.[155]

Information collected during the field research demonstrates a great deal of variability in cooperatives' performance and ability to effectively serve their membership. Many cooperatives lack technical, managerial and marketing skills, and are severely undercapitalized in terms of their working capital, investment capital and startup assets (which are often not properly maintained). Many cooperatives struggle to find reliable markets. Governance is weak in some cases. Membership may have stagnated or declined.

On the other hand, there are cooperatives that perform well, that are highly entrepreneurial, and that provide good services to their members. There are substantial successes, demonstrating the potential of well-run FBOs.

Cooperatives, if they have a positive operating margin, distribute dividends to their members. LMD interviews cite a number of instances in which members have been disappointed with their financial benefit from membership. Annex 5 presents profits and dividends distributed by the Hiwot Dairy Union in Amhara Region. Descriptions of additional dairy cooperatives can be found in Annex 6.

The **Addis Ababa Dairy Producers Association** was originally organized to purchase inputs, and then introduced milk marketing as part of its activity. However, milk marketing has often been the basis for organizing farmers in rural areas. In many cases these groupings would later obtain simple processing equipment like separators and churns, to also produce products like butter and ayib. There was reported to be eight dairy cooperatives in 2002 (Tsehay). By 2006, there were approximately 100 cooperatives, and by 2010 there were approximately 120 cooperatives with 7,534 members.[156] Annex 7 provides a list of dairy cooperatives and unions.
The 87 cooperatives in **Amhara Region** have 4,794 members; 49 of these are dairy cooperatives (Annex 8). Table 34 describes the membership and status of six dairy unions in the LMD study areas.

Table 34: Membership and Status of Six Dairy Unions[157]

Name of union	Members			Location	Status	Capacity of Milk collection and sale per day (liters)
	Female	Male	Total			
Biftu berga dairy production and marketing union	210	488	698	Holeta	Active	3,600
Hiwot union	165	373	538	Debre	Active	3,000

[155] Land O'Lakes, Inc., 2010
[156] Land O'Lakes, Inc., 2010
[157] LMD research, 2013

				Brehan		
Arsi Dairy union				Assela	Active	
Selale Dairy Cooperative Union			1,000	Selale	Active	8,000-10,000
Jantekel Dairy Cooperative Union				Gonder	Active	2,000

Dairy processing in the **North Gondar** area of **Amhara Region** is largely traditional and manual; there is one small semi-processing center at the dairy cooperative at Cholga (currently not functional), and one processing center in Gonder town owned by **Jantekel Cooperative Union**. Jantekel's processing center has a capacity of 2000 liters per day, but has been operating at only 750 lit/day on average. The manager cites poor transportation, road condition, and long distances between cooperative members and center as reasons for the low capacity utilization. The Union operates milk collection, processing and whole/retailing facilities. Some services, such as A/I, credit and animal health are received from the public sources, and are reportedly not up to the Union's expectations.

The Union reportedly pays 8 ETB (USD $0.43) for a liter of milk. After processing and packaging in plastic containers, and branding as "Facial," it is sold for 5 ETB (USD $0.27)/½ liter and 10 ETB (USD $0.54)/liter. If these numbers are correct, then once expenses are included in the margin calculations, it is difficult to see how the union derives a sustainable profit.

The status, performance and issues faced by the cooperatives are similar in **SNNPR**. In Chena woreda of SNNPR one cooperative produces and processes milk. **The Wachana Area Milk Producers and Processors Cooperative** was established in August 2006. It seems to be quite entrepreneurial. The cooperative membership has grown slightly, from 23 to 27 members. It has 27 local cows, and also buys milk from the surrounding area. From its commencement in 2006 through May 2012 the cooperative has collected 25377 liters of milk and produced 559 kg of butter and 3624kg of cheese. The total area allocated for the cooperative is only 0.25 ha, so the members are forced to keep the animals at their home. They have requested the administration of the woreda for more land, but thus far without success. The cooperative also owns 1 veterinary drug shop in the town. It has 5 employees - 1 veterinarian, 2 working at the processing plant (both women) and 2 guards.

Yewotatoch Fira yewotet Erbata Mahber, a milk marketing cooperative in **Tigray**, was established in 2001 with an objective of marketing milk and producing forage. The cooperative has 14 members. It currently collects 11 liters/day from 2 members with cross-breed cows and purchases 15 liters from non-members at 7 ETB/liter. Part of the collected milk is sold as raw milk at 8 ETB/liter whereas the rest is converted to yogurt and sold at 10 ETB. The demand for milk is almost non-existent during the fasting seasons during which the cooperative converts the milk collected to butter which sold at 80- 100 ETB/kg. Members have received training on forage development and dairy cattle management, and to a limited degree on cooperatives management.

The **Bokra Multi-purpose Union** was established in 1997, with 11 cooperatives having 11,273 members (6810 male and 4163 female), and with initial capital of ETB 380,000. Its original objective was to link producers to market and supply them with inputs. The union now has 19 cooperatives, of which 3 are dairy cooperatives, with 15,794 members (9269 male and 6525 female), and capital of ETB 1.3 million. The union has a model dairy farm and produces 60 liters of milk daily, which it sells to cafes and households on a contract basis. It does not currently collect milk from members. It has established a feed processing plant with assistance from USAID, and envisions going to processing in the future.

Ferayat Milk Producer and Marketing Cooperative in Amhara Region was established with an objective of collecting milk, processing and selling it in their own milk outlet with the processing equipments they were provided by action aid. However, the cooperative was not successful, unable to deal with a plague of issues such as equipment malfunction, parasites and other water problems in communal grazing lands, problems in feed supply, poor management, and lack of market success.[158]

[158] LMD research, 2013

DAIRY PROCESSORS

The success of a milk processing plant depends on its ability to source a predictable, sufficient supply of milk, and its ability to assure a sizable market. Large scale processors are located near to urban areas to facilitate market access and available services. Institutional buyers are very important to many processors - universities, hospitals, schools or factories can provide a constant and assured customer base. **But many large processors operate at less than 50% capacity, because of sourcing constraints.**

Processors include: Household processors, which use traditional churners to make butter and cottage cheese (*ayib);* small scale processors (including many cooperatives) with improved manual milk separators and churners; and Large-scale, industrial processors.

There are 23 dairy processors in Ethiopia, and 4 new ones are under construction. These processors are listed in Annex 9. **The Velocity Dairy, a Dutch investment, will have a capacity of 150,000 liters per day.**

Seven dairy processors participated in a 2010 LOL value chain survey: Lame, Sebeta, MB PLC, Adaa, Genesis, Lema and Bora.[159] These companies had a daily processing capacity of 107,500 liters per day but only operated at 60% capacity, or 64,000 liters per day. In 2008, the three largest processing companies produced 14 million liters of milk, 120,000 kg of butter, 20,000 kg of hard cheese and 90,000 kg of soft cheese.[160]

In addition to these large companies there are also about 16 medium and large processing companies that produce approximately 35-40 thousand liters per day.

The processed dairy products are distributed to the various customers with trucks and vans owned by the processors themselves. Farm gate prices paid in the Greater Addis Milkshed generally range from ETB 7.50 (USD $0.41) to 8.50 (USD $0.46) per liter. Prices are negotiated downwards the further the farm or collection center is located from the point of processing. Fasting periods are a challenge as processors report a decline in capacity utilization of 25%. However, one processor (Mama) is managing around fasting periods by building inventories of UHT milk and cheese, although this can create cash flow problems.[161]

Ethiopian dairy processing operations are often quite vertically integrated. Some processors have their own dairy farms, collection centers, transport and retail shops.

There are no large scale processors in the **Amhara Region**. However two processers, Lame Dairy (Shola Milk- former DDE) and Ruth and Hirut Dairy, collect milk from Basona woreda for processing at their plants in in Chacha and Addis Ababa. Lame Dairy has a bulking and chilling center in Debere brehan, where it bulks milk from Basona worana and neighboring woredas, until transported to the Dairy's processing plant in Addis Ababa. Ruth and Hirut Dairy also collects milk from Basona worana woreda – it processes the milk in Chacha district, which is located some 90 km from Addis in the same route.

There are two (5000 liter capacity per day) large milk processing plants in **Tigray Region**, but neither is currently operating. Most of the milk producers use traditional processing methods to process the milk into butter, ghee, whey and fermented milk (ergo). A few producers process cottage type cheese (ayib).

[159] Land O'Lakes, 2010
[160] UNIDO, 2009
[161] IBID

END MARKETS FOR DAIRY PRODUCTS

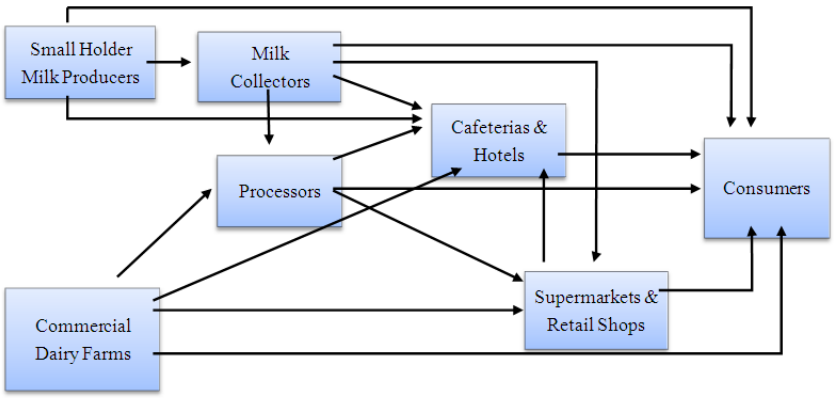
The LMD project carried out an end market analysis for the livestock value chain products (meat and live animals, hides skins and leather, and dairy products). This section provides brief information about the end markets for dairy. More detail is found in the Domestic End Market analysis document.

Processors buy fresh milk from commercial dairy farms, cooperatives and smallholder farmers to process into pasteurized milk, cheese, butter and yogurt. Commercial dairy farmers usually sign annual contracts to supply fresh milk on a daily basis by directly transporting it to the processor's factory or collection center. As described above, processors establish collection centers along major highways around Addis Ababa where they buy fresh milk from smallholder milk producers. Some processors (like Sebeta Agro Industry PLC and Timret Agro Industry Share Company) also use their own dairy farms as sources of fresh milk supply. They distribute the processed dairy products to retail shops, supermarkets, restaurants and cafes and hotels located in major urban centers. In 2010 LOL estimated that there were more than 2500 kiosks, and many milk shops, selling milk and milk products.[162]

Some processors also established their own retail outlets at strategic urban centers. Sebeta Agro Industry PLC for example has two retail shops in Addis Ababa one around the stadium and another at Bole. Timret Agro Industry Share Company has its own retail outlet. Lame Dairy has several outlets in Addis Ababa.

Figure 25 below summarizes the variety of dairy products marketing channels in the country:

Figure 25: Dairy Products Marketing Channels



Annex 10 shows how cafeterias and hotels in four main cities source dairy products. They purchase the bulk of their milk (85%) and butter (61%) directly from producers. A significant proportion of them also buy butter from supermarkets and traditional markets. They purchase cheese equally from producers and supermarkets.

Table 20 shows the results of a rapid survey in four towns of where consumers are likely to purchase dairy products. Producers are the most important sources of fresh (unpasteurized) milk for final consumers (75%) while 71% of pasteurized milk is purchased from retail shops. Consumers mainly buy butter from traditional markets (62%) and shops and supermarkets are important supply sources of powder milk having 41% and 56% from the total.

LMD interviews confirm earlier findings (EDDP, 2006) that **consumers are sensitive to price, their trust in the quality of the product, and availability.**[163]

[162] Land O'Lakes, Inc., 2010
[163] IBID

Table 35: Where Consumers Purchase Their Dairy Products[164]

Product Type	% bought from each source Addis Ababa, Dire Dawa, Awassa and Bahir Dar				
	Total Respondents	Producers	Shops	Super Markets	Traditional Markets
Unpasteurized milk	477	75%	19%	6%	5%
Pasteurized milk	93	16%	71%	15%	-
Powder milk	66	-	41%	56%	3%
Butter	364	23%	15%	4%	62%
Cheese	111	30%	23%	27%	24%

Imported UHT milk sells at an average price of ETB 52 per lt. Mama Dairy produces UHT, and the product sells it for an average price of ETB 20 per lt. Powdered milk is available in all markets, but is not produced in Ethiopia; its average price for 900 g is ETB 180.

Hotels, restaurants and institutions are important market segments for milk sales. Institutions include schools, training centers, hospitals, military camps, etc. They negotiate purchasing agreements with producers on a contract base or daily basis. But both milk traders and the processors are supplying this end-use market.

Few towns in **Amhara Region** have specialized milk shops or large supermarkets selling processed dairy products like cheese and table butter. In Tarma Ber (on the way to Dessie, departing from Deberberhan) district there are shops that sell butter only, and in Kewt district small multipurpose shops sell UHT milk imported from Yemen.

In **Tigray**, some milk collectors operate businesses that sell milk to end consumers and institutions. The collectors use public transport to deliver the milk - for example milk is transported to Humera from surrounding areas within a 10 kilometer radius. Because of the time involved, milk is often spoiled before reaching the final consumer.

Examples of Retail Prices

The results of a brief price survey of milk and milk products carried out by LMD in Addis Ababa are included in Annex 11.

The following Table 36 presents price and cost data in several woredas in Amhara Region.

[164] LMD research, 2013. Because of the small samples size, this data should only be considered as indicative.

