ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF ACCOUNTING AND FINANCE

PERFORMANCE OF ETHIOPIAN MANUFACTURING SECTOR: THE CASE OF ETHIOPIAN MEAT PROCESSING AND EXPORT INDUSTRY SUB-SECTOR

BY:

SELAMAWIT TILAHUN

Advisor:

ABEBE YITAYEW (PHD)

JUNE, 2017

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BY: SELAMAWIT TILAHUN

A Thesis Submitted to the Department of Accounting and Finance College of Business and Economics for the Partial Fulfillment of the Requirements for the Degree Master of Science (M. Sc.) in Accounting and Finance

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Statement of Declaration

I declare that the thesis entitled **"Performance of Ethiopian Manufacturing Sector: In the case of Ethiopian Meat Processing and Export Industry sub-Sector"** submitted for the partial fulfillment of the M.Sc. Degree in Accounting and Finance at Addis Ababa University is my original work and it hasn't been presented for the award of any other Degree, Diploma, or other similar titles at this or any other university or institution.

Declared by	**Confirmed by Advisor**
Selamawit Tilahun Eshete	Abebe Yitayew (PhD)
Signature _____	Signature _____
Date _____	Date _____

Statement of Certification

I certify that the thesis entitled **" Performance of Ethiopian Manufacturing Sector: In the Case Ethiopian Meat Processing and Export Industry sub-Sector"** is the work of Mss. Selamawit Tilahun. She carried out the research under my guidance and I certified that, to the best of my knowledge, the work reported herein doesn't form part of any other project report or dissertation on the bases of which a degree or other award was conferred on an earlier occasion on this or any other candidate.

Advisor: Abebe Yitayew (PhD): _____

Date: _____

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Approved by the Board of Examiners:

_____	_____
Advisor	**Signature**
_____	_____
Examiner	**Signature**
_____	_____
Examiner	**Signature**

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LIST OF ACRONYMS AND ABBREVIATIONS

AGP	Agricultural Growth Program
AI	Artificial Insemination
BMC	Botswana Meat Commission
CBPP	Contagious Bovine Pleura-Pneumonia
CSA	Central Statically Agency
DFZ	Disease Free Zones
DVM	Doctor of Veterinary Medicine
E.C	Ethiopian Calendar
EMDTI	Ethiopian Meat and Dairy Industry Development Institute
ERCA	Ethiopian Revenue and Customs Authority
ES	Ethiopian Standard
FAO	Food and Agricultural Organization
FAOSTAT	Food and Agricultural Organization Statistics
FDI	Foreign Direct Investment
FDRE	Federal Democratic Republic of Ethiopia
FMD	Foot and Mouth Disease
GDP	Growth Domestic Product
GFDRE	Government of the Federal Democratic Republic of Ethiopia
HACCP	Hazard Analysis and Critical Control Point
ILRI	International Livestock Research Institute
IRR	Internal Rate of Return
ISO	International Standard Organization
Kg	Kilogram
Km	Kilometer
KSA	Kingdom of Saudi Arabia
LDMP	Livestock Development Master Plan
LLP	Livestock and Livestock Products
LMA	Livestock Marketing Authority
LMIS	Livestock Market Information System

MENA	Middle East & North African
MOA	Ministry of Agriculture
MoARD	Ministry of Agriculture and Rural Development
MOFED	Ministry of Finance and Economic Development
MOI	Ministry of Industry
MoLF	Ministry of Livestock and Fisheries
NAIC	National Artificial Insemination Center
NGOs	Non-Governmental Organizations
OIE	Office International des Epizootics
PACE	Pan African Campaign against Epizootics
PLC	Private Limited Company
QSAE	Quality and Standards Authority of Ethiopia
RMA	Rapid Market Appraisal
RVF	Rift Valley Fever
SNNP	South Nation Nationalities Peoples
SPS	Sanitary and Phyto-Sanitary
TVET	Technical and Vocational Education and Training
UAE	United Arab Emirates
US$	United States Dollar
USAID	United States of America International Development
USD	United States Dollar
VAT	Value Added Tax
WB	World Bank
WHO	World Health Organization
WTO	World Trade Organization

ABSTRACT

Ethiopia is one of the countries with largest livestock populations in Africa. However, the performance of meat processing and export of the country is very low compared to other similar economies with low livestock population. There are different internal and external factors for this poor performance of the sector. The main objective of this study is thus to assess the performance of meat processing and export sector of Ethiopia and its trends, identifying the major challenges and opportunities in the sector. Both qualitative and quantitative methods were used in the study. In addition, primary and secondary data were collected and used for analysis. The primary data were collected using semi-structured questionnaire. Sample abattoirs were selected for the study based on their length of service, performance, employee number and 35 sample participants were selected from each abattoirs using convenient sampling. In addition, secondary data were collected from reports of NBE, MoFED, and CSA to undertake trend analysis for five years (2010/11 – 2014/15) on selected abattoirs. Analysis was made to identify the relationship between variables identified in the paper using SPSS and Microsoft Excl. Results of the study revealed that shortage of livestock supply both in quantity and quality, lack of standard functional export abattoirs and slaughtering houses and problem of livestock market structure, inconsistent price, absence of sufficient infrastructural facilities and logistic supplies are the major constraints hindering the performance of meat processing and export. Hence, to enhance the performance of meat processing and export industry, it is very important to enhance the supply of quality livestock, minimize livestock market intermediaries, expand the number of standard export abattoirs and work on livestock related infrastructure such as transportation and modern fattening facilities so as to enhance the performance of the sector. The paper also invites researcher to assess the determinants of investment on meat processing and export in Ethiopia.

Keywords: Livestock, Export abattoirs, Meat processing and Export performance

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Ethiopia is among the rapidly growing economy in Sub-Saharan Africa with an average growth rate of 10.5% for the past consecutive years. The sectors that contributed for this growth include agriculture, industry and service. For centuries, the Ethiopian economy is highly characterized by agricultural based subsistence, low input-low output, rain fed farming. Currently, industry and service sectors are the two important sectors that are growing at a very significant rate, replacing the role of agriculture. Since 2010, the service sector took the leading role of the economy, resulting in structural shift. It contributed around 46% of the economy followed by agriculture with a share of 44% (MoFED, 2014/15). Industry sector, which is growing at around 20% per annum, contributed only 14% to the national GDP. Manufacturing is key sub-sector contributed about 25% to industrial output and 4.2% to real GDP during the period (MoFED, 2014/15).