Table 36: Dairy Prices, Amhara Region[165]

Item		Baher Dar Ketema Woreda	USD	Bure Woreda(150 km from Baher Dar)	USD	Mecha Woreda	USD	Fogera Woreda	USD
Raw Milk (Liters)	Non-Fasting Season	ETB 7-10	$0.46	ETB 7 – 8	$0.41	ETB 8	$0.43	ETB 7 - 8	$ 0.41
	Fasting Season	ETB 4	$0.22						
Cheese (kg)	Cottage Cheese	ETB 23	$1.25	ETB 4 - 10	$0.38				
	Mozzrella	ETB 85	$4.60						
	Provolone	ETB 95	$5.14						
Butter (Kg)		ETB 100	$5.41	ETB 50	$2.71			ETB 50 -60	$ 2.98

Table 37 presents recent prices for milk and milk products in several SNNPR woredas:

Table 37: SNNPR: Milk, Butter and Cheese production and Prices[166]

Woreda	Product	2011 production/ton	2012 production/ton	2011Price (ETB) per kg	2012price per kg	Feb., 2013
Sahi Benc	Milk	25.5	27	4	6	9
	Butter	18	20	45	120	120
	Cheese	13.5	12	15	35	35
Chena	Milk	22.3	24.4	5	6	9
	Butter	7.1	7.2	48	120	125
	Cheese	13.9	14.4	18	37	40
Yem special woreda	Milk	9	11	6	7.5	9
	Butter	6	9	50	110	120
	Cheese	10	12	19	35	38

INPUTS AND SERVICES

OVERVIEW

Many inputs are needed to sustain a thriving dairy sector. These include feed (both grazed and purchased), finance and credit, breeding and artificial insemination, veterinary services, extension services, and training, amongst others.

The public sector plays a major role in service provision. Increasingly, such services are being provided through the private sector as well, including through cooperatives. While part of the need for private provision of inputs and services arises from the limited availability of the publicly-

[166] LMD research, 2013

provided version, it's also apparent that inputs and services can be provided on a profitable and often entrepreneurial basis, by private providers.

Still, there is a pervasive attitude that the public sector should be the service provider, and attitudes toward private provision seem to still be developing. The private services tend to be more expensive (i.e. not subsidized), but are often understood to be more accessible and of better quality.

FEED

Feed supply for dairy cows is generally not adequate and is considered to be costly. Stakeholders continually describe the availability and cost of feed as persistent and core issues.[167]

Feed is the key input for animal productivity and its cost represents more than 60% of operating costs in a commercial dairy business.[168] The dairy sector is constrained by insufficient quantity of forage produced on the farm, insufficient inputs for commercial feeds, lack of quality feed formulation, and the absence of feed testing for analysis. Improved feeding can increase productivity by increasing milk yields, lowering the age of first calving and decreasing calving intervals.[169]

Feed is obtained from on-farm feed supply, communal grazing, purchased feed/forage, and manufactured commercial feed. Home-produced hay production is rare in rural areas. Stall feeding is the norm in intensive dairy production, using herbage from hay or crop residues. Pasture-based dairy is rarely practiced in urban or peri-urban areas because of land limitations. Home-produced hay production is rare in rural areas.

Producers therefore purchase feed. There were about 40 feed retailing private businesses in 2010 in the urban and peri-urban milkshed areas.[170] Producers purchase hay and crop residues, and fortified feed. They can also purchase agro-industrial by-products such as bran and oilseed cakes (noug, linseed, cotton, sunflower, etc), typically from mills and breweries.

Table 38 presents the sources of feed for livestock in the four Regions.

Table 38: Feed Utilization by Region, Amhara, Oromiya, SNNP and Tigray[171]

Area	Feed utilization, %					
	Natural pasture	Crop residue	Improved feed	Hay	By-products	Other sources
Ethiopia	58.56	29.37	0.27	6.54	0.98	4.16
Amhara Region	69.62	23.14	0.35	2.24	1.06	3.57
Oromiya Region	66.62	25.12	0.21	2.65	1.15	4.2
SNNP Region	41.05	39.09	0.27	13.94	0.63	4.68
Tigray Region	37.74	42.34	0.31	14.47	1.03	4.08

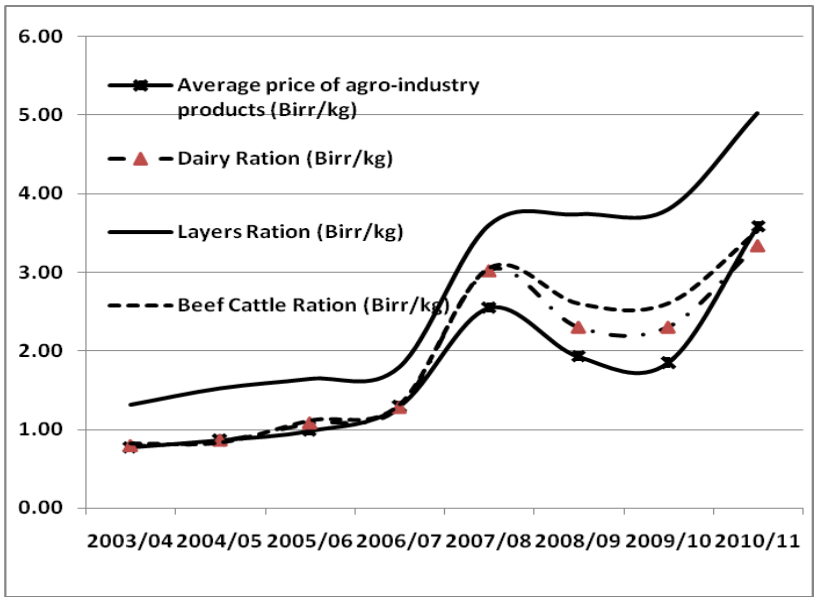
There were 15 commercial livestock feed manufacturers in Ethiopia in 2010. However, ten of these manufacturers produced feed primarily for their own use, such as for feedlots, and only sold to farmers when there was excess production. The five commercial manufacturers supplied feed directly to livestock and poultry farmers, including cooperatives. They manufacturers reported a shortage of ingredients for feed formulation.[172]

[167] LMD research, 2013 and MSP meetings in March 2013.
[168] LMD research, 2013
[169] Land O'Lakes, Inc., 2010
[170] Felleke et al, 2010
[171] Livestock and Livestock Characteristics, 2012
[172] Land O'Lakes, Inc., 2010

The cost of agricultural and industrial by-products has greatly increased in cost in recent years. The industry argues that industrial by-products used for feed are double-taxed through VAT. During the LMD field research, feed processing companies described a double taxation on feed. When they import premixes (vitamins, minerals nd other additives), they pay tax; and when they sell compound feed, they pay taxes again.

According to the Ethiopian Animal Feed Industry Association (EAFIA) the price of feed rations has substantially increased (2004-09). Annex 12 shows the price per quintal for various ratios. Annex 13 shows price trends for various agro-industrial by-products used for feed.

Figure 26: Feed Price Trends[173]



The animal feed sector is not regulated. The government does no feed quality testing or offering guaranteed analysis of mixed commercial feeds. Quality is measured by visual inspection of fodder and forages.

The Ethiopian Animal Feed Industry Association (EAFIA) represents companies involved with the dairy feed sector. EAFIA has 46 members (14 in Addis Ababa, 21 in Oromya, 4 in SNNPR, 3 in Amhara region and 4 in Tigray region)[174] .

In the LMD woredas, producers are typically dependent on crop residues, hay, bran and oilseed cake. They also use concentrated feed to a limited extent. Because of land scarcity, only a small number of producers cultivate their own forage. Milk production can be affected by the seasonal distribution of rainfall and the resulting seasonal production of forage; milk production in the dry season is approximately 45-50% of that in the wet season. Oilcake is sourced from edible oil processing plants. Other feed components, with the exception of vitamin premixes, are available in the localities from crop producers and traditional brewery producers. Feed supplements are transported from the nearest big towns.[175]

Access to land was also identified as a major constraint during LMD interviews of producers in Amhara and Tigray regions. Most have indicated they are not able to cultivate forage due to the scarcity of land. Exceptions are commercial farms operating in East Gojjam, which have been provided by the local administration with 4 -5 hectares of land for dairy production.

The major feed resources in the woredas studied in **Tigray** are crop by-products, which include sesame straw, maize and sorghum stover, tef straw, millet straw, sorghum and maize grains, wheat bran, sesame and cotton seed cakes, wheat bran and sale. Atela, a by-product of traditional drinks, is also used widely. Communal grazing areas are also important sources of feed, especially during the rainy season. Expired infant food products are also used as feed ingredients, especially in Tahtay Adyabo and Asgede Tsimbla woredas.

[173] FAOSTAT, 2011
[174] FAOSTAT, 2011
[175] LMD research, 2013

A mixed feeding system (cut and carry and grazing) is the dominant feeding system for local dairy cattle. During the rainy season farmers will send their animals to the communal grazing areas; during the dry season animals are kept in their home areas and fed crop by-products and grass hay as their base diet. A cut-and-carry system is used for crossbred dairy cattle. Most of the crop by-products are self-produced, while most of the other feed ingredients are purchased from the nearby towns. A few milk producers cultivate improved forages such as alfalfa, desmodium, lucenea and elephant grass.

Feed is also a main concern of dairy producing farms in **Oromiya**.[176] LOL identified 14 feed suppliers (oilseed and flour mills) in Oromiya. They provided noug cake and wheat bran to dairy producers and feedlot operators, mostly in Toke Kutaye woreda. Dairy producers purchased hay produced in the yards of institutions such as schools, hospitals and government offices), and straw in the dry season from farmers. Access to grain feeds like hay and straw was not an issue, but there is limited access to concentrate feed. Some purchased concentrated feed from Adama (420 km from Nekemte) and Addis Ababa (365 km).[177]

In **East Oromiya**, producers self-source most of the feed ingredients, whereas wheat bran, wheat middlings, brewery by-products, noug cake, sesame cake and cotton seed cake are purchased as industrial by-products. Molasses can be an important component of livestock feed,but it is unavailable, as it is used for alcohol production. Modjo and smaller edible oil factories, Alema-Cowdis and Addis Alem Agricultural Development Company, the Ada milk cooperative's feed processing unit and small flour mills are sources of ingredients. Bailed grass hay is transported from up to 150 kms away. The rising prices of feed ingredients and shortage of supply were again mentioned by those interviewed as the major issues in feed provision.[178]

BREEDING AND A/I SERVICES

LoL reported in 2010 that, of the total 27.1 million cows in Ethiopia, more than 99% were indigenous breeds. Less than 1 percent of cattle are cross and exotic breeds, about 0.61 % and 0.11% respectively. The improved breeds were most prevalent in the LMD target regions, Tigray, Amhara, Oromiya and SNNP.[179]

LMD interviews confirmed that the use of improved dairy cattle for high production was well recognized in urban, pre-urban and mixed highland areas. Demand for these improved dairy breeds is substantial and increasing. The value in terms of productivity of improved breeds is well recognized in urban, peri-urban and mixed/highland areas, where market linkage is most substantial. Producers complain that they only have limited access to such animals, or to artificial insemination services.

By virtue of their production and adaptation, Friesian and Jersey have been the most accepted improved breeds. Ethiopia's draft breeding policy used these breeds as base for intensive and semi-intensive farming using high dairy blood or crosses and grade respectively.[180]

The **National Artificial Insemination Center** (NAIC) is the government source of improved dairy breed genetics. According to LoL[181], the center produces 300,000 units of bull semen per year (2010) with a goal of increasing that level to 600,000 by 2015. It has 10 centers around the country that distribute semen and liquid nitrogen to A/I technicians. The 1,700 A/I technicians, who are employees of the regional governments, are located at the woreda level. The government A/I system is heavily subsidized with the A/I service and semen costing 4 ETB. The actual cost of the service and semen in 2010 was 22 ETB.

[176] LMD research
[177] Land O'Lakes, Inc., 2010
[178] LMD research
[179]Land O'Lakes, Inc., 2010
[180] Getachew and Gashaw, 2001
[181] Felleke, 2010

However, the delivery system has not been effective. NAIC estimated that 50% of the bull semen produced never gets to the cow. There are problems with distribution from the NAIC to the regional centers and from the regional centers to the technicians at the woreda level.

Private provision of genetic material, and private provision of A/I service, are recent developments.

There were seven A/I service providers in the country in 2010 - the government service, and six private businesses. In the private sector Addis Livestock Production and Productivity Improvement Services (ALPPIS) was the main supplier of genetic material. ALPPIS was operating in most of the urban and peri-urban milksheds of the country. The other five A/I service providers were are located various smaller cities, providing A/I service directly to the producers on an on-call basis.[182]

A key obstacle has been the absence of a protocol for importing genetic material (bull semen and embryos). However, a protocol was put in place in August 2011. One previous importer (ALPPIS, sourcing from Worldwide Sires - WWS) and two new companies (Holland ALFA Forage and Dairy Plc.) are now importing genetic material[183]

While the value in terms of productivity of improved breeds is well recognized, producers complain that they only have limited access to such animals, or to artificial insemination services. LOL suggests that the small numbers of improved breed in the country indicates of the low level of adoption or access to modern technology like artificial insemination and improved breed bull services.[184] Stakeholders also complain of shortage of replacement stock (heifers).

Table 39 shows the numbers of local and hybrid cattle in several woredas and zones in **Amhara Region**. A/I service is mainly provided by the regional government extension workers, at a price of ETB 4 – 5 per insemination (which can be repeated at no additional cost up to 4 times until the cow is pregnant). Commercial farms tend to depend on their own technicians for A/I.[185]

There are centers at Bahrdar, Dessie, Bebrebirhan and Gonder, and an additional semen production center is planned in Debremarkos town.

Table 39: Amhara: Livestock Population of Study Zones and Woredas

Zone/Woreda	Cattle		
	Local	Hybrid	Total
Awi Zone	101,1898	2,803	101,4701
Dangila	154,606	824	
Ankasha	151,614	364	15,1978
E.Gojam zone			176,7663
Dejene	53,941	3,375	
Enemay	87,918	1,581	89,499

In **Oromiya** dairy producers also consider the A/I services provided by the Woreda Agricultural office and veterinary clinics to be insufficient. Many problems contribute to inefficiency and ineffectiveness: lack of skilled A/I technicians, transport difficulties (road conditions and availability of motorbikes), etc.