In Ethiopia, modern manufacturing industry began to appear in the 1950s', much earlier than many other Sub-Saharan African countries with the intention to substitute imports. This development, however, disturbed whatever little there was in private initiative due to changes in policies (MoFED, 2014/15). In l970s, the manufacturing sector was characterized by the revolution towards foreign ownership and foreign managerial, professional, and technical staffing. It also gave more emphasis on light industries, inward orientation and relatively high tariffs, capital-intensiveness, underutilized capacity, minimal linkage among the different sectors, and excessive geographical concentration of industries in Addis Ababa.

Starting from 1991, the industry sector in general and the manufacturing sector in particular were given due national importance following the formulation of the national industry policy in 2002. This policy was designed within the framework of global environment based on underlying principles of free-market economy. The 2002 industry policy has identified priority sectors that deserve attention to build the platform for the industry to take its key leading role in the economy. These sectors include textile and garment, leather and leather products, chemical, metal, agro-processing and construction industries (ibid). The industry policy has continued to be the corner stone for future industrial development in Ethiopia.

In line with the industrial policy of the country, one of the major manufacturing sectors that plays important role for the economic development of the country is the food industry (agro-processing industry). Specifically meat processing and export sub-sector is among the main food industry contributing greatly to the economic development of the nation. In this regard, Ethiopia has the largest number of livestock in Africa and ranks tenth in the world. Reports of the Central Statistical Authority (CSA, 2014/15) indicated that livestock population in Ethiopia is estimated to be 56.7 million heads of cattle, 29.3 million heads of sheep, 29.1million heads of goats and 2.5 million heads of camels. Livestock sector contributes around 25% to GDP and 45% to the agricultural sector, supporting the livelihoods of 70% of the population, and generating about 16% of annual export earnings. Livestock have multiple uses aside from income generation, including cash storage for those located in remote areas, means of draught and pack services, source of milk and meat, and manure for fuel and fertilizer (ILRI, 2013/14).

Meat processing and consumption is common all over the world, especially in countries endowed with livestock. As income of population increases, there is high demand for livestock and meat. In this regard, increase in per capital income leads to increase in demand for meat, as observed in the Middle East, North and West African countries. As a result, Ethiopia has been earning foreign currency by exporting processed meat (mainly chilled shoats' carcass) and cattle meat through exporting to markets like UAE, KSA, Yemen and Egypt. As the country has the largest number of livestock in Africa, Ethiopia has much to gain from the growing global market for livestock products (SPS-LMM, 2010). Subject to the above facts, this study examines the performance of meat processing and export sector. It also assesses those enterprises involved in meat processing and export industry and identifying major challenges affecting their performance and examines opportunities in the sub-sector. The study also proposes possible recommendations that help to improve the efficiency of this sector.

1.2 Statement of the Problem

Ethiopia is a country with large livestock populations. However, the sector has not developed as expected to help the country and generate the expected economic benefit as compared similar economies with low livestock population. Its current share in the global export market for meat is quite small due to low operational performance. In 2013, the volume of global meat exports was estimated at USD 105 billion but the share of Ethiopia accounted only less than one percent of this total. With this share Ethiopia ranked 43rd largest meat exporter. Majority of this export constituted with chilled sheep and goat carcasses (FAOSTAT, 2014).

Even if there are slight improvements in the number of abattoirs and corresponding capacities, the value addition of meat industry has not increased to the existing potential. The slaughter houses in the country have inadequate facilities for meat processing, thus not performing value addition for incurring cost. However, due to the emerging meat export opportunities to the Middle East and North African countries, the country is being establishing several large scale meat processing abattoirs. These developments are in the right direction to increase foreign exchange earnings and improving the livelihoods of livestock producers and other actors engaged in the livestock business. However, the Ethiopian meat processing and export marketing system is operating in an environment characterized by several constraints that needs the attention and action of the government and other non-governmental organizations. Some of these constraints include inadequate and low quality live animal supply and lack of modern slaughtering houses and export abattoirs, which resulted in the existing meat processing facilities to operate at less than 50% of their operational capacities (ibid).

In addition, the topic under discussion has no updated information on the reason why the performance of the sector still low. Studies made on similar topics are also not sufficient enough to provide detailed information. Daniel Tewodros (2008) conducted specific study that gives more emphasis on beef cattle production system and opportunities for market orientation in Borena Zone of Oromia Region. It is, therefore, imperative to assess and identify the major factors affecting the performance of meat industry in general and the smooth functioning of the Ethiopian meat export market in particular so as to take appropriate action. Thus, this study assesses the operational performance of meat processing and export subsector in selected export abattoirs.

1.3 Research Objectives

1.3.1 General Objective

The overall objective of this study is to assess the operational performance of Ethiopian Meat processing and export industry.

1.3.2 Specific Objectives

On the basis of the general objectives, the specific objectives of the study are listed below.

- To assess and examine the past and current performance of meat industry in relation to meat production and export in Ethiopia
- To identify the major challenges that hinders the growth of the sector.
- To define major opportunities available in the sector.

1.4 Research Questions

The study will attempt to address the following questions to achieve the intended objectives:

1. What is the past and current performance of meat industry sub-sector in relation to meat production and export?
2. What are the major challenges that hinder the development of the sector?
3. What are the major opportunities available in this sector?

1.5 Scope of the Study

This study is delimited to study the operational performance of meat processing and export industry in Ethiopia. The study specifically focuses on assessing the performance of export abattoirs located in Bishoftu and Modjo, Ethiopia. Especially it is delimited on assessing and examining the operational and export performance and available opportunities in this sector. It also focuses on identifying the major constraints in meat processing and export of Ethiopia that hinder the development of the sub-sector. A total sample of five (5) export abattoirs and offal processors that are located and operating in Bishoftu and Modjo towns were considered for the study. In addition, abattoirs with 5 years and above experience in the sector were considered in the study. Besides, analysis of data for 5 years (2010/11 – 2014/15) was made with the intention to observe the operational trends of the sub-sector.

1.6 Significant of the Study

The relevance of this study can be seen from three important perspectives. First, it addresses the overall operational performance of meat industry in Bishoftu and Modjo towns, Ethiopia. This will help to identify the major challenges that hinder the contributions of the sector on foreign earnings of the country. Second, the findings may guide policy makers, local administrative, pastoralists, market actors, meat exporters and different stakeholders working for the development of the sector to be alert on where to focus while supporting the sector to contribute more for national economic development. Finally, the study will help as input for researchers and academicians as secondary sources to undertake further researches.

1.7 Limitations of the Study

Some of the factors that limited the research work include lack of comprehensive data, problem of on-time accessing of sample respondents to distribute and collect questionnaire and respondents bias towards the study. These limitations may affect comprehensive assessment and limit the study to draw the overall picture of the industry under study.

1.8 Organization of the Paper

This paper is organized into five sections. The first charter give emphasis on the background of the study, statement of the problem, objectives of the study, research questions, scope, significance and limitations of the study. On the other hand, chapter two deals with review of related literature and the third chapter is about the methodology used for data collection, compilation and analysis. Discussion and analysis of the data and its interpretation is presented in chapter four. The last chapter summarizes the findings of the study and provides conclusion and recommendations.

CHAPTER TWO: LITRATURE REVIEW

In this chapter review of existing literatures was made in the area of global and domestic livestock and meat production and consumption trends. Overview of the livestock sector and its contribution to domestic economy and assessment of Ethiopian Meat Industry are also broadly addressed in the chapter. Detail review of literature and the assessment related findings is presented in the sections below.

2.1 Global Production and Consumption of Meat

2.1.1 Global Meat Production Trend (Asia and Europe)

FAO (2014) report state that the total world meat production was estimated around 308.5 million tons in 2014, indicating a compounded growth rate of 1.8 percent between 2005 and 2014**.** Most of the increase is reported from developing countries, where over 63 percent of the production originates. FAOSTAT (2014) report also indicated that Asia is the leading meat producing region, accounting for more than 43 percent of the total. Strong consumer demand and government support policies are among the supporting factors to increase Asia's region output by 1.6 percent of annual growth rate. Most of the production in Asia is covered by China, which the largest meat producing country, representing over 65 percent of the Asian share and about 27 percent of the world's share.

Similar report stated that Europe is the second largest meat producing region following Asia, accounts for 19 percent of the global meat production. Total meat production of Europe in 2014 has reached around 52.5 million tons, indicating a compounded annual growth rate of over 1 percent between 2005 and 2014. EU, the second largest meat producer after China, is reported to account most of the region share, with the production of 44.9 million tons in 2014, representing over 76 percent of the region's share and about 15 percent of the world share (ibid).

2.1.2 Global Meat Consumption Trends

Global meat consumption reached more than 307 million tons in 2014, indicating a growth of about 13 percent between 2005 and 2014 (ibid). With an estimated population of 7.18 billion, global per capita consumption of meat was about 42.8 Kgs in 2014. Asia is the leading meat consuming region, accounted for more than 45 percent of the world consumption of meat.

FAO (2014) report stated that meat consumption in developing countries is projected to grow faster than the developed ones. Per capita consumption of meat is also expected to remain much higher, more than double, in the developed countries by 2022. Furthermore, per capita consumption growth is projected to spread over all meat types in the developing countries with the largest increase expected for poultry consumption, followed by pig meat and beef. In contrast, only marginal growth in per capita meat consumption is anticipated in the developed countries by 2022 as a result of aging populations, changing lifestyles and diets which affect consumption (ibid).

2.1.4 Global Meat Export and Import Trends

Global meat trade by volume reached 30.9 million tons in 2014. USA, the largest total meat exporter, holds export market share of 24.5 percent. Brazil and China are the second and third largest meat exporter after USA at about 21 and 6 percent of the world market, respectively.

Table 1: Top Ten Meat Importer and Exporter in Tones 2014

Rank	Importer	1000' Tons	Exporter	1000' Tons
1	China	4407	USA	7569
2	Japan	3102	Brazil	6423
3	Russia	2370	EU	4016
4	Hong Kong	2132	Australia	1965
5	Mexico	1802	China	1900
6	USA	1608	India	1774
7	Viet Nam	1351	Canada	1720
8	EU	1336	New Zealand	923
9	Saudi Arabia	1090	Hong Kong	913
10	Republic of Korea	875	Thailand	800
	Total	**29,444**	**Total**	**30874**

Source: FAOSTAT, 2014

In terms of import, China, Japan and Russia ranked one up to three in the global market with a total import volume of 4.4, 3.1 and 2.3 million tones of meat respectively. Unlike Russia and

Japan, which are the net importers of meat, China is one of the largest exporters of meat in the world as well. This may be due to the number of livestock produced in the economy.

2.1.5 Global Meat Value Chain and Its Characteristics

The global livestock market value chain generically constitutes various actors along the value chain stages including, livestock keepers or group of farmers, processors, wholesalers and retailers that work to supply the animal and its product. In meat sub sector, for instance, the farmers are the source for the livestock. They rear and fatten animal and supply to ranchers or feedlot operators for preparation to live animal marketers or processers. The processors buy live animals for slaughtering and process further to add value to the market requirement and supply to wholesalers. The consumers buy livestock products either directly from processors or from retailers or wholesalers. Local market and export market of the livestock and their products is performed following the channels while exporters are involved in the later case and quality of the products is ensured as per the export market requirement (FAO, 2014).

2.1.6 Laws and Regulations Governing Meat Industry

In order to regulate the meat processing and export sector different nations and continental organizations has adopted a range of legislation that governs the management of livestock and their slaughter at all stages of the food processing. These include requirements in designing and establishing slaughtering facilities and dressing requirements for meat processing and export business. In order to address these requirements, different laws and regulations are adhered in different part of the world. The EU food hygiene regulations are one of the most cited regulations that are applied in all member states from 1 January 2006, replacing 17 directives, including eight that are specifically related to meat. These regulations include Regulation 853/2004, Regulation 854/2004, Regulation 852/2004, Regulation 2076/2005, Regulation 852/2004, Regulation 853/2004, Regulation 854/2004 and Regulation 2076/2005. As per the requirement of these regulations, all livestock and related food products are expected to meet the requirements stated in these regulations. This made to ensure the quality of livestock products and protect the public from any health hazards.

1.9 Overview of Livestock and Meat Processing and Export in Ethiopia

Ethiopia is one of the countries with this abundant livestock. However, the country is one of the lowest per capita consumptions of meat in world. There are several reasons for this low consumption: among the main reasons for low consumption in Ethiopia, low per capita income, high domestic meat prices, long fasting days (by 43% of the population), which accounted for over 200 days per year can be mentioned (FAOSTAT, 2013/14). Despite this fact, there is appreciable growth in terms of number of Ethiopian meat processing industries during the period 2005 - 2014. There are more than 22 meat industries that are either already established or under construction. Currently, there are 16 industries that were engaged in either meat or offal processing but some of them stop their operation due to different reasons.