As elsewhere, milk production in **West Tigray** is largely dominated by smallholders. The majority of smallholder dairy farmers keep several local dairy cows, mainly of Begait and Arado breeds. Households keep 3 to 20 milking cows. A few smallholder dairy producers have 2-3 crossbred dairy cattle. Average milk yield per day per cow is 8 liters and 5 liters from Begait and Arado breeds, respectively. (Recent studies have shown that Begait cows can deliver up to 12 liters per day when well-managed.) The average lactation length for Begait is 6 months and for Arado 4 months. Crossbred cows on average yield 13 liters of milk per day.

[182] Land O'Lakes, Inc.,2010
[183] LMD conversation with MoA expert, March 2013
[184] Land O'Lakes, Inc., 2010
[185] LMD research

Producers depend on government A/I services for breeding. There are no private A/I providers in the West Tigray study area.

The main source of bull semen is the NAIC. The major types of bull semen for A/I service are Holstein, Friesian and Begait. There is a semen storage and liquid nitrogen processing center at Mekele and semen and liquid nitrogen is distributed to the woredas from this regional center. However, there are problems distributing the supplies; transport is insufficient, and there is an inconsistent supply of liquid nitrogen. There are too few A/I technicians, and they have too little access to transport, to efficiently provide the needed services. Service is thus limited to few kebeles. Moreover, according to LMD field interviews, career positions of A/I technicians are not recognized as important the government structure. Many experienced A/I inseminators switch jobs to more satisfying and lucrative careers.

There is no crossbreed heifer/cattle supplier in the region. A few producers have purchased crossbred dairy cattle from dairy producers in Gondar and Bahirdar; and some of them bought from those who had already purchased from these areas.

ANIMAL HEALTH SERVICES

Livestock diseases and parasites are widespread throughout Ethiopia. They cause direct economic losses through mortality and morbidity, and through diminished reproductive performance.[186]

Although veterinary service is provided by the government extension, the majority of farms in urban and peri-urban areas get the service privately on a regular basis or over the phone on an as-needed basis. However, regular vaccination is mostly obtained from government extension. In some areas community animal health workers support the veterinary service.

The animal health services delivery system is considered to be inadequate, and is widely criticized by livestock owners, especially dairy producers. Once again, low budgets at the woreda limit supplies and inhibit transport. The private sector veterinarian has emerged as a competitive model in urban and peri-urban areas, targeting commercial farms as the client base. [187]

In **Tigray** the woreda veterinary departments provide vaccination services for most common diseases. There is preventive vaccination every year for contagious diseases such as anthrax, black leg and FMD. There is also spraying for external parasite protection on a periodic basis. However, service availability does not meet demand.

Veterinary drugs are supplied by private stores. There is a private veterinary clinic in Mohoni, in operation since 2006, that supplies anti-helminthics and acaricides mainly to small holders, sourcing its supplies from a drug store in Mekele. The store estimated annual revenue of ETB 100,000. The drugs are originally imported from Uruguay, China and India, since suppliers from these countries offer lower prices than those in European countries. The stores mentioned, however, that the quality of the drugs is compromised.

Participants in the **Oromiya MSP Workshop** described an insufficient supply and poor quality of drugs, and felt that the veterinary service providers are not providing the service correctly

In **East Oromiya**, although veterinary service is provided by government extension, the majority of farms get the service from private service Regular vaccinations are, however, mostly obtained from services

[186] Felleke et al, 2010
[187] Land O'Lakes, Inc., 2010

EXTENSION AND TRAINING

Producers and cooperatives describe many extension and training needs, including: fodder production, conservation, feeding programs, husbandry, demonstration of technologies, breed improvement, and market information systems.[188]

Tigray Government extension service – Ofla Woreda
Livestock extension services, are provided by the Woreda level Agricultural Offices at subsidized rates. Lack of skilled manpower and logistics problems (transportation and infrastructure) are mentioned as the major bottlenecks for the efficient delivery of the services. The Woreda Agricultural Office is working to improve delivery to the livestock sector in coordination with other governmental bureaus such as Inland Revenue, Microenterprise Promotion Agency and Dedebit Microfinance. Organization of farmers into farmers groups or cooperatives, development of business plan, training, provision of land, arrangement and provision of loan service, providing certificates of competence and creating market linkage are among the services provided to the farmers in the woreda.
Source: LMD Research

The Master Plan, 2007 assigns the GOE with the responsibility to transfer technical information on commercialization of dairy smallholders, as well as to enhance growth in the rural areas. However government faces budgetary constraints in carrying out extension at the farmer level. Development Agents lack the resources to visit farms.[189] The weakness and lack of availability of extension services was highlighted in all regions visited by LMD teams.

Some international donors, NGOs and Community Based Organizations support or implement development programs that include extension activities. Neither processors nor input supply companies provide technical education services in dairy production (e.g. feeding, genetics and animal health). Only urban and peri-urban commercial dairy producers are likely to engage private consultants on production issues.[190]

SNV describes the challenge of inefficient and unavailable extension services[191]:

- Extension services are largely biased to food and cash crops, leaving livestock extension short of services,
- There is no service provided for large-scale and urban dairy farmers,
- Low supply of improved technological input for distribution,
- A heavily public service and frequent restructuring of extension institutions and policy signals in terms of focus and priority,
- Lack of coordination and harmony of extension services rendered by various -actors, including NGOs, and Regions,
- Technical applications are more on enhancing productivity, ignoring important fields like marketing, agribusiness, communication and facilitation,
- Relatively low dairy producer knowledge about important dairy inputs such as concentrated animal feed, vet medicine**.**

EQUIPMENT AND PACKAGING

The industry would benefit from a greater variety and better quality of packaging. Such packaging could offer longer shelf life, less spoilage on the shelf or after purchase, and greater possibility of catering to consumers' usage patterns and price awareness. Milk is usually sold in ½ liter plastic bags. Cheese is usually sold by the slice, not in packages. Yogurt is sold in plastic

[188] LMD research, 2013
[189] Land O'Lakes, Inc., 2010
[190] IBID
[191] Felleke, 2010

containers. Almost all packaging materials are imported; largely from UAE, Kenya and Israel. High taxes on imported packaging and difficulty in obtaining foreign exchange are majot concerns of the processors.

LOL lists three private importing companies that handle milk processing and cold chain equipment, Packo Ethiopia, Ture Import and Pladot Ethiopia. There are also two small-scale equipment companies providing butter churners, aluminum milk cans, acid testers and lactometers - Selam Vocational Training Center and Nile Star. Their clients include cooperatives, commercial dairy farms, and to a lesser extent smallholder farms. [192]

INFORMATION AND DATA

There is minimal formal information sharing or networking on issues such as market information, technology, research findings, or price. Data generation, consistency and documentation is poor throughout the value chains, especially at the woreda and farm levels. Few producers maintain records.

There is little pedigree data on dairy cattle and other milking animals - data is needed on productivity and reproductive performance to select high performing cows.[193]

FINANCIAL SERVICES

Difficult access to credit for investment and working capital is a persistent concern of actors in the dairy value chain. Smallholders and cooperatives in particular have difficulty in obtaining credit.

Lending institutions claim willingness to lend to farmers and other small actors as long as the loan application requirements are met. Loan application requirements are straightforward and consistent: they require a business plan and collateral of equal value of the loan amount. Although official rules require 1:1 collateral value, bank practices often require a 1:1.5 or even a 1:2 value.[194]

But these are not easy criteria for the potential borrower to meet, even if the credit provider were prepared to lend in the dairy value chain, or to the livestock sector in general. Smallholder farmers often do not have title deeds to land or buildings. Livestock are not routinely accepted as collateral. Few smallholder farmers have enough recognized asset wealth to acquire a loan to purchase an improved dairy cow. And a business plan has to be justified in terms of market access and expected sales.

Private bank loans average 12.5-13%. Micro-finance institutions offer short to medium term loans at around 18%, but rates can vary from 9 to 24%, depending on the lender; many have focused on peer lending as a way to address lack of smallholder collateral. [195]

Whether working through a guaranteed loan program or using peer-lending circles, overcoming the issue of insufficient collateral will directly impact female dairy farmers access to credit. Although there are no policy barriers to women accessing credit, culturally most women do not hold title deeds or own assets. With few personal assets, women are required to ask their husbands, fathers or brothers to sign for their loans; women risk losing that loan to the control of the male family member who signed.

Several Ethiopian financial institutions are relatively more accessible to smallholder farmers. Among others, banks such as Abyssinia, Zemen Bank, Awash Bank, NIB Bank and Dashen Bank have participated in agricultural lending (including livestock) through USAID/DCA guarantee schemes.

[192] Land O'Lakes, Inc., 2010
[193] Felleke, 2010
[194] Land O'Lakes, Inc., 2010
[195] LMD research, 2013

Cooperative Bank of Oromiya – one of only two cooperative-owned banks in Ethiopia, is among the most experienced of the private banks in agricultural lending.[196]

The majority of the microfinance institutions in Ethiopia are focused on rural and agricultural lending. The most prominent ones include; Dedebit Saving and Credit Institution (in Tigray), Oromiya Saving and Credit S.Co (in Oromiya), Amhara Saving and Credit Institution (in Amhara), and Omo Microfinance (with branches throughout SNNPR). Awareness raising and training of credit staff and credit guarantee schemes can potentially encourage more financial institutions to gradually venture into the livestock sector and loosen their collateral requirements.

Ethiopia has 16 private banks and 3 government-owned banks (Commercial Bank of Ethiopia, Development Bank of Ethiopia and Construction and Business Bank).[197] Commercial banks offer a variety of loan products, including overdraft facilities, terms loans and loans for letter of credits. The Development Bank of Ethiopia is granting loans for long term investments, especially to sectors privileged by policy. The Commercial Bank of Ethiopia is the largest bank of all, operating in many parts of the country. Major Private Investments are financed by this bank.

Banks are extremely risk averse, and are often uncomfortable with what they view as high risks in the livestock or smallholder sectors.

For small holders, microfinance institutions are often the most suitable (and perhaps only) source of finance. However, because of size and single borrower limit issues, the amount of loan that can be granted to a single borrower is often too small for further investment at small scale level. In Ethiopia there are about 30 microfinance institutions.

As yet there is little value chain financing within the dairy value chain, but such financing may offer an alternative. An example in the HSL value chain, involving Sheba Leather and Dedebit Microfinance enables Sheba to provide credit to its suppliers. In this arrangement, Where the MFI provides loans to suppliers of Sheba based on an agreement with the processor. Loan repayments are deducted at the time of payments of the delivery of hides/skins.

Most private banks have related insurance companies, including the largest, a state owned insurance company. Insurance companies offer policies to cover physical property, and manpower risks, and a few have livestock insurance policies. But these policies are not flexible, and do not yet respond well to the variety of needs of the dairy sector. Nyala Insurance is reportedly considering a form of livestock insurance akin to crop insurance models.

Many financial institutions operate in the in the **Amhara Region**, but dairy actors in some woredas are unserved. On the other hand, in many locations microfinance institutions are providing loans to actors in the dairy sector, with collateral and group lending or securing repayment of a loan by a group. But actors are often fearful of group lending, as they are afraid of defaults by other group members.

The LMD field team met two producers in Baherdar who were having success in obtaining credit. One was able to access financing from a commercial bank to purchase machinery, although the loan had to be returned as they could not find the equipment in the market. The other producer is close to getting a loan from DBE.

In **SNNPR**, in South Ari, North Ari and West Azernet Berbere woredas, there are bank and micro-finance institutions (e.g. Omo Microfinance), but no loan is known thus far to have been made in the dairy value chain. Access to credit is limited by such factors as collateral requirements, group lending risks, high interest rates, and unfamiliarity of actors with financial institutions and their requirements.

[196] LMD research, 2013
[197] Felleke et al, 2010

Many financial services providers operate in the Oromiya Region. They include the Commercial Bank of Ethiopia, microfinance institutions operating in each woreda), Oromiya Cooperative Bank, Oromiya International Bank, Awash Bank, Construction and Business Bank and others. But many producers explained that they do not want to borrow money from banks - due to lack of familiarity with their operation, need for collateral, suspicions of "conspiracy" in the banks and other reasons.

QUALITY AND STANDARDS

The dairy value chain is not carefully managed to guarantee quality and adherence to standards. The high levels of spoilage are indicative of the risks. SNV lists several quality-related constraints and challenges:[198]

- High disease prevalence of zoonotic livestock disease
- Lack of aggressive livestock disease control
- Lack of effective quality control at the various stages of milk production and transaction
- Lack of efficient liquid milk collection
- Lack of cooling facilities
- Inefficient transportation processing sites
- Under developed milk processing and marketing system
- Lack of enforcement of quality control regulations and standards
- Lack of mandatory standards

To guarantee safety, milk should be promptly chilled to 5°C or below to minimize microbial growth and prevent milk quality deterioration during handling, storing and transporting to processing. Proper quality control should be present at every step in the value chain.

Milk and milk products are easily adulterated with foreign materials, or purposefully adulterated. Common adulteration practices are skimming fat, adding water and flour to milk, and, with respect to butter, adding banana and other fats. However, except at the dairy plants, milk products are not inspected and controlled.

Currently there are no ISO or HACCP certified domestic dairy producers or processors in Ethiopia. One processor, Mama Dairy, is in the process of obtaining HACCP certification.

There are no mandatory Ethiopian standards related specifically to dairy production and processing. Non mandatory Ethiopian standards exist for: unprocessed whole/raw cow milk (ES 3460: 2009), yogurt (ES 3468:2009), cream (ES 3466:2009), butter (determination of moisture - ES ISO 8851-10-1: 2009; non fat solids and fat contents - routine methods) and Pasteurized liquid milk (ES 3462:2009). However, compliance to these standards is rare.