Ethiopian abattoirs and other processors are found in different status; out of 22 meat industries 9 export abattoirs are functional, 6 of them are non-functional while 7 others are under construction. Even, those functional abattoirs are working under their capacity (with an average capacity of about 34%). Moreover, despite increase in the number of abattoirs and corresponding capacities, the value addition has not proportionately increased due to reason that none of the current functional meat processing industries and export abattoirs produced semi-processed and processed meat products. Slaughter houses have also inadequate facilities for processing, thus not performing value addition for incurring cost. Out of meat produced, there is little or no meat converted into value added products. In order to increase the value added, Ethiopia needs to invest in modern abattoirs and meat processing industries of international standard with all the necessary facilities.

In response to inadequacies in the sector, several large scale meat processing abattoirs have been established in Ethiopia in response to the emerging meat export opportunities to the Middle East and North African Countries. There are also several meat export abattoirs under construction and more are planned to be established in the near future in different regions of the country. These developments are in the right direction towards diversifying and increasing Ethiopia's foreign exchange earnings and improving the livelihoods of livestock producers and other actors engaged in the livestock related activities (Asfaw and Mohamed, 2007). As a result, meat exports from Ethiopia, (mostly chilled but some frozen and some canned), grew from almost nothing in the early 1990s to an average of about 2000 tons by the year 2002.

Trade expansion was mainly due to the emergence of private slaughter houses and their ability to meet the sanitary standards of importers. As it is well known, Ethiopia has a strong comparative advantage in the region, because of its proximity to large meat importing economies such as Saudi Arabia, UAE, etc., with short delivery times in contrast to countries such as Australia, which supply mostly frozen meat in bulk, and provide preferred products and in particular meat from favored fat-tail sheep such as the Black Head Ogaden and serve niche markets for products such as offal in West Africa (MoARD, 2012). Meat export volume significantly increased from 870 tons in 2000/01 to 17,666 in 2011/12. The Country's export performance reached its peak in 2011/12 by exporting 17,666 tons of meat. In the period under review, the meat export (chilled shoats carcass) value has picked up from USD 1.7 million to USD 79.1 million (EMDTI, 2014).

Ethiopia's current share in the global meat export market is quite low. For instance, 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, of which most is chilled sheep and goat carcasses. With this share Ethiopia ranked the 43rd largest meat exporter. This is merely due to very low off-take rates, large numbers of animals that by-pass abattoirs and exported live, producers who are not commercially oriented and sell only in need of cash or when draught animals get too old, lack of certifications and acceptable international standards by meat processors . Despite this fact, the sector played significant role in employment creation, which increased slightly within the last consecutive three years, (increased from 1130 in 2012 to 1550 in 2014). However, the growth in employment has not been proportional with the increase in the number of abattoir and their corresponding capacity. The reason behind this is due to the current low capacity utilization of the existing functional abattoirs, which is below 50 percent, mainly due to import bans, competition between enterprises for limited supplies in limited supply shades; problems related to quality and inadequate throughputs (EMDTI, 2014).

2.2 The Livestock Sector and Its Economic Contribution in Ethiopia

Livestock is the major sources of income for majority of the people in Ethiopia. It contributes greatly for meat processing and export business. CSA (2014/15) report indicated that Ethiopia has the largest livestock herd in Africa, with an estimated population of 56.7 million cattle, 29.3 million sheep, and 29.1 million goats. In terms of significance and contribution, livestock has strong economic and social importance both at household and national levels. Although estimates

vary widely, the livestock sector is contributing approximately 25% of Ethiopian gross domestic product (GDP), 45% of agricultural GDP and 16% of foreign earnings (ibid). Livestock have multiple uses aside from income generation, including cash storage for those beyond the reach of the banking system, draught and pack services, and manure for fuel and fertilizer. In addition to these non-market values, a thriving informal export trade in live animals further emphasizes the significance, though unrecognized by official statistics, of livestock (particularly cattle) in the Ethiopian economy (ILRI, 2013/14).

Livestock export constitutes the large share of income of Ethiopia. Different constraining factors contributing for low performance, in the year 2000, the Kingdom of Saudi Arabia imposed an import ban on all livestock and livestock products from the Horn of Africa in response to the health risks related to Epizootic Rift Valley Fever (RVF) (FEWS NET, 2010). This ban reduced the volume of export significantly. Though meat and livestock exports tied with the aforementioned problems, livestock export income has increased and accounted for approximately $150 million in formal export earnings, making up 10% of the formal exports in 2008. Approximately, half of this value comes from live animal and meat exports and the remainder being from hides and skins.

Information collected from the same source shows that formal live animal exports are predominantly constitutes cattle, accounting 70% of total export. Meat exports are almost entirely from sheep and goats, and hides and skins are primarily from cattle. Trends over the last 10-20 years show that meat and live animals becoming important to livestock exports relative to hides and skins (Sintayehu *et al*., 2010). In 2009/10 budget year, around 36% and 28% increment of meat export in volume and value terms, respectively, compared to the previous year (2008/09). In addition, while comparing with 2008/09, the number and value of live animals exported in 2009/10 increased by 55% and 15%, respectively (Trade bulletin, 2010).

Ethiopia exported approximately 200,000 livestock annually through formal channel after 2004 (Yacob and Catley, 2010). This figure is significantly higher than the annual official exports of cattle (12,934 head), sheep (13,554 head) and goats (1,247 head) that are registered between 1998 and 2003 (Asefaw and Mohammad, 2007). This shows that the growth of the formal channel since 2004 is high. This result is registered due to an increase in government oversight of the sector.

Data shows that of the total 200,000 livestock exported formally, approximately 40,000 are cattle and they are exported from Amhara Region to Sudan, while smaller volumes of livestock are exported formally to Somalia and Kenya. The majority, however, is exported to Djibouti. The reason behind high exports to these countries includes climatic similarity of importing countries and the localities in which the animals grew.

Despite the above facts, In 1990s, the share of live animal exports in total and livestock products export earnings was declined due to the collapse of the Somali state in 1992. The war in North-west Somalia resulted in the closure of Berbera Port (FEWS NET, 2010). In addition, increased domestic demand due to population growth and stagnant or declining production in the early 1990s led to major decrease in exports. It was also predicted that the population growth rate (2.9%) absorbed official exports for domestic consumption, and an increase in productivity was recommended to prevent the decline in export levels (FAO, 1993).

Recent data from Ethiopian Revenue and Customs Authority shows that live animal exports contributed 70% of the earnings and meat exports accounted for the remaining 30%. Chilled sheep and goat carcasses accounted for 80%, beef 9% and offal 11% of the exported meat in volume. Of the number of exported live animals, cattle accounted for 46%, sheep 35%, camels 13% and goats 6%; whereas cattle contributed 67%, camels 25% and shoats 8% to the revenue generated (ERCA, 2014).