[198] Felleke et al, 2013

MESO AND MACRO LEVEL ACTORS

Many government organizations play important roles in the dairy value chain. Some of the most impactful actors include:

- Ministry of Agriculture
- Regional Bureau of Agriculture
- Office of Urban Agriculture
- Municipalities
- Regional level administrations
- Zonal level administrations
- Woreda and Kebele administrations
- Standards organizations (Ethiopian Standards Agency, Ethiopian Conformity Assessment Enterprise, National Metrology Institute, National Accreditation Office)
- City Administrations Agriculture Office
- City Administration
- Universities, colleges, training institutes
- Woreda Agricultural Offices
- Woreda Cooperative Promotion Offices
- Region Trade and Transport Bureaus
- Micro and Small Enterprise Development Agency
- Ethiopian Agricultural Research Institute
- Animal and Plant Health Regulatory Directorate
- Ethiopian Meat and Dairy Technology Institute
- Agricultural Investment Support Directorate
- Food, Medicine and Health Care Administration and Control Authority

The GOE has developed and is implementing many policies, strategies, regulations, standards and programs that are important to the Dairy Sector.

As of yet, however, there is no livestock or dairy policy.

In the private and non-governmental sector, there are also numerous actors and institutions that have importance for the industry. Main examples include:

- Non-governmental organizations and their programs
- Business and professional associations:
    - Ethiopian Milk Producers and Processors Association (EMPPA)
    - Ethiopian Dairy Cattle Breeders Association
    - Ethiopian Animal Feed Industry Association (EAFIA)
    - Ethiopian Chamber and Sectoral Association
- Professional Associations:
    - Ethiopian Society of Animal Production (ESAP)
    - Ethiopian Veterinary Association (EVA)
    - Ethiopian Assistant Veterinarians Association (EAVA)
    - Ethiopian Agricultural Professionals Association (EAPA)

ENABLING ENVIRONMENT

The dairy VC operates in an enabling environment, which is improving, but is not yet effective in facilitating a competitive value chain that allows actors to seek and expand opportunities.

In its broadest sense, the concept of enabling environment can include the variety of infrastructure, services, policies and regulations, institutions, dialogue mechanisms and many other factors that influence the value chain's development, competitiveness and prospects. Several of these issues have been discussed elsewhere in this document.

More narrowly, it is helpful to understand the value chain in terms of:

- Coordination of the private value chain actors with the public sector to develop a shared evidence-based understanding of the dairy value chain's vision, challenges, opportunities, issues and, and priorities for improvement.
- Strategies, regulations, guidelines, programs and other initiatives that impact the value chain – positively and negatively – and to understand the nature of their impact, and discuss improvement.
- Joint consideration of upcoming initiatives in terms of their impact.
- Available platforms for effective public-private dialogue.
- Ability of the value chain actors to effectively engage in such dialogue. In particular, their ability to collaboratively develop and articulate informed value-chain based perspectives
- Opportunities for public-private partnerships that would benefit the value chain.

Ethiopia's Growth and Transformation Plan (GTP), Agricultural Development Led Industrialization Strategy (ADLI), CAADP compact and its Policy and Investment Framework (PIF) and Agricultural Growth Program (AGP) provide important umbrella framework and structures that provide opportunity and context for public and private stakeholders to improve the dairy value chain.

The previous section of this report indicated that there are a large number of policies, regulations, guidelines and programs that affect the industry. Some of these are criticized by value chain actors as to their limitations in supporting the growth of the dairy sub-sector. Some, such as elements of the investment code, are very positive. There is widespread criticism of the lack of livestock policy.

The industry does have several participatory institutions for collaboration. These include cooperatives, NGOs, research institutions and some private business and professional associations.

These associations offer valued services in many cases. But they have not yet been strong vehicles for achieving value chain vision, consensus or effective engagement with the public sector or other partners. There are few platforms for private-private or public-private dialogue and decision-making, and here are few collaborative platforms for the dairy value chain actors to collaborate for their mutual benefit. There is no representative, industry-wide forum for the dairy industry, although recent MSP initiatives are promising, and there is ongoing toward the creation of a Dairy Board/Council.

GENDER EQUITY AND WOMEN'S PARTICIPATION

The Government of Ethiopia is committed to achieving gender equity, and gives this objective specific attention in its constitution and policy initiatives.

As noted in LMD's Gender Equity Strategy[199], when women own livestock, it constitutes an important component of their asset portfolio, being an asset that they can easily own and that is not bound by most of the legal and property rights issues such as land.

Men and women are involved in livestock sector, but in different ways; and they face different constraints. Women have important roles in managing dairy cattle, poultry and other small ruminants. They are often involved in feeding, watering and milking animals reared close to home, such as in intensive and mixed systems and in processing and marketing of livestock byproducts. Women are most typically primarily in roles that revolve around the home, deferring matters of sales and marketing, other than in nearby locations, to men.

There are very few women member of and in leadership positions in cooperatives, unions and associations.

Despite the promising success stories, there are a number of anecdotal accounts of the failure of women's cooperatives – suggesting a need for management capacity building as well as time and energy saving support services.

Despite these constraints, the field teams identified a number of success stories of women and women's organizations that demonstrate opportunity for LMD to support increased equity and women's leadership and entrepreneurship in the livestock sector. As increasing urbanization changes demand and production practices, particularly in the dairy sector, there will be new opportunities for women to benefit from and participate in all aspects of the value chain. The regional-level field work identifies a number of ways in which the LMD project can support these women. The project and industry can facilitate women's involvement, for example through women-friendly services such as child care service during meeting and trainings, and availability of separate toilet services and water in the meeting places. Technical and business training, access to information, networking, cooperatives development, diversification, and a many other activities will expand women's skills and opportunities.[200]

BARRIERS TO COMPETITIVENESS AND POTENTIAL RESPONSES

This analysis has described and commented on the performance of the dairy value chain and its actors and relationships. It has considered the challenges that constrain the value chain from improving its performance and competitiveness, and has identified a number of opportunities.

The VCA has considered the value chain from the perspective of its overall performance and nationwide patterns. It has also the examined regional situation of the dairy industry, particularly in the AGP woredas in Amhara, Oromiya, SNNPR and Tigray Regions. While there is much variety amongst the regions, and each region demonstrates its own specific patterns, constraints and successes, there is also a great deal of similarity. The regional experience echoes and validates the national level description, problem and opportunity identification that explains the industry's overall performance.

The dairy sector is dramatically underperforming in its key metrics. Its productivity is low. Its levels of consumption and demand are also low, yet there are indications of latent demand. Quality is poorly managed. Horizontal and vertical value chain linkages are inefficient and undeveloped.

Weak skills plague almost all industry actors. Consumption is impeded by the inability of the industry to effectively serve the market at a widely affordable price. There are many inefficiencies as

[199] LMD research, 2013
[200] IBID

products go to market; these add to the cost of delivering milk to the customer, but also point to opportunities to reduce costs, increase volumes and perhaps lower prices.

And yet, despite all of these challenges, many smallholders and businesses are investing, and there are success stories. Cooperatives continue to invest in small processing, even as they attempt do a better job at accessing markets. New processors are appearing, large and small, and they offer the potential of buyer-led value chain improvements and linkages, and perhaps even new ways to extend working capital. There is entrepreneurial activity at all levels of the value chain.

The following table lists several of the main challenges, and suggests possible responses.

Table 40: Challenges and Potential Responses

Challenge	Potential Response
Low consumption of and demand for pasteurized milk products	• Promote consumption of milk and milk products • Better, more diverse and more affordable packaging • Increase the supply of milk to processors • Reduce logistics costs through increased volume and greater supply chain efficiencies • Reduce the fluctuation in demand (seasonality, fasting periods) for milk products, by producing and packing products for longer shelf life. • Increase retail inventories by developing products with longer shelf life
Low returns throughout the value chain	• Improve productivity at the producer level • Improve productivity at all other levels in the value chain. • Increase value addition • Increase availability and reduce costs of feed • Improve management practices to reduce spoilage and waste • Improve technical and management skills in cooperatives • Increase agglomeration and horizontal efficiencies, to achieve economies of scale • Improve collection to enable more milk to reach market
Low milk yield per cow	• Improve feed and other management practices • Improve animal health services • Provide more extensive availability of improved breeds
Low use of crossbred cows	• Increase availability of quality semen and providers of crossbred cows • Encourage private A/I service providers • Encourage private cross breed heifer production • Strengthen public sector A/I and animal health service provision
Weak animal health and extension services	• Increase private provision of veterinary services • Increase extension services provided through lead firms • Increase and strengthen paravets and community animal health services • Provide more services through cooperatives.
Issues related to feed: High cost, Poor quality, availability	• Increase private feed suppliers • Implement demonstration farms to teach and expand the optimum use of feed and improved management systems • Greater feed production through increased contracting with feed manufacturers • Increased bulk purchasing by cooperatives and farmers organizations • Foster high yielding forage crops technology

Challenge	Potential Response
	• Increase purchases of by products by feed manufacturers • Increase access to land for feed production • Increase forage crop production, including enclosed areas in mountainous areas and river basins • Improve the utilization crop by-products with different nutrient and digestibility improvement treatments.
High levels of post-production wastage, spoilage	• Improve milk handling • Improve collection arrangements • Increase numbers of collection centers • Increase numbers of cooling centers and use of refrigerated transport • Improve transport services • Produce long shelf life milk products • Implement quality-based pricing arrangements • Promote peri-urban dairy production to minimize distance to market
Improve milk quality	• Improve quality management processes – controls, testing, handling • Reduce adulteration • Promote consumer demand for assured quality • Apply quality standards
Weak cooperative management	• Improve market linkage • Develop buyer-seller collaboration between cooperatives and processers • Increase access to training in business skills, technical skills, quality management, governance • Increase focus on delivery of services valued by members • Improve access to working and investment capital Encourage employment of experienced, capable management, with clear operating authority and responsibility
Processors operate below capacity	• Increase demand/consumption • Improve supply and delivery of milk • Diversify products; longer shelf-life products • Adhere to and promote quality standards and reputation • Improve market and buyer-seller linkage with producers and collectors • Improve marketing skills • Improve delivery to retailers and customers
Limited access to financial services	• Implement value chain financing • Reduce lending risk by promoting proven (replicable) business models, improving business planning and management, improving ability of financial institutions to evaluate loans • Implement insurance schemes
Improve enabling environment	• Establish effective platforms for public-private dialogue • Establish effective platforms for vertical and horizontal value chain dialogue • Foster shared public-private vision and understanding of value chain competitiveness • Implement evidence based advocacy and lobbying • Increase collaboration between the various value chains in the livestock sector

CONCLUSION

This value chain analysis has deeply discussed the dairy value chain's low productivity, limited market, and poor ability to efficiently reach and serve available markets. The industry in constrained on the one hand by low levels of demand and consumption, and on the other hand by its inefficiencies. **But a clear strategy emerges from these challenges and the opportunities that effective responses will offer.**

The basic structure of the value chain is sound, in that the main actors and relationships are already present. It is, rather, the scale, relationships and capabilities that need substantial improvement. These improvements need to be encouraged by higher demand.

If milk consumption can be increased, by promoting consumption as well as by making processed milk more available to urban areas, value chain actors should be encouraged to invest throughout the value chain – in improving productivity, in improving logistics, in multiplying processing capacity, in working to ensure supply, in capturing economies of scale, in furnishing services and inputs. The dairy value chain would also attract more ready interest from financial services providers as a less risky, higher growth opportunity with many entrepreneurial and well established investors.

A competitive dairy value chain could take the following form:

- ✓ Strong and growing demand for milk and milk products
- ✓ This demand is served by a processing industry that is expanding in urban areas, and that actively works with its supply chain to source increasing quantities of milk.
- ✓ The supply chain carefully manages quality, to minimize product losses and to ensure delivery of milk that meets stringent quality standards.
- ✓ Producers have the profit incentive to invest in their productivity.
- ✓ Cooperatives, assisted often by the downstream processors, effectively assist producers to improve animal management, yields and handling.
- ✓ Cooperatives are well-managed organizations that effectively provide valued services to their members. They increasingly add value, acting as professional business organizations.
- ✓ Processors, cooperatives and private investors find profitable opportunities to provide services and inputs to the value chain that improve logistics, availability of feed, and availability of animal health care and breeding.
- ✓ Quality is cherished, because it delivers higher sales and prices, and reduces waste.
- ✓ Horizontally and vertically within the value chain, actors collaborate to achieve efficiencies and improved value chain competitiveness
- ✓ The public sector is aware of and supportive of the actions to achieve dairy sector competitiveness. The public and private sector actively engage together to develop and implement supportive policy action and services.
- ✓ Feed is available and affordable through a thriving feed industry.
- ✓ Banks and other financial service providers recognize the low risk and the profitability of the businesses in the value chain, and are eager to lend to the sector.

ANNEX 1: THE ORIGINAL 47 MARKETS FROM WHERE DATA WAS COLLECTED FOR THE LMIS

No[201]	Market Name	Price (ETB)/Cattle	Volume (per head)	Last report date
1	Addis Ababa Kararo	11333.33	370	7/6/2012
2	Addis Ababa Kera	11044.54	155	6/29/2012
3	Addis Ababa Shegole	16500	160	7/6/2012
4	Adama	7869.33	3000	7/4/2012
5	ARSI NEGELL	7333.33	450	9/15/2012
6	Babile Oromiya	7866.45	1900	8/27/2012
7	Dera	5883.33	820	9/18/2012
8	Dubluk	5588	585	8/31/2012
9	Gursum	n/a	n/a	n/a
10	Harobeke	5885.71	468	8/5/2012
11	Mega	5843.33	51	5/26/2012
12	Midega	5165	450	3/24/2012
13	Moyale	7025	140	7/5/2012
14	Negele	8150	840	7/21/2012
15	Shashemene	4010.25	900	7/7/2012
16	Mekele	5686	3000	9/4/2012
17	Mohonni	4622	425	9/6/2012
18	Shiraro	4881.25	920	9/15/2012
19	Abaala	6500	55	9/13/2012
20	Ayssaita	3668.33	400	5/29/2012
21	Chifra	3127.5	300	9/16/2012
22	Yallo	3946.33	210	8/28/2012
23	Bahir Dar	5539.16	1350	6/16/2012
24	BATI	3675	135	7/23/2012
25	Dangila	4911.66	615	9/6/2012
26	Debre Birhan	8477.5	2200	9/8/2012
27	DEJEN	4338.16	2000	9/18/2012
28	Gondar	5877.12	200	8/25/2012
29	Kombolcha	7279.2	270	7/7/2012
30	Adilo	2985	850	8/29/2012
31	Hossana	7450	1000	6/30/2012
32	Jemu	3881.25	413	9/6/2012

[201] LMD Research, 2013

No[201]	Market Name	Price (ETB)/Cattle	Volume (per head)	Last report date
33	Jinka	4363.71	860	9/15/2012
34	Tebela	3827.27	1200	8/9/2012
35	Wonago	6600.33	815	9/14/2012
36	Babile	7783.33	1000	7/4/2012
37	Bik	5800	1900	8/7/2012
38	Degabur	5739.2	220	3/8/2012
39	FAFAN	3332	85	5/10/2012
40	Fik	n/a	n/a	n/a
41	Hartasheik	5031.11	163	7/17/2012
42	Jijiga	3999.16	280	8/2/2012
43	Kebri Dehar	2986.66	70	7/9/2012
44	Lefisa	3655	540	9/19/2012
45	MoyaleS	n/a	n/a n/a	n/a
46	Diredawa	9348.57	1200	4/14/2012
47	n/a	n/a	n/a	n/a

ANNEX 2: IMPORTS AND EXPORTS

Table 1: Ethiopian Imports and Exports of Leather Products[202]

Year	Exports, Raw Hides, Skins and Tanned Leather	Imports, Raw Hides, Skins and Tanned Leather	Exports, Leather Products	Imports, Leather Products
2002	$62,044,356	$17,312	$17,484	$2,555,488
2003	$45,356,904	$14,313	$44,091	$3,972,805
2004	$63,516,495	$9,263	$94,290	$4,776,376
2005	$66,778,114	$202,972	$33,681	$6,826,302
2006	$77,693,270	$1,509,119	$12,321	$6,963,931
2007	$93,394,367	$836,452	$248,395	$7,989,290
2008	$90,959,618	$358,763	$94,385	$7,109,135
2009	$42,769,360	$328,069	$498,382	$7,784,566
2010	$67,199,239	$1,218,228	$639,704	$7,541,306
2011	$122,712,875	$388,431	$675,654	$7,330,858

[202] UN Com

ANNEX 3: TANNERY LISTINGS

Table 1: Ethiopian Tanneries[203]

No	Name of Ethiopian Tannery	Location	Region	Origin		Production Capacity Per Day		
				Local	Foreign	Sheep	Goat	Hide
1	Ethiopian Tannery	Modjo	Oromia	√	√	12,000	2,500	1,300
2	ELICO	Addis Ababa	Addis Ababa	√		9,000	6,000	1200
3	Blue Nile Tannery	Sebeta	Oromia	√		3,000	2,000	0
4	Addis Ababa Tannery	Addis Ababa	Addis Ababa	√		1000	0	1000
5	Batu Tannery	Addis Ababa	Addis Ababa	√		2,000	1,000	1000
6	Dire Tannery	Addis Ababa	Addis Ababa	√		6,000	0	1000
7	Wallia Tannery	Addis Ababa	Addis Ababa	√		4,000	3,000	300
8	HAFDE	Sebeta	Oromia			5,500	3,500	500
9	Modjo Tannery	Modjo	Oromia			2,500	3,200	500
10	Mersa Tannery	Mersa	Amhara			5,000	5,000	500
11	Baihir Dar Tannery	Bahir Dar	Amhara			3,000		200
12	Deberbirhan Tannery	Deber Birhan	Amhara			4,500	1,500	
13	Sheba Tannery	Wekro	Tigray			4,000	2,000	600
14	Colba Tannery	Modjo	Oromia			6,000	3,000	1000
15	Bale Tannery	Busheftu	Oromia					200
16	Kombolcha Tannery	Kombolcha	Amhara				5,000	
17	Hora Tannery	Busheftu	Oromia			4,700		
18	Gelan Tannery	Modjo	Oromia			3,000	1,000	
19	Dessie Tannery	Dessie	Amhara			1,250	3,750	
20	Habesha Tannery	Bahir Dar	Amhara			2,500	1,500	
21	Mesaco Global	Modjo	Oromia			2,400	600	
22	Crystal Tannery	Addis Ababa	Addis Ababa			1500	1500	
23	East African Tannery	Modjo	Oromia			6,000	500	
24	China Africa Tannery	Sululta	Oromia			10,000	5000	
25	Friendship Tannery	Modjo	Oromia			3000	2000	500
26	Fraida Tannery	Modjo	Oromia			3000	2000	
27	VASN Tannery	Modjo	Oromia			3000	2000	
	Total Production Capacity					***107,850***	***51,550***	***9,800***

[203] LIDI 2012

ANNEX 4: SLAUGHTERHOUSE REGIONAL DISTRIBUTIONS

Table 1: Distribution of Ethiopian Slaughtering Facilities by Regional States[204]

Description Geographic Area	Bigger Slaughter Houses (including Exporting ones)	Medium Municipal Slaughter House	Rural Slaughter Slabs	Sub Total/Grand Total
Tigray	4	15	6	25
Afar	–	1	–	1
Amhara	2	10	20	32
Oromiya	9	25	40	74
Somali	–	1	1	2
Benishangul Gumuz	–	–	6	6
SNNPR	14	15	–	29
Gambella	N.A	N.A.	N.A	–
Harare	–	2	–	2
Addis Ababa	3	–	–	3
Dire Dawa	1	–	–	1
Sub Total/ Grand Total	33 (5 Exporting)*	69	73	175

* As of March 2013, there exist 9 Exporting Slaughterhouses

[204] Computations derived from MoARD Database, 2004/05

ANNEX 5: ETHIOPIAN INSPECTION CODES

Table 1: Ethiopian Hides and Skins Standards

Standard No	Standard
ES 1201:2008	Grades raw lamb, sheep, kid, goat and pickled sheep skins by appearance and size
ES ES 1196:2008	Appropriate Trim Methods for Raw Hides and Skins
ES1199:2005	Grades of raw cattle hides and calfskins by appearance and mass
ES 1200:2008	Raw Hides and Skins - Method of Storage
ES ISO 2822-1:2008	Raw Cattle Hides and Calfskins Part 1: Description of defects
ES ISO 4683-1:2008	Raw sheepskins Part 1: Description of defects
ES ISO 7482-1:2008	Raw goatskins Part 1: Description of defects

ANNEX 6: ETHIOPIAN SHOE MANUFACTURERS BY CAPACITY - 2012

Table 1: Ethiopian Shoe Manufacturers Rankings, Local and Foreign[205]

S/ No	Company	Location	Region	Origin		Country	Installed Capacity (Pairs per day)
				Local	Foreign		
1	Tikur Abbay	Modjo	Addis Ababa	√	√		4,000
2	Anbesa	Addis Ababa	Addis Ababa	√			3,500
3	Kangaroo	Addis Ababa	Addis Ababa	√			1,200
4	Peacock	Addis Ababa	Addis Ababa	√			2,500
5	Ras Dashen	Addis Ababa	Addis Ababa	√			1,000
6	Ok Jamaica	Addis Ababa	Addis Ababa	√			1,000
7	Wallia	Addis Ababa	Addis Ababa	√			1,000
8	Ramsey	Addis Ababa	Addis Ababa	√			2,000
9	Sheba Shoe	Wekro	Tigray	√			1,000
10	Bostex	Addis Ababa	Addis Ababa	√			200
11	ARA shoe	Akaki	Addis Ababa		√	Germany	2,000
12	Hwanjan Shoe	Bushftu	Oromia		√	China	3,000
13	New Wing Addis	Addis Ababa	Addis Ababa		√	Italy/China	2,000
	Total installed daily capacity						24,400
	Installed capacity by Small & Medium Enterprises						5,000
	Total installed annual capacity						29,400

[205] LIDI, 2012

ANNEX 7: INVESTMENT INCENTIVES IN ETHIOPIA

To encourage private investment and promote the inflow of foreign capital and technology into Ethiopia, the Ethiopian Investment code grants the following incentives to both domestic and foreign investors engaged in areas eligible for such incentives. The following incentives apply as of March 2013:

Customs Import Duty
Hundred Percent (100%) exemption from the payment of import customs duties and other taxes levied on imports is granted to investors to import all investment capital goods such as plant machinery and equipment, construction materials as well as spare parts worth up to 15% of the value of the imported investment of capital goods.

Imported inputs materials, accessories and components to be used for export commodities are exempted from customs duties or other taxes levied on imports.

Exemption from Payment of Export Customs Duties
Products and services destined for export are exempted from the payment of any export duties and taxes.

Income Tax Holidays
Any income derived from an approved new investment in Agriculture, manufacturing and agro-processing industries is exempted from the payment of profit tax for a period ranging from 2-6 years.

Loss Carried Forward
Business enterprises that suffer losses during the tax holiday period can carry forward such losses for half of the income tax exemption period following the expiry of the exemption period.

Guarantees to Investors
Repatriation of capital and profits: Repatriation of capital and profits is allowed to foreign investors.

Guarantee against Expropriation
Ethiopian is a member of the World Bank-affiliated Multilateral Investment Guarantee Agency (MIGA) which issues guarantees against non- commercial risks to enterprises that invest in signatory courtiers.

ANNEX 8: MAJOR GARMENT COMPANIES

Table 1: Ethiopian Gloving Companies and their Capacities[206]

S/No	Company	Location	Region	Origin		Country	Installed Capacity (Pairs per day)
				Local	Foreign		
1	Otto Keseller Gloves	Gonder	Amhara		√	Germany	2,000
2	Pittards Global Sourcing	Addis Ababa	Addis Ababa		√	UK	3,500
3	Davinmplx Glove Factory	Bahir Dar	Amhara	√	√	Ethiopia/ Sweden	2,000
	Total installed daily capacity						8,500

Table 2: Major Ethiopian Producers of Leather Garments[207]

Company	Installed Capacity Pieces/day	Current Output Pieces/day
Modern Zege Leather	50	17
Ethio-Sung Bin Leather Garment Factory	120	50
Genuine Leather Craft	60	40
ELICO- Leather Articles Unit	150	60
Kinaff Leather Garment	40	10
Joy Leather Garment	60	25
Total	480	202

[206] MOI, 2012
[207] MOI, 2012

ANNEX 9: COSTS AND PROFITABLITY

HSL VALUE CHAIN COSTS

Input costs include expenditures on salt for hide/skin preservation, labor for salting and trimming operations, and medical supplies for the treatment of external parasites. **Operational costs** include transportation, labor for salting, and re-salting.

Thus, Total Average Costs can be broken down as follows:

Input costs

- 1 skin consumes 0.7kg of salt for preservation which costs 4 EBT for salt and 2 EBT for person salting.
- 1 hide consumes 12kg of salt for preservation which costs 48 EBT and 3 EBT for the person salting it.

Operational costs:

- Average labor cost for salting one skin is 2 EBT and 3 EBT for one hide.
- Flaying hide costs 40 EBT, and the cost for flaying one skin is 25 EBT
- Average transportation cost: 2 EBT for skin and 5 EBT for cattle hide.

PROFITABILITY ANALYSIS AND SIMPLIFIED GROSS MARGINS (SGM)

Table 1: Operational Profit and SGM for Cattle Hide Value Chain Actors

Price in ETB/unit	Producers at		Collectors at		Traders at
Note: Sm = small; Lgr = Larger	Sm Towns to Collectors in Sm Towns	Lgr City to Collectors at Lgr City	Sm Towns to Trader at Lgr City	Lgr City to Traders in Lgr City	Lgr City to Tanners
Sales price (A)	40	120	185	18	230
Input cost (B)	9	9	89	169	185
Net value added (A-B)	31	111	94	16	45
Operational cost (C)	15	45	20	4	6
Total cost (B+C)	24	54	109	173	191
Operational profit (D)= A-(B+C)	16	66	76	12	39
SGM (D/A*100)	40%	55%	41%	6.4%	16%

Table 2: Operational Profit and SGM for Sheepskin Value Chain Actors

Price in ETB/unit	Producers at		Collectors at		Traders at
Note: Sm = small; Lgr = Larger	Sm Towns to Collectors in Sm Towns	Lgr City to Collectors at Lgr City	Sm Towns to Trader at Lgr City	Lgr City to Traders in Lgr City	Lgr City to Tanners
Sales price (A)	25	55	65	65	85
Input cost (B)	3	2	33	60	69
Net value added (A-B)	22	53	32	5	16
Operational cost (C)	3	30	7	2	4
Direct cost (B+C)	6	32	40	62	73
Operational profit (D)= A-(B+C)	19	33	25	3	13
SGM (D/A*100)	76%	60%	38%	4.6%	15%

Table 3: Operational Profit and SGM for Goatskin Value Chain Actors

Price in ETB/unit	Producers at		Collectors at		Traders at
Note: Sm = small; Lgr = Larger	Sm Towns to Collectors in Sm Towns	Lgr City to Collectors at Lgr City	Sm Towns to Trader at Lgr City	Lgr City to Traders in Lgr City	Lgr City to Tanners
Sales price (A)	10	35	40	40	45
Input cost (B)	3	2	17	37	38
Net value added (A-B)	7	33	23	3	7
Operational cost (C)	3	3	6	2	4
Direct cost ((B+C)	6	5	23	39	42
Operational profit (D)= A-(B+C)	4	30	17	1	3
SGM (D/A*100)	40%	85%	42%	2.5%	6.6%

The majority of the hide and skin is preserved at town by collectors. So the cost of salt for preservation is added to the collectors at towns. The cost of the collectors at village remains to transportation, labor and purchasing costs. Village producers include the cost for veterinary services (mostly spray for external parasites). Whereas producer cost at towns includes cost for flaying (removal of hide and skin from the body of the animals) collectors. Operational cost is lower in village than town due to the availability of cheap labor.