On the other hand, studies made on livestock shows that Ethiopia owns huge number of small ruminants, estimated to be 58 million heads of sheep and goats. Small ruminants are found mainly in the lowland agro-ecology which constitutes 65% of the area, where 25% sheep and close to 100% goat population exist (PACE-Ethiopia, 2003). Sheep and goats cover more than 30% of all domestic meat consumption and generate cash income from export of meat carcass, edible organs, live animals and skins (Fletcher and Zelalem, 1991). Hence, an increase in small ruminants' production could contribute to the attainment of food self-sufficiency in the country particularly in response to protein requirement for the growing human population as well as to enhance the export earnings (Teferi, 2000).

Even though the contribution livestock is high for economic growth, there is significant economic loss annually as a result of mortality, poor weight gain and condemnation of edible organs and carcasses at slaughter. This production loss in the livestock industry is estimated at more than 900 million USD annually (Jacob, 1979; Abebe, 1995; Jobre *et al.*, 1996). These problems have affected the contribution of the livestock sub sector. In addition, the development of the livestock subsector is also hampered by different constraints. These include rampant animal diseases, poor nutrition, poor husbandry, poor infrastructure, and shortage of trained man power and lack of government support (PACE-Ethiopia, 2003). As a result, significant economic losses have been registered each year due to animal mortality, inferior weight gain and condemnation of edible organs during slaughtering (Jobre *et al*., 1996; Abebe, 1995).

2.2.1 Livestock Production System in Ethiopia

According to the study by Ministry of Agriculture, all animals slaughtered by local and export abattoirs arises from three livestock production system: highland crop-livestock mixed farming, lowland, and urban and pre-urban meat production system (MoA, 2014. Details of each production system are presented as follow.

A. Highland Crop-Livestock Mixed Farming System

It is featured by a mixed farming system where crop cultivation and livestock production are undertaken side by side complementing each other. From the total national livestock holdings, about 80% of cattle (about 40 million heads) in small herds (averaging 2-4 cattle), 75% of sheep (averaging per household about 4 sheep), 25% of goats (averaging per household about 4 goats), and 95% of poultries are found in this production system (USAID, 2014B). Livestock plays a pivotal role in the highland settings through provision of draught power for crop production, manure for soil fertility and fuel, and serves as source of supplementary family diet and source of income (that is income from sale of livestock and its products) particularly when markets for crops are not favorable. Cattle are used primarily for draught power (oxen are 40-50 percent of the herd) and dairy (dairy cows are 25 percent of the herd). Meat production is secondary, and thought to involve mainly old and unproductive animals.

B. Lowland Production System

Lowlands are situated in the Eastern, Southern, and Western part of the Central highlands (Afar, Somali, Borena, South Omo, some part of Gambela and Beneshangul). The sector is characterized by pastoral and agro–pastoral production systems where about 20 percent of cattle, 25 percent of sheep and 75 percent of goats of the total national livestock population are found. The population of 10 million pastoralists spans largely nomadic communities and largely sedentary agro-pastoralists: but nearly all own cattle in herds typically of 10-15 cattle and about 7 sheep and/or goats. Livestock are the principal source of subsistence providing milk, meat and cash income to cover family expenses for food grains and other essential household requirements (mostly consumer goods). Cattle are used primarily for dairy for household consumption, with the result that the majority of the herd is female.

Pastoral regions are densely populated by international pastoral standards although livestock density is lower in comparable countries. Average distance to market is about 90 kilometers (Sintayehu, 2010*et al*., 2010). Nearly all of the live animals and meat exported from Ethiopia comes from lowland cattle, goat and sheep (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 (CSA, 2013). The key interaction between the two systems is the sale of male calves from the lowlands to the highlands for draught power and eventually, for fattening.

C. Urban and Peri-urban Systems

Urban and Peri-urban systems include semi commercial and commercial private farms (feedlots) concentrated around Addis Ababa and other large towns. This production use exotic and cross breed animals in addition with local breeds. Feed from natural pastures and other grazing resources that are actually directly "harvested" by livestock is even less important in urban and peri-urban system than in the other Ethiopian production systems. Thus, bought in hay and crop residues are complemented by manufactured concentrates and agro-industrial by-products from the milling and brewing industries. Such by-products include oil seed cakes, cotton seeds, brewer's grains and slaughter house products (ibid).

2.2.2 Livestock Productivity in Ethiopia

Productivity of Ethiopian livestock sector is low compared to other nations. This is due to lack of well organized effort towards improving the system of cattle breeding and care. Livestock production in Ethiopia is highly fragmented and geographically dispersed, with limited large commercial operations**.** In Ethiopia, meat cattle productivity is much below potential (one of the lowest) and characterized by low birth weight, sub-optimal growth rate, average age at first calving (4.5 years), Boran cows under pastoral management (4 years), Boran cows at Abernosa ranch (22 months), long calving interval (2 years), delayed age to reach market or slaughter weight, low power output of draught animals, low carcass and milk production, average meat production/slaughtered animal (110 kg beef and 10 kg mutton) and low per capita consumption of animal products meat (8.5- 10 kg) (ibid).

Meat production per head of livestock in Ethiopia is low by standards of other significant livestock-producing African countries. It is just 8.5 kg per head of cattle per year, significantly lower than that of Kenya and Senegal, 21 and 16 kg respectively. Off-take in Ethiopia is low compared with that in other East African countries, suggesting that many livestock holders prefer to keep their live cattle for domestic use rather than selling them. It is commonly claimed that inconsistent supply of quality animals is a major constraint to commercialization (Sintayehu *et al.,* 2010).

2.2.3 Livestock Marketing in Ethiopia

In Ethiopia, most households with livestock motivate for sale when there are incidental household expenses (taxes, loan repayments, social and family obligations) rather than pre-planned commercial gain. This indicates that many livestock holders do not view their animals as commercial entities but rather as household assets that can be sold as needed. Hence, the main objective of keeping different combination of livestock in Ethiopia is not for commercial purpose. The primary purpose of cattle keeping in most of the highlands is to produce oxen. Pastoralists are relatively less responsive to price, timing and market condition poorly. For example, there is often a supply glut of poor animals during the dry season. In general, livestock producers are widely perceived to be “subsistence-oriented” rather than “market-oriented” in Ethiopia.

Current knowledge on livestock market structure, performance and prices are poor and inadequate for designing policies and institutions to overcome perceived problems in the marketing system. Knowledge on how marketing routes and systems could contribute to the spread of diseases and the implications of these for national and international trade in livestock is also highly inadequate to design any policy or institutional innovation to improve marketing for the benefit of the poor (Ayele *et al.*, 2003). Further, regaining the export market will require an understanding of the market potential in the importing countries including growth in demand, sanitary and phytosanitary (SPS) and other quality requirements, rules and regulations governing the market (Ayele *et al.,* 2003).

2.3 Review of Ethiopian Meat processing and Export Industry

Meat processing and export industry is one of the sectors that have been given development priorities by the Ethiopian government in order to increase meat exports, especially beef in order to capture value of hides and offal's and to create job opportunities and market outlet to producers, particularly the pastoralists. Due to the favorable investment opportunity of the country, many investors are getting to this sector and large number of export abattoirs is established since 1998. Currently there are 9 working export abattoirs that are engaged in slaughtering and meat processing. In addition, other new export standard abattoirs are under construction in Bishoftu and Bahir-Dar, which are expected to start exporting to different countries in the near future.

In the last decade, there has been considerable development in the private livestock export industry. The number of modern livestock export firms established in the country has been on the rise. There has also been a growing demand and expanding export market for livestock products, particularly goat meat, from Ethiopia. The primary destinations include Middle Eastern and Gulf State nations. The present structure of Ethiopia's meat exports indicates, the main meat products exported from Ethiopia are chilled whole sheep and goat carcasses, chilled beef, chilled camel meat, chilled offal, and preparation of poultry.

2.3.1 Major Value Chain Actors in Livestock and Meat Processing Sector

The key players in Ethiopian livestock and meat processing sector include producers, collectors, fatteners, live animal exporters, export abattoirs, domestic butcheries, hotels, restaurants, supermarkets and other service providers. These players have their own role in their respective

chain and play specific role in adding values. While looking at the market chain of the sector, most of the export abattoirs and live animal exporters collect animals either through their own purchasing agent assigned in major livestock markets or through other small and large scale traders. Sometimes livestock trading cooperatives are also directly supplying animals to the exporters.

On the other hand, exporters' agents in turn collect animals either from collectors, small traders, livestock trading cooperatives, farmer groups or directly from producers. Producers have the option of selling their animals to the collectors in their village, small traders, and livestock trading cooperatives or directly to the exporters. Some farmers also form groups and supply animals to the market (Getachew *et al.,*2008).

Producers of live animal especially goat and sheep for meat export are found in the lowland areas such as Low lands of Oromia, Afar, Somali and South Omo. The marketing behavior of producers varies from place to place. Pastoralists consider larger herd size as symbols of prestige. Sales of live animals are taken as a last resort and animals are generally sold when the producers face financial shortage and drought. During summer season, there is shortage of live animal in the market due to over flooding of rivers and road problem. In addition, the pastoralists want to reproduce their animals in order to increase their animal wealth (Adugnaw M. et al., 2009).

Live Animal Traders (suppliers/agents), especially sheep and goat, are mostly found in Metehara, Borena and Afar. They buy live animals either directly from the farmer /producers/ pastoralists or buy from other traders at different village markets.

Animal feed suppliers supply animal feed for the fattening centers and abattoirs. Most of the time, abattoirs use grass only for animals, because they keep their animals for the maximum of three days in their compound. The abattoirs get grass from areas like Selale, Sululta and sendafa.

Abattoirs/Butchers, out of the existing 16 export abattoirs and offal processors only 9 are currently functional. All of the existing abattoirs have facilities for sheep and goats, but facilities for cattle and beef are limited in all of the abattoirs. 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.

2.3.2 Livestock Examination, Meat Processing and Transportation in Ethiopia

In order to make animal ready for slaughtering, animals expected to pass through physical examination. Livestock are rested for two to three days in a holding area where they receive feed and water. In addition, before slaughtering, they are expected to be held in the 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. As meat is the main source of protein to man, it should be clean and free form diseases of particular importance to the public such as tuberculosis, hydatidosis, cysticercosis, and fasciolosis (Sirak, 1991).

A proper ante-mortem inspection of the animal makes the task of routine post-mortem inspection simpler and straightforward procedure (Gracey, 1986). Post-mortem inspection is the center around which meat hygiene revolves since it provides information indispensable for the scientific evolution of clinical signs and pathological processes that affect the wholesomeness of meat (Libby, 1995; Gracey, 1986).

A thorough meat inspection procedure requires two steps; ante-mortem and post-mortem inspections. The importance of ante-mortem inspection in the abattoir has long been recognized in an attempt to avoid the introduction of clinically diseased animals into the slaughter hall and should be done within 24 hours of slaughter and repeated if slaughter has been delayed over a day (Gracey, 1986; Teka, 1997).

In most cases slaughtering is done when abattoirs receive orders from their customers. The only processing that local abattoirs do is putting 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.

All export abattoirs 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 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 byproduct 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, 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 (cat) 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 Bishoftu (Chinese Company) mainly 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 (Getachew *et.,al*. 2008)

2.4 Ethiopian Meat Production and Consumption Trend

2.4.1 Meat Production Trends in Ethiopia

FAOSTAT (2014) report indicated that the total meat produced in 2012 reached around 65.9 tones, indicating a compounded annual growth rate of 2.3 percent between 2000 and 2012. Despite the fact that Ethiopia is the tenth largest livestock population in the world, the production of meat is still low and contributed for about 0.2 percent of the world total meat production, of which most is sheep and goat meat. This ranked Ethiopia the 55th largest meat producing country in the world. The reasons behind for this are multiple: the low production of meat in Ethiopia are 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 other limited meeting international market requirements like acceptable international standards by meat processors.

2.4.2 Meat Consumption Trends in Ethiopia

FAOSTAT (2014) even with abundance of livestock population, Ethiopia still has one of the lowest per capita consumptions of meat in world. There are several reasons for this low consumption, including low per capita incomes, high domestic meat prices (recently) 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.

2.4.3 Meat Export Performance in Ethiopia

Ethiopia has the tenth largest livestock inventory in the world. However, the country's current share in the global export market for meat is quite small. In 2014, the volume of global meat exports was estimated at USD 105 billion, and Ethiopia accounted for less than one percent of this total, of which most is chilled sheep and goat carcasses (USAID, 2014B). There are many reasons for this which 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 other limited meeting international market requirements like acceptable international standards by meat processors. Over a decade ago, Ethiopia was exporting relatively close to no meat at all, but 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. The export performance of Ethiopian meat industries does not show better performance for the last ten years. There are ups and downs in meat export performance. This is due to bans by importing countries. Relatively, better performance is registered in the year 2012 both in volume and value of export.