TANNING COSTS

Table 4: Total Chemical Cost for All Operations in Tanning Process[208]

	Hide	Skin
Costs of labor & chemicals:	50 ETB/pieces	30 ETB/pieces

Table 5: Average Price per Leather Product After Processing and Finishing[209]

Type of product	Local market ETB	Export market ETB
Lining/square feet	16	36-50
Garment/square feet	75-100	200-300
Shoe upper/square feet	75-100	210-310
Glove/pieces	-	160-210

[208] Debreberhan Tannery Manager
[209] Debreberhan Tannery Manager

ANNEX 10: LEATHER PRODUCTION PROCESS

Tanning transforms the biomaterial of raw hides and skins into the non-biological material of leather. Tanning equals a series of processes, commonly divided into four distinct stages: Pickling, Tanning, Re-Tanning and Finishing. The products corresponding to these stages include: pickled pelt, wet-blue leather, crust leather and finished leather.

The technological production process to produce good quality of leather involves a number of steps and it ranges from raw material handling up to finished leather grading and packing. This general technological process to produce finished leather is briefly described below.

TANNERIES - SKIN STORAGE AND BEAM HOUSE OPERATIONS

Sorting
On receipt, skins are sorted into grades by size, weight and/or quality

Trimming
Trimming typically occurs during the sorting process. Workers trim off the edges (legs, tails, face, etc.) of the raw skins.

Storing
Skins are generally stored upon receipt by the tannery on pallets in ventilated, air conditioned and/or cooled areas, depending on the method of curing chosen. From storage the skins are taken to the beam house.

Soaking
Soaking allows skins to re-absorb any water which may have been lost after flaying so that the skins may be cleaned (removal of dung, blood, dirt etc.) Depending on the type of raw materials used, soaking additives can be used such as surfactants, enzyme preparations and bactericides.

Unhairing & Liming of Bovine Hides
The function of liming and unhairing is to remove hair and epidermis and to open up the fiber structure. Enzymatic preparations are sometimes added to improve the performance of the process. The process of liming and unhairing can be carried out in process vessels such as drums, paddles or pits.

Fleshing
Fleshing mechanically scrapes off excess organic materials from a hide or skin (connective tissue, fat, etc.)

Splitting
This phase mechanically splits the thickness of hides and skins horizontally into a grain layer and, if the hide is thick enough, a flesh layer. Splitting is carried out on splitting machines, fitted with a band knife. The splitting of materials can occur in either the limed or tanned condition.

De-Liming
The de-liming process is to remove residual lime from pelts and take the pelts to an optimum condition for bating. Generally, de-liming is performed in a processing vessel such as drum or paddle.

Bating
Bating is a partial degradation of non-collagen protein achieved by enzymes to improve grain of hide and the subsequent run and stretch of leather. In this process the rest of the unwanted hair roots and scud can be removed.

Degreasing
Excess grease must be eliminated from fatty hide or skin to prevent the formation of insoluble chrome-soaps or prevent the formation of fat spues at a later stage.

Pickling
Pickling reduces the pH of the pelt prior to the addition of mineral or organic tannages (e.g. chrome tanning and vegetable tanning). The choice of the exact pickling parameters depends on the subsequent tanning step.

Tanning
The collagen fiber is cross-linked and stabilized by tanning agents such that the skin is no longer susceptible to putrefaction or rotting. Most common are agents of chromium or certain vegetables.

Draining, Samming and Setting
The new leathers are hence drained, rinsed, and either horsed up to age or loaded into boxes, They are subsequently sammed to reduce moisture content prior to further mechanical actions such as splitting or shaving.

Shaving
Shaving is performed when splitting is not possible or where minor adjustments to thickness are required. The shaving process achieves an even thickness throughout the skin, doable on tanned or crusted leather.

Post-tanning Operations
Such operations involve a final wash to neutralize contaminates, followed by re-tanning, dyeing, and fat-liquoring. This is mostly performed through a single processing vessel.

Drying
The objective is to dry the leather while optimizing for area yield and quality. There is a wide range of drying techniques and some may be used in combination. Each technique has a specific influence on the characteristics of the leather.

Finishing
The finishing phase is meant to enhance the leather's appearance, and to provide any quality characteristics expected of it with respect to color, gloss, handle, flex, adhesion, rub fastness. Quality assurance for physical standards (e.g. extensibility, durability, water resistance etc) is done as well. Generally, finishing operations can be sub-divided into separate mechanical processes.

ANNEX 11: ETHIOPIAN EXPORT PROCEDURES AND CURRENCY REGULATIONS

Exporting leather legally requires multiple steps. First, an exporter must obtain a license through a relatively simple process. The export process itself, however, becomes more lengthy and complex.

The exporter must hire a transit company to handle the bureaucratic customs clearance process. To meet the required currency regulations, the exporter must then obtain a letter of credit (LC), cash against document (CAD), or deposit an advance payment in a bank. Finally, the exporter must obtain a health certificate from the Ministry of Agriculture.

The CAD system pose additional barriers since it requires a higher level of working capital than most exporters have. These working capital requirements, much like the policy supporting meat exports, result directly from the GOE's need for hard currency.

ANNEX 12: IMPACT OF ETHIOPIAN LIVESTOCK DISEASES

When foreign markets ban the import of Ethiopian livestock the price of such livestock drops significantly.[210] Livestock import bans were imposed on the Horn of Africa in 1998 and 2000, including Ethiopia. Saudi Arabia imposed a 1998 import ban, yet they relaxed it in 1999. In contrast, Bahrain, Oman, Qatar, Saudi Arabia, UAE and Yemen imposed a ban in late 2000, which lasted far longer. Following an outbreak of Rift Valley Fever in Kenya, the United Arab Emirates imposed an import ban on Ethiopia that lasted until 2007[211]; the ban by Saudi Arabia lasted 10 years until September 2009.[212]

Ethiopia has a variety of livestock diseases that affect international trade. These include Rift Valley Fever (RVF), foot and mouth disease (FMD), contagious bovine pleuropneumonia (CBPP), contagious caprine pleuropneumonia (CCPP), pest des petits ruminants (PPR), brucellosis in ruminants, and lumpy skin disease (LSD)[213].

Rift Valley Fever is a Zonosis and vector-borne disease endemic to the Horn of Africa. The disease prompted three separate trade bans from Saudi Arabia and other Gulf states over the past 12 years. This disease compelled Saudi Arabia to impose a ban from February 1998 to April 1999. In 2000, A Rift Valley Fever (RVF) outbreak occurred for the first time outside of Africa in Saudi Arabia and Yemen. This resulted in the two states, alongside four others (Bahrain, Oman, Qatar and the UAE) to ban imports from the Horn. The 2000 ban lasted for five years; long after the risk had subsided. In 2007, an RVF outbreak in Kenya, Tanzania and Somalia resulted in yet another trade ban and drastic economic loss.

Following the 1998 ban, for instance, exports from the port of Berbera in Somaliland, a major export point for Ethiopian livestock from the Somali Region, dropped from nearly three million head in 1997 to just over one million in 1998. This resulted in an export loss of approximately USD 100 million. Livestock prices in Ethiopia and Somalia also fell by approximately 30 percent[214].

Foot and Mouth Disease (FMD). Following a January 2006 outbreak of FMD in Egypt, the country banned all imports of live animals, carcasses and bone-in meat cuts. Egyptian authorities attributed the outbreak to Ethiopia, yet banned imports from all countries.

Traders have found ways of circumventing trade bans. For instance, exporting livestock to Yemen for re-export to Saudi Arabia[215], but such measures do not address the root problem of SPS concerns from Gulf States. Indeed, the frequency and length of the bans suggests that Saudi Arabia and other Gulf States lack confidence in the countries of the Horn of Africa to seriously implement disease surveillance and regulatory systems.

Other Diseases. Other diseases, although not associated with trade bans, concern importing states and can cause animal rejection. Some of these include:

CBPP: High average prevalence at 17.3 percent of cattle. Outbreaks sometime occur, such as in 1998 which saw 187 outbreaks and 1,071 deaths.

CCPP: High prevalence in goats in Borana, Somali and the Omo Valley.

[210] Hailemariam et al., 2009
[211] IGAD, 2010.
[212] USAID, 2010.
[213] TAES SPS-LMM, 2007 and Rich, Karl M., 2008
[214] FAO and Hailemariam et al.(2009).
[215] IRIN, 2007.

PPR: This disease affects small ruminants particularly in Afar, Somali, North Shoa and Metema.

Brucellosis in ruminants: higher in pastoral areas (2.6 percent of sheep and goats) than in highland areas (1.5 percent of sheep and 1.3 percent of goats). Brucellosis represents a major concern to Saudi Arabia, which requires 100 percent testing for the disease.

The Horn of Africa is not the only region that has faced livestock export bans. India, Pakistan, Brazil and even European exporters have faced temporary trade bans due to various disease outbreaks. In this respect, exporters such as Australia and New Zealand have significant advantages due to their island status, which enables them to control diseases more effectively.[216]

[216] USAID, 2010.

ANNEX 13: OVERALL ETHIOPIAN GOVERNMENT LIVESTOCK POLICY

The Ethiopian government's rural development policy[217] and strategy recognizes livestock as a major contributor to agricultural growth, immediately following staple food crops. The national and sector policies and strategies contained in the Rural Development Policy and Strategies (RDPS) / Plan for Accelerated and Sustained Development to End Poverty (PASDEP) attempt to ensure food security, reduce poverty and eliminate hunger both in the pastoral and non-pastoral areas. Within the framework of RDPS, recommended livestock species in the drought prone zones include poultry production, beekeeping, and dairy production. Small ruminant production (sheep and goats) receives special attention in areas characterized by high population, fragmented land holding, land degradation and arid climate. In adequately moist areas, livestock policies emphasize the development of animal feed resources; while in semi-nomadic areas, the government encourages the introduction of beekeeping technology via the extension service. In drought prone zones, the GOE promotes strategically protecting natural resources and developing animal resources to ensure food security.

Table 1 below highlights existing GOE livestock policy issues and policy statements, noted by the core commodity areas of the livestock and pastoral sub-sectors critical in attaining the national food security policies and strategies[218].

Table 1: Selected Livestock Policy Issues and Policy Statement[219]

Policy Issues	Policy Statement
Development with indigenous and exotic technology	Enhance livestock centered specialization development that includes the importation of exotic breeds
Pastoral extension package	Develop livestock technological extension package for pastoral areas
Small ruminants development	Expand and increase small ruminants in highly populated, fragmented landholding, degraded and arid climate

According to PASDEP, livestock owners will achieve an accelerated increase in meat production and milk productivity primarily through greater animal feed production, improved animal health care and quicker genetic intervention. The PASDEP genetic intervention policy-program includes different breed improvement interventions. Genetic improvement of large and small ruminants and poultry focus mainly on improving indigenous breeds in their local habitat using selective breeding and cross breeding with known exotic breeds to improve productivity and production of milk, meat and eggs. The GOE considers livestock with short gestation periods like sheep and goats, as well as poultry and beekeeping, important contributors for food security, supported with access to credit and markets.

[217] Includes Dairy, meat, Poultry, Apiculture and Fish

[218] Ethiopian Study, African Comprehensive Agriculture Development Program, 2009

[219] African Comprehensive Agriculture Development Program, Ethiopian Study, 2009

ANNEX 14: GROWTH PROJECTIONS FOR ETHIOPIAN MILK CONSUMPTION

Assumptions **2010 Population of 85.2 million**[220]

Urban Population of 14.4 million (17%)

2010 Consumption of 17 kg per person

Therefore, Annual Consumption of Milk in Urban Areas: 244.8 million L

2020 Consumption Estimate Scenario	Per capita consumption* (liters/capita)	National consumption* (liters)	Within peri-urban & urban areas* (liters)	Additional volume required in urban area* (liters)	% increase*
High	27	3.2 billion	611 million	364 million	148%
Medium	17		375 million	128 million	52%
Low	17		337 million	91 million	37%

** Data are estimates*

[220] Land O' Lakes, Inc., 2010

ANNEX 15: ESTIMATED PER CAPITA MILK CONSUMPTION

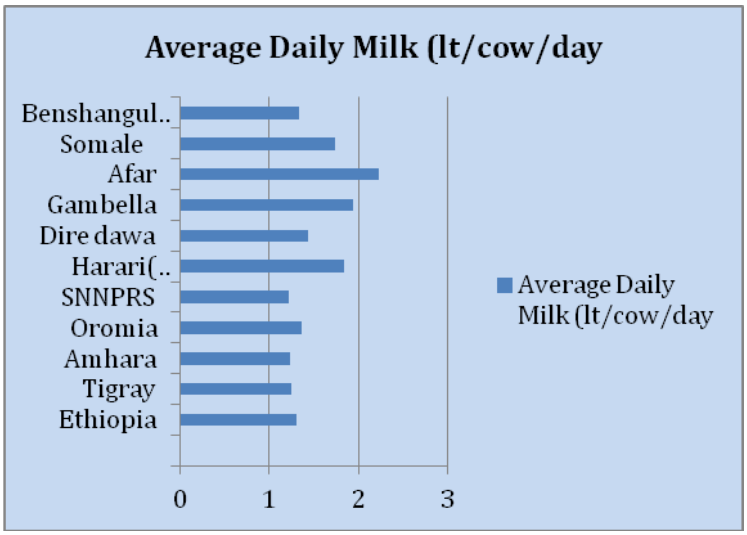
Table: Estimated per Capita Milk Consumption in Addis Ababa, Dire Dawa, Hawassa and Bahir Dar[221]

	Addis Ababa	Dire Dawa	Hawassa	Bahir Dar	Total
Total HHs covered by the survey	266	50	84	100	500
Average family size	4	4	4	4	4
Total population	1,037	219	310	436	2,002
Annual milk consumption (liter)					
Unpasteurized	28,284	1,173	1,525	1,312	32,294
Pasteurized milk	25,488	-	-		25,488
Total	**53,772**	**1,173**	**1,525**	**1,312**	**57,782**
Per capita milk consumption (liter)	**51.85**	**5.36**	**4.92**	**3.01**	**28.86**

[221] LMD research, 2013

ANNEX 16: AVERAGE DAILY PER COW MILK PRODUCTION

Average Daily Milk Production per Cow[222]



[222] From Land O'Lakes, Inc., 2010

ANNEX 17: MILK TRANSACTION PRICES IN THE GREATER ADDIS MILKSHED

[223]

Region	Individual Family Producer of Raw milk (location)	Primary Coop (Raw milk)	Union (Raw milk)	Processor (Pasteurized milk)	Supermarket in Addis Ababa (Pasteurized milk)
North Shewa Zone, Amhara region)	Basona Werana (Angoloal and Tera kebele milk producers)	Angolela Primary Dairy Coop.	Hiwot Dairy Union	Lama Dairy(Shola Milk) Pasteurized milk	
	7.55 (USD 0.41)	7.65 (USD 0.41)	7.75 (USD 0.42)	14 (USD 0.76)	18.00-20.00 (USD 0.97-1.08)
North Shewa zone, (Amhara Region)	Basona Werana (Kore marefya)	Kabi- Gezaw Primary Dairy Coop.	Hiwot Dairy Union	Ruth and Hirut	Addis Ababa
Price(ETB/lt)	7.3 (USD 0.40)	7.4 (USD 0.40)	7.5 (USD 0.40)	Yogurt: 32.00/kg (USD $1.73/Kg) Table Butter: 130.00/kg (USD $7.04/Kg) Provolone: 120.00/kg (USD $6.50/Kg) Mozzarella: 100.00/kg (USD $5.41/Kg) Ayib: 30.00/kg (USD $1.62/Kg) Cream: 80.00/Lt (USD $4.33/Lt)	Yogurt: 48.00/kg (USD $2.60/Kg) Table Butter: 150.00/kg (USD $8.12/Kg) Provolone: 150.00/kg (USD $8.12/Kg) Mozzarella: 130/kg (USD $7.04/Kg) Ayib: 50.00/kg (USD $2.71/Kg) Cream: 110.00/Lt (USD $5.95/Lt)
East Showa, Oromiya Region	Ada	Ada Dairy Coop		Ada processing	
Price(ETB/lt)	8 (USD $0.43)	8.5 (USD $0.46)	N/A	14 (USD $0.76)	16.00-18.00 (USD $0.87-$0.97)
North Showa , Oromiya Region	Selale	Many cooperatives	SDCU	Family Milk	
Price(ETB/lt)	7.5 (USD $0.41)	8 (USD $0.43)	10 (USD $0.54)	14.5 (USD $0.78)	18.00-20.00 (USD $0.97-$1.08)

[223] LMD research, 2013

ANNEX 18: PRICE DATA - MILK AND MILK PRODUCTS

Table 1: Retail prices of milk products produced by Ruth and Hirut Dairy in Chacha, Amhara Region[224]

Types of products	Unit	Volume	Price (ETB)
Cream	Liter	1	80
Yogurt	Liter	250	8
Table butter	Gram	200	30
Cooking butter	Kg	1	130
Cosmetic butter	Gram	200	26
Provolone	Kg	1	120
Smoked cheese	Kg	1	130
Gouda	Kg	1	130
Feta	Kg	1	130
Ricotta	Kg	1	80
Cottage cheese (Ayib)	Kg	1	50
Mozzarella	Kg	1	90

Table 2: Profit and Dividend distributed by Hiwot Dairy Union, Amhara Region[225]

Year	Unit	Total Union Profit	Distributed for Dividend	Maximum	Average	Minimum
2007-8	ETB	49,431.79	32,130.65	13,147.35	5,265	839.38
2008-9	ETB	16,488.75	8229.9	4245.41	270.76	167.48
2009-10	ETB	7,459.95	4848.77	2938.29	542.70	98.67
2010-11	ETB	29,300				
2012-13	ETB	Not reported				

Table 3: Safe Way Supermarket, Addis Ababa[226]

Addis Ababa Price Survey List of Products	Type	Supermarket	Price
Pasteurized Milk	Family	Safe Way	17 ETB
	Mama	Safe Way	17 ETB
	Shola	Safe Way	17 ETB
	Tamirat	Safe Way	17 ETB
	Crown	Safe Way	17 ETB
UHT Milk	President	Safe Way	34.95 ETB
	Milk Cow	Safe Way	36 ETB
	Soy	Safe Way	71 ETB
Cream	-	Safe Way	65 ETB
Butter	Mama	Safe Way	36 ETB
	Shola	Safe Way	36 ETB
Cheese	LiteDammer	Safe Way	35.16 ETB
	Picobello Fino	Safe Way	60.30 ETB
	Old Amsterdam	Safe Way	652.25 ETB
	Ruscello Chilli	Safe Way	130.43 ETB

[224] Source: Ruth and Hirut Dairy
[225] Source: Hiwot Dairy Unioni
[226] LMD research, 2013

Yogurt	Cheese World	Safe Way	11 ETB
	Lema	Safe Way	6.50 ETB
	Genesis	Safe Way	13.20 ETB
Butter	Berta Table Butter	Safe Way	201.50 ETB

Table 4: Lomyad Supermarket, Addis Ababa[227]

Products	Type/Name	Supermarket	Price
Pasteurized Milk	Family	Lomyad	18 ETB
	Mama	Lomyad	19 ETB
	Shola	Lomyad	19 ETB
	Tamirat	Lomyad	18 ETB
	Crown	Lomyad	18 ETB
Butter	Family	Lomyad	38 ETB
	Lame	Lomyad	38 ETB
Cheese	Domestic	Lomyad	16 ETB
	Imported	Lomyad	17.30 ETB
	Imported	Lomyad	50 ETB
Yogurt	Holland	Lomyad	29 ETB
	Genesis	Lomyad	30 ETB
Ayib	-	Lomyad	46 ETB

Table 5: Sun City Supermarket, Bole, Addis Ababa[228]

Products	Type	Supermarket	Price
Pasteurized Milk	Crown	Sun City	19.20 ETB
	Tamirat	Sun City	19.20 ETB
	Family	Sun City	19.20 ETB
	Ada'a	Sun City	19.20 ETB
		Sun City	19.20 ETB
Butter	Family	Sun City	40 ETB
	Abaynesh	Sun City	40 ETB
Cheese	Domestic	Sun City	15.30 ETB
	Imported	Sun City	77 ETB
	Imported	Sun City	78 ETB
Yogurt	Holland	Sun City	32.50 ETB
Ayib	-	Sun City	56 ETB
Cream		Sun City	125 ETB
Raw Milk		CMC, Torhayloch	14.30 and 14 ETB per lt.

[227] IBID
[228] LMD research, 2013

ANNEX 19: BRIEF DESCRIPTIONS OF SEVERAL DAIRY COOPERATIVES

The **Adaa Milk Marketing Cooperative** in **eastern Oromiya** has a main objective to collect milk from its members and other farms to sell whole milk to the commercial dairy processors and to urban consumers in Debrezeit and Addis Ababa. The cooperative established a milk processing plant in 2008.

Yetnora Cooperative, in Dejene in **Eastern Amhara**, a milk production and marketing cooperative, could be considered a success story. (Yetnora received significant support from the government during the previous regime, and was considered to be a demonstration cooperative for the entire country.) Established in 1993 with 21 male members, it has now grown to accommodate 162 members, 19 of which are female. Its collection rises as high as 700 liters a day in the June – September period, and drops to 300 in January – May. It is well equipped and keeps a good record of its sales. At present it is making 50 cents on each liter of milk collected from its members, after collecting it at 7 ETB per liter. Yetnora employs 6 hired workers with salaries in the range of ETB 300–600 per month. The cooperative believes selling processed and value added milk is more profitable than raw milk sales

Abamana Cooperative is located in Debre Markos. It was established in 1998 with 26 members, 12 of which female. It has a milk collection and marketing center as well as a retail shop on the way to Baher Dar. The cooperative on average collects 80–100 liters of milk per day, which is sold as a variety of milk products: skimmed milk, butter and boiled milk. Boiled milk receives 3 ETB more than raw milk.

Several milk cooperatives are involved in the collection and marketing of milk in around Baher Dar; the regional capital. Some were established with the help of donors and church organizations, and others through member initiatives afterwards supported by the government. They collect milk from members and non-members, sometimes using differential pricing, and sell through their own shops. One cooperative in particular is engaged in providing feed to its members on credit basis, paid on monthly basis either in kind (milk) or in cash.

Two dairy cooperatives in the **Bure and Dera areas** were established in 2006. The Bure cooperative has declined from 60 to 26 members. The Dera cooperative is only collecting 30 liters of milk per day, and is not making use of their butter churner or lactometer.

Milk is collected by two primary cooperatives in **Basona Worana** woreda, but there are no milk collectors in **Tarma Ber or Kewet**. There are three primary dairy cooperatives in Basona worana, although one (Kewet) is not active. The other two, Angolola, Kabi Gezaw, both collect milk and supply feed to their members. They also have cream separators and churners, but these have fallen into disuse because of maintenance and marketing problems.

The major constraint of the primary dairy cooperatives in **North Shewa** in **Amhara Region** is that few milk collectors operate in the area, and so milk price are low. They hope to access transport to take their product to the higher priced urban markets, develop market linkages with processers, or support the union to build its own processing plant. The cooperatives lack equipment to measure quality. They depend on their members and public transportation to transport milk. They have training needs on cooperative management skills, and their members need training on proper management of their cows and milk.

ANNEX 20: LIST OF PRIMARY DAIRY COOPERATIVES AND UNIONS

Table 1: Primary Dairy Cooperatives[229]

#	Cooperative Name
Bahir Dar Site	
1	Tis Abay
2	Alember
3	Adis Alem
4	Adis Alem
5	M & Zemana
6	Yalemgenet
7	Tadele Dibabo
8	Edget
9	Meseret
10	Bachima
11	Dhansit
Fiche Site	
12	Hawene
13	Lalistu
14	Abdi Loonii
15	Dubar
16	Goro Haro
17	Chefa Kersa
18	Echo Kidus
19	Bikiltu
20	Chancho
21	Edoro
22	Edigat
23	Kasim
24	Torban Ashe
25	Kare Kura
26	Anaso Sago
27	Jate
28	Sale
29	Abdi Waka
30	Ano Kare
31	Dega Borso
32	Muka Turi

#	Cooperative Name
Assela	
33	Gora Fana
34	Limu Dima
35	Limu Bubisa
36	Abdi Waka
37	Asela
38	Waji Bilalo
39	Watera
40	Dosha
41	Dhankaka
42	Lemu Mikael
43	Lemu Araya
44	Bokoji Akababi
45	Gonde Makaro
46	Huruta
47	Robe
48	Meraro
49	Meditu Danisa
50	Goba Lencho
Addis Ababa	
51	Gelgel
52	Birhu Tesfa
53	Biiftu Bekaka
54	Telila Berga
55	Kusaye
56	Abdi Gudina
57	Jitu
58	Dandi Gudina
59	Hibirat
60	Meta Abo
61	Sebeta Enat

[229] Land O' Lakes, Inc., 2010

#	Cooperative Name
Debre Zeit	
62	Lume
63	Melka Jitu
64	Gogecha
65	Hortu Gudina
Debre Markos	
66	Yetnora
67	Gion
68	Lemlem
69	Enbie
70	Bogena
71	Zeba
72	Wonka
73	Findika
74	Yewula
75	Amanuel
76	Embule
77	Wojel
78	Adare Mandida
79	Sokoru
80	Kayit
81	Angolola
82	Keble 02
83	Kebele 06
84	Jisa
85	Aba Moti
86	Kokeb
87	Boran
88	Chafana
89	Chaki
90	Adare Mendida
91	Medida Moye
92	Kogne
93	Abaya
94	Shano
95	Addis Birhan
96	Gebez Amba
97	Genet
98	Biruh Tesfa
99	Edget Behbret
100	Fito

#	Cooperative Name
Mekele and Humera	
101	Kidus Yohanis
102	Miwttae Warki
103	Selam
104	Adimesekel
105	Ferawn
106	Zelalem
107	Adigudem
108	Hiwet
109	Azemera
110	Shewit
111	Frekals
112	Tiebe
112	Mekele and around

Table 2: Unions/Associations

#	Name	Project site	No. of Coops
1	Selale Dairy Union	Fitche	19
2	Assela Dairy Union	Asela	7
3	Hiwot Dairy Union	Debre Berhan	5
4	Biftu Berga Dairy Union	Addis	13
5	Zemen Dairy Union	Mekele	12
6	Humera Dairy Union	Humera	5
		TOTAL	61

ANNEX 21: MILK COOPERATIVES IN AMHARA REGION

Table 1: Milk cooperatives in Amhara Region (19 other Woredas have no milk coops)[230]