The meat volume exported has declined in some years due to periodic interruptions from bans imposed by importing countries due to disease outbreaks (Sintayehu *et al*., 2010). However, the exports of meat and live animals have dramatically increased in 2010 - 2012 and exported 16,877 tonnes of meat and 472,041 head of live animals, recording a 69% increment from last year's export revenue (ibid).

The bulk of meat exports in the form of whole sheep and goat carcass indicate the lack of product diversification in meat exports. Ethiopia exported chilled meat to eight different countries: KSA, United Arab Emirates (UAE), Yemen, the Republic of Congo, Djibouti, Sudan, India, and Oman. The countries importing live animals from Ethiopia are also the importers of meat. The two major meat importers from Ethiopia were KSA and UAE and each accounted for about 49 percent of Ethiopia's total meat exports. As opposed to the volume of live animal export, there was no pronounced seasonality in the volume of meat exports from Ethiopia (ibid).

2.4.4 Enterprises involved in Meat processing Industry

Information collected from the sector indicates that enterprises involved in meat processing have been broadly categorized in two. The first category comprises of all export standard abattoirs (may be large or medium scale) and offal processing factories. Offal processing companies get their row materials from export abattoirs and municipalities. The second category focuses on all city and municipality abattoirs which considered as small scale processers that serve the slaughtering process for only local consumption (Annex - 2).

2.4.5 Large-and Medium-scale Meat Processors

Literature indicates that abattoirs that are automated and semi-automated in their slaughtering, dehiding, dressing and sanitation operations are considered as large and medium scale processers. The abattoirs in this category are found in three different statuses. Some abattoirs are operational others are non-operational although their construction phase is completed and the rest are under construction. Of the total export abattoirs that complete their construction phase, only 9 are currently functional (EMDTI, 2014).

Organic Export Abattoir: Organic Export Abattoir was established in 2005 by an Ethiopian national. The firm is located in Modjo, a town about 73 km from Addis Ababa. It covers 2.5 hectare land area. It has annual capacity of 4500 ton shoat meat and 7200 beef. The abattoir is HACCP and ISO certified. The firm faces transportation problems (in transporting live animals) and a shortage of skilled labor. The abattoir has hygiene and sanitation problems. African countries including South Africa, Angola and Congo are potential export destinations, but transportation to these countries is not economic. The firm is in the process of acquiring land to establish its own animal fattening project and cattle slaughtering line (EMDTI, 2014)

Luna Export Slaughter House: Luna Export Slaughter House was established on 2.5 hectare land as a PLC in 2003, with its headquarter in Addis Ababa and slaughterhouse in Modjo,73 km from Addis Ababa. It has designed slaughtering capacity of 5230 ton/day. The firm is currently engaged only in exporting lamb and mutton. It is not currently producing at its full capacity, in part because of lack of adequate supply of live animals that meet the required standard. The abattoir has requested land for ranch development, but still did not get satisfactory response from the concerned bodies. Trade fairs, e-marketing and embassies business diplomacy in target countries are the main means of getting customers. All the products of the company are produced for the export market, mainly for countries in the Middle East (EMDTI, 2014)

Modjo Modern Export Abattoir PLC: Modjo Modern Export Abattoir was established in 2002 on 2.7 hectare land area in Modjo town, 83 km far from the capital. It has annual production capacity of 5230 ton of shoat meat. It exports lowland sheep and goat meat to the UAE and Saudi Arabia. It is HACCP and ISO certified. Modjo modern abattoir sells its products to a group of long established clients and does not look for additional customers since the firm has no confidence on the supply of live animals, its processing capacity and the unpredictable air cargo service. In addition, there is no air plane flight to North Africa, where there is potential market for Ethiopian meat product. The abattoir has no separation line between killed and live animals, which is not in line with the animal's welfare. It has also direct implication on meat quality. Moreover, the ground of the slaughter house is not hygienically constructed. (EMDTI, 2014)

Helmex: It was established in 1998 in Bishoftu, on an area of 5.6 hectares. It has annual production capacity of 6000 ton shoat and 7200 ton cattle meat. It is HACCP and ISO 22000 certified. It is under expansion to export cattle and camel meat. Main weakness of the abattoir for less performance in 2005 E.C are poor management, unpredictable cattle supply, maintaining malfunctioning units like chilling units and sterilizers. Since the factory is not using latest meat technologies, the product sometimes has dark color, which is quality defect. The factory is also poor in its hygienic practice, with cracked floor (EMDTI, 2014).

ELFORA Agro Industries PLC: ELFORA Agro Industries PLC owns three export abattoirs located in Bishoftu, Melge Wondo, Metehara, and other two meat factories at Gondar and

Kombolcha. Each of these abattoirs has their own capacity and performance. Details of the companies' status and performance are discussed below.

A. **Bishoftu ELFORA:** Bishoftu ELFORA export slaughterhouse, is one of the MEDROC sister companies, it was established in 2000. It is located in Bishoftu with land area of 5 hectares. The firm has 4608 ton shoat meat annual production capacity. It used to export meat of around 100 cattle on a weekly basis. Beef was exported to Congo and Ivory Coast. But currently it is limited to local supply in its cattle meat production. The condition of the abattoir is very poor with unhygienic equipment, walls, floors and ceilings. The sinks in the kill floor do not have hot water and soap for general hygienic purposes. The plant does not have appropriate sterilizers and sinks (MoARD, 2010).

   In addition to the above facts, the performance of the abattoir is decreasing from time to time, due to shortage of cattle supply. In connection with the abattoir is limited by the government to purchase livestock only from VAT registered suppliers which multiplies its cattle shortage. Assigned managers do not have the mandate to decide even on simple cases of the factory (EMDTI, 2014). This also makes the factory's management performance to be poor.

B. **Metehara ELFORA:** Metehara export abattoir was initially established in 2001 in Methara town by Saud Arabian investor and later owned by MEDROC sister company, ELFORA. It has land area of 5 hectares. The abattoir has got maintenance service by 17 million birr budget support form Ethiopian meat and dairy technology institute before two years but still did not start operation. The reason behind this is small number of VAT registered livestock traders that are not even sufficient to supply the behind this is small number of vat registered livestock traders that are not even sufficient to supply the Bishoftu ELFORA. The export has strong resistance not to operate unless it is permitted to purchase animals from non VAT registered suppliers/traders (EMDTI, 2014).

C. **Melge-Wondo Meat Factory:** Melge-Wondo Meat Factory was one of the ELFORA agro industries which were engaged in chilled beef production. It is located SNNP in specific location Wondogenet. The abattoir used to export quartered carcass to Egypt but not operating currently.

D. **Gondar ELFORA:** Gondar ELFORA is located in north Gondar The factory, after privatized by MEDROC sister company, ELFORA, is not involved in production. Instead it was providing slaughtering service for Gondar town. Now another abattoir is established by small and micro enterprises just to serve the slaughtering service in Gondar. It was very difficult to get more information about the current status and future plan of the abattoir. The factory manager at Gondar did not allow the study team to visit the factory. Currently it is engaged in poultry egg production.

E. **Kombolcha ELFORA:** Kombolcha ELFORA and food processing factory, was initially established by Italian government, produces canned meat sauce for military ration. Now it is also serving as abattoir for Wollo University and large hotels in Dessie. The factory is currently facing cattle supply shortage. Expensive cattle price is also another challenge for the factory.

Abergelle Export Abattoir: It was established by EFFORT in 2010. It has 5 hectare land area. The abattoir has annual production capacity of 2850 ton shoat meat and 9072 ton beef. It was engaged in exporting frozen beef until 2012. But after engaged in operation, it stops due to loss instead of profit that the factory faces, since local meat price becomes expensive compared to export market price. The abattoir also lacks air cargo service from MeKelle airport and there are no customers who pay better price for the product. According to EMDTI 2014 poor internal management system is another weakness of the Abergelle export abattoir that hinders the overall performance of the abattoir.

Aschraf Export Abattoir: It was established by Sudanese investor in 2010 in Bahirdar on an area of 5.5 hectares. The abattoir is highly modern compared to other abattoirs in Ethiopia. It has annual meat production capacity of 5378 ton shoat 13219 ton beef. It also has well equipped facilities for deboning and meat processing (rendering plant). The abattoir was exporting chilled beef, but stop immediately due to high cattle price. EMDTI has tried to make it operational by making market study of shoat meat export. But generally the measures taken by federal investment agency, the Amhara regional state administration and Ethiopian meat and dairy technology development institute are not as such significant to make the abattoir operational (EMDTI, 2014). It needs serious attention, follow up and support to make the abattoir functional.

Abyssinia Export Abattoir: The former Sami export abattoir and later Abyssinia export abattoir was previously owned by Egyptian investor. The abattoir is located in Bishoftu with 1.5 hectare land area coverage. Due to financial problem, the owner sold the abattoir to Ethiopian investor to work together in the form of Share Company. The abattoir faces serious problems of credit services, land provisions services, basic infrastructures, for extended time. The abattoir is currently trying to facilitate market destination in Dubai, Saud Arabia and Egypt (EMDTI, 2014).

Jima Abattoir: This abattoir under construction and is being built at 6 km east of Jima town in a place called Seka. It is owned by an Italian company known as Gvo River Organic Agro-Industry P.L.C. The total land area secured by the company is 196 hectare of which 156 hectare, few distance from the abattoir, is to be used as holding ground. Essential equipment and machinery are to be imported from Italy and the purchase process has not yet started. There is a plan to buy a refrigerated track of 8 ton capacity to transport meat from the abattoir to Jima airport. However, no thought is given to buy a dedicated truck to transport animals from purchasing centers to the abattoir. The company has no immediate plan to prepare deboned carcass and to use vacuum packing technology. The throughput of the abattoir would be 25 cattle/hour or 200 cattle per 8 hours and 75 shoat/hour or 600 shoat per 8 hours. There would be two physically separate lines for cattle and shoat, which allow the slaughter of the two species simultaneously. The company plans to use private planes to transport the meat to markets in the Middle East (MoARD, 2012).

Aksker Ethiopia Casing Plc: It is located in Modjo was initially involved in offal processing and exporting. The factory has got 2.5 hectare land to perform offal processing and export and construct export abattoir. The new export abattoir, which is under construction, has annual production capacity of 6,000 ton cattle meat, 6,000 ton shoat meat and 3710 ton offal products. Turkey is the key market destination for its offal product. The abattoir is still requesting electric power, land and credit services for its progress. Ethiopian meat and dairy technology development institute is working with the concerned bodies to facilitate these services (ibid).

Yongtai Offal Processing PLC: It was involved in offal processing using rent house in Bishoftu town. It has annual production capacity of 380 ton offal products. China is the market destination for its products. Since the communities in the area are disturbed by the factory it is transferred to

modjo and provided with 1 hectare land. Currently Yongtai Offal processing factory is under construction, but its land shortage is still serious problem for the enterprise (EMDTI, 2014).

NFA Business PLC: It is located in Modjo. It is currently processing offal products using rented premises. The company has around 78 ton of annual offal production capacities. The factory exports its products to china. The factory has no land for undertaking its business. It has also problems of market destination for its products (EMDTI, 2014).

2.4.6 Recent Development in Meat Processing Business

The numbers of meat processing factories in Ethiopia are growing, although there are serious challenges to operate sustainably. With the presence of non-operational export standard abattoirs, there are still new constructions of large scale export abattoirs. Among the well-known recent developments in meat industry sector, we can find Allana sons Ltd, Jigjiga livestock export abattoir, Halal food industry meat export abattoir, zayen export abattoir, petram export abattoir, Diredawa & Harar, abattoirs.

Allana Sons Ltd: It is one of the largest Indian meat processing companies, has invested $20 million to establish its first meat processing and exporting plant in Africa. The company has made its base in Ethiopia's Ziway town in Oromiya state of Ethiopia, 159 km from capital Addis Abeba (Walta Information Center). The Company secured 75 hectares of land, from the Oromia Regional government to erect the plant around the Adami Tulu area in Ziway town, 163 kms from Addis Abeba. Upon completion, the plant will become Allana's first experience of investment on the African continent. Allana is one of the leading meat processing industries worldwide, exporting meats to more than 70 countries. Allana's commencement of operations is expected to exceed the supply of all the exporters that have been operating in Ethiopia in 2012, because it is going to produce 27, 375 tons of meat annually in its first phase.

Allana also submitted proposals to the Ministry of industry to be given land to erect two meat processing plants in other areas. One of these is Yabelo, in the Borena Zone of the Oromia Regional State, located 567 kms east of Addis Abeba and known for its livestock abundance. Another one is in the Somali Regional State.

Jigjiga Livestock Export Abattoir: Jigjiga livestock export abattoir is one of large export abattoirs under construction in Jigjiga on 5 hectares of land. It has annual production capacity of 6,000 ton of beef and 6000 ton of shoat meat. The abattoir is allowed to import its machinery free of tax. EMDTI