Zone	Woreda	Total No. of Cooperatives	Milk cooperatives
North Gondar	Dembia	26	1
	Chilga	23	1
	Lay Armahoho	27	2
	Gondar Zuria	21	1
East Gojam	Hulet Eju Enessie	49	1
	Enemay	33	1
	Dejen	12	2
	Awabel	39	3
	Gozamin	38	3
	Machakel	47	4
North Shewa	Debre Berhan	114	4
	Baso and Woran	39	2
	Angolela Tera	18	6
West Gojam	Yimana Densa	49	2
	Bahir Dar Zuria	52	2
	Mecha	74	3
	Debub Achefer	31	1
	Bure	62	1
	Jabi Tehnan	44	2
South Gondar	Farta	76	2
	Dera	31	1
	Libo Kemkem	73	2
	Fogera	58	2

[230] Regional Cooperative Bureau

ANNEX 22: MAJOR PRIVATE DAIRY PROCESSORS IN ETHIOPIA

NO	Dairy Processers	Location	Year of Establishment	Daily Processing Capacity, (liters)	Attained Average Capacity, (liters)
1	Sebeta Agro Industry (Mama Dairy)	Sebeta	1998	35 000	30 000
2	Lame Dairy Processing (former DDE)	Addis Ababa	2007 former DDE (1964)	60 000	30 000
3	Dire Dawa Dairy Processing Enterprise	Dire Dawa	1972	20 000	20 000
4	MB PLC (Family Milk)	Addis Ababa	2003	15 000	7 000
5	Yadeni Dairy Farm (Bora Milk)	Addis Ababa	2008	15 000	7 000
6	Ada'a Dairy Cooperative	Debre Zeit	1998	15 000	3 000
7	Lema Dairy	Debre Zeit	2004	10 000	3 000
8	Berta and Family plc	Addis Ababa	2000	9 000	6 000
9	Genesis Farm	Debre Zeit	2001	4 000	4 000
10	Holland Dairy	Debre Zeit	2008	4 000	4 000
11	Almi Tikus Wetet (Almi Fresh Milk)	Hawassa	2005	4 000	3 000
12	Ruth and Hirut Dairy Farm	Chacha	2008	4 000	1 500
13	Abay fana Awash Agro-Industry	Adama		3 500	2 000
14	Chuye Milk and Milk Products Processing	Addis Ababa		3 000	1 000
15	Fantu and Family Dairy Farm	Addis Ababa		2 500	2 000
16	Zemen Milk	Mekelle		2 000	150
17	Pinguin International Business plc (cheese world)	Addis Ababa		1 800	600
18	Life Milk Processing Enterprise	Sululuta	2007	1 500	1 500
19	Jantekel Dairy Union (Facil Milk)	Gonder	2007	1 200	300
20	Mojo Milk	Mojjo	2011		1000
21	Beral Milk	Addis Ababa	1991		
22	Semit Agro Industry/Enat Milk	Mojjo			
23	Harmonius Agro Industry	Adama			

Under construction: Elemtu Integrated Milk Industry S.Co; Selale Dairy Cooperatives Union Velocity; Loni Agro-Industry

Source: LMD research, 2013; Land o' Lakes, Inc., 2010

ANNEX 23: DAIRY PRODUCT SUPPLY SOURCES OF HOTELS/CAFETERIAS

Dairy product Supply Sources of Hotels/Cafeterias (Addis Ababa, Dire Dawa, Awassa and Bahir Dar)[231]

Product Type	Percent Bought from Each Source				
	Total Respondents	Producers	Shops	Super Markets	Traditional Markets
Milk	39	85%	8%	18%	3%
Butter	23	61%	-	26%	26%
Cheese	10	50%	-	50%	-

[231] LMD research, 2013

ANNEX 24: PROFITABILITY ANALYSES AND SIMPLIFIED GROSS MARGIN (SGM) CALCUATIONS

Amhara

Dairy Producer in the peri-urban area of Debre Markos

Underlying assumptions

1. The analysis is done based on 2011-12 figures of a sample farm in Debre Markos area
2. The farm has 16 animals all with cross breeds constituting 8 cows, 2 heifers, 2 bulls and 4 calves.
3. Only variable costs are taken into account
4. Annual estimations of gross margin

Table 1: Annual gross profit estimate of a producer in Debre Markos (ETB)

Item		Remark about costs
Inputs		
Feed cost		
Concentrate	56,294	Includes wheat straws, noug seed cake etc
Grass	26,400	Green, hay and crop residues
Rent for grazing land	1,530	The farm have 17,000m^2 (Fee per m^2 is 0.09 cents)
Labor	22,953	Guarding, milk transport, cleaning, feeding etc
Vet & A/I service	1,060	
Tax	2,500	Levy for custom duty set for the business
Interest on operational cost	5,536	Taking the current deposit interest rate of 5%
Total Variable cost (A)	116,273	
Income		
Total milk yield	21,900 liter	On average 60 liter milk yield per day
Market price of milk	8 ETB/liter	Milk price at Debremarkos town in the year
Cow dung	7,300	2qt/day and 10 ETB per quintal
Gross income (B)	182,500	
Gross margin (B-A)	66,226.15	

Shebabaw dairy producer in Baher Dar

Underlying assumptions

1. 20 cross breed dairy cows with 10 liters daily milk yield
2. A liter of milk sold for 10 ETB per liter
3. All of the milk produced sold as raw milk
4. Estimations based on variable costs

Table 2: Monthly gross profit estimate of Shebabaw farm in Baher Dar (ETB)

Items	**ETB**
Revenue	
Monthly milk production	6000
Price of milk (per liter)	10
Revenue from sales of raw milk	60000
Variable cost	
Bran	8000
Cakes	6000
Total feed cost	14000
A/I services	500
Professional services	1000
Transportation	6000
Labor cost	150
Total cost	21650
Gross profit	**38350**

Dairy producer in Bure

Underlying assumptions

1. 2 dairy cows with 10 liters yield per day
2. A liter of milk sold for 8 ETB/Liter
3. 1 liter/day retained for home consumption
4. All the commercialized milk in the form of raw milk
5. Estimations based on variable costs

Table 3: Monthly gross profit estimate of a producer in Bure (ETB)

Items	Peak Season	Lean Season
Revenue		
Monthly milk production	600	600
Price of milk (per liter)	8	8
Milk retained for home consumption	30	30
Monthly sales of milk	570	570
Revenue from sales of milk	4560	4560
Variable costs		
Feed (Hay)	3200	3500
Ai services	50	50
Labor cost	70	150
Transportation cost	1350	1350
Total variable cost	4670	5050
Gross profit	**-110**	**-490**

Commercial dairy producer in Bure

Underlying assumptions

1. 17 dairy cows, 15 of which are cross bred with a total daily production of 154 liters
2. A liter of milk sold for 8 ETB/Liter
3. 64 liters of the daily milk production processed to butter, 1.5 liters retained for home consumption and the rest sold as raw milk
4. One kilo of butter produced from 18 liters of milk
5. Estimations based on variable costs

Table 5: Monthly gross profit estimate of a producer in Bure (ETB)

Items	Peak Season	Lean Season
Revenue		
Monthly milk production	4620	4620
Price of milk (per liter)	8	8
Milk retained for home consumption	45	45
Monthly sales of milk	2655	2655
Revenue from sales of milk	21240	21240
Price of butter	50	50
Monthly sales of butter	106.67	106.67
Revenue from sales of butter	5333.33	5333.33
Total monthly revenue	26573.33	26573.33
Variable costs		
Feed (Hay)	3200	3500
Ai services	50	50
Labor cost	70	150
Transportation cost	200	200
Total variable cost	3520	3900
Gross profit	**23053.33**	**22673.33**

N.B. 1KG of butter = 18 liters of milk

Dairy Producer in North Shewa

Table 6: Monthly gross profit estimate of a producer in North Shewa (ETB)

Items	ETB
Revenue	
Monthly milk production	480
Price of milk (per liter)	7.55
Milk retained for home consumption	30
Monthly sales of milk	450
Revenue from sales of milk	3397.5
Variable costs	
Bran	384
Cake	600
salt	17.5
Drug	22
Hired labor	400
Total variable cost	1423.50
Gross profit	**1974.00**

ANNEX 25: PRICE FOR FORMULATED FEED MIXES

Price for Formulated Feed Mixed[232]

Type	ETB per quintal					
	2004	2005	2006	2007	2008	2009
Dairy ratio	79	86	108	128	302	230
Calves ratio	87	94	107	136	312	340
Sheep ratio	76	84	105	125	301	240
Bull ratio	78	88	106	127	301	310
Heifer ratio	85	92	114	134	308	320

[232] Land O' Lakes, Inc., 2010

ANNEX 26: PRICE TRENDS FOR AGRO-INDUSTRY BY-PRODUCTS

Price trends for agro-industry by-products in ETB/q[233]

By-product	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	% change
Maize 1st grade	117	140	158	560	350	300	400	242
Wheat bran	56	63	96	220	130	125	280	400
Wheat middling	70	76	109	230	170	170	300	329
Noug Cake	63	88	170	250	220	220	300	376
Rapeseed Cake	45	50	65	70	75	75	130	189
Soybean meal	ND	ND	450	480	590	600	750	67
Cotton seed Cake	170	175	180	200	214	220	455	168
Molasses	5	4	7	7	26	47	47	840

[233] Semayat, 2013

REFERENCES

Agricultural Cooperatives Sector Development Strategy 2012-2016. Rep. Federal Democratic Republic of Ethiopia and Ethiopian Agricultural Transformation Agency, 2012.

Amahara Dairy Value Chain Analysis Report. Unpublished Research Document for LMD, 2013.

NABC, *Fact Sheet: Livestock Ethiopia, Livestock in Ethiopia and Opportunity Analyses for Dutch Investment.* September, 2010.

FAOSTAT. Food and Agriculture Organization of the United Nations. <http://faostat.fao.org/>.

Farmer, Elizabeth. *End Market Analysis of Ethiopian Livestock and Meat*. Rep. no. MicroReport #164. USAID, Mar., 2010

Felleke, Getachew, Medhin Woldearegay, and Getnet Haile. *Inventory of Dairy Policy*. Rep.: Target Business Consultants Plc, 2010.

Getachew Felleke and Gashaw Geda, 2001, The Ethiopian Dairy Development, A Draft Policy Document, MOA/FAO, Addis Abeba.

GRM International BV. *Livestock Development Master Plan Study*. Rep. Vol. 1. Ministry of Agriculture and Rural Development (MoARD), 2007. Dairy

Hunnes, Dana E. "Journal of Global Health Perspectives." *Journal of Global Health Perspectives*. , Aug. 2012. <http://jglobalhealth.org/article/understanding-rural-to-urban-migration-in-ethiopia-driving-factors-analytical-frameworks-and-recommendations-2/>.

Land O'Lakes, Inc. *Ethiopia Dairy Development Project*. Rep. St. Paul: 2009

Land O'Lakes, Inc. *The Next Stage in Dairy Development for Ethiopia*. Rep. Addis Ababa: 2010.

Livestock and Livestock Characteristics. Rep. Vol. II. Addis Ababa: Federal Democratic Republic of Ethiopia, 2012.

LMD Research Interviews and Reports. Unpublished research documents from LMD Research, 2012-13

MoARD. *Reports and Database*. Ministry of Agriculture and Development (moARD), <http://www.moa-redfs.gov.et/node/171>.

Ministry of Finance and Economic Development (MoFED). *Growth and Transformation Plan (GTP) 2010/11-2014/15*. Working paper. Addis Ababa: Federal Democratic Republic of Ethiopia, Sept. 2010.

Ministry of Agriculture and Rural Development. Agricultural Growth Program (AGP), Program Implementation Manual (PIM). Rep. Addis Ababa: Federal Democratic Republic of Ethiopia, 2010

Oromia Dairy Value Chain Analysis Report. Unpublished Research Document for LMD, 2013.

Precise Consult International and Ethiopian Investor. *Ethiopian Dairy Producers Domestic End Market Analysis*. Working paper. Addis Ababa: 2013.

Precise Consult International. *Dairy Business Enabling Environment Assessment Report*. Rep. Addis Ababa: 2013.

Rubin, Deborah, and Cristina Manfre. *A Guide to Integrating Gender Into Agricultural Value Chains*. Rep. USAID.

Sadler, Kate, and Andy Catley. *Milk Matters: The Role and Value of Milk in the Diets of Somali Pastoralist Children in Liben and Shinile, Ethiopia*. Rep. USAID, 2009.

Semayat, Yidraw, *Overview of Ethiopian Animal Feed Industry Association (EAFIA)*. Presentation, Feb 2013.

SNNP Dairy Value Chain Analysis Report. Unpublished Research Document for LMD, 2013.

Tigray Dairy Cluster Value Chain Study Report. Unpublished Research Document for LMD, 2013.

Treg Consult PLC, *Gender Analysis in LMDP in Amahara Region.* Unpublished Research Document for LMD, 2013.

Treg Consult PLC, *Gender Analysis in LMDP in Tigray Region.* Unpublished Research Document for LMD, 2013.

Treg Consult PLC, *Gender Analysis in LMDP in SNNP Region.* Unpublished Research Document for LMD, 2013.

Treg Consult PLC, *Gender Analysis in LMDP in Oromiya Region.* Unpublished Research Document for LMD, 2013.

"UN Comtrade." *UN Comtrade*. United Nations. <http://comtrade.un.org/>.

United Nations Industrial Development Organization. *Agri-value Chain Analysis and Development: The UNIDO Approach*. Working paper. UNIDO, 2009. <http://www.unido.org/fileadmin/user_media/Publications/Pub_free/Agro_value_chain_analysis_and_development.pdf>.

USAID. *Ethiopia FY 2010 Implementation Plan*. Rep. USAID, 2010. Feed the Future (FTF).

USAID. *Ethiopia FY 2011- 2015 Multi-Year Strategy*. Rep. USAID, 2011. Feed the Future (FTF). <feedthefuture.gov>.

World Bank: Sustainable Development Department. *Project Appraisal Document on Proposed Credit and a Proposed IDA Grant to an Agricultural Growth Project*. Rep. no. 53290-ET. World Bank, 2010.

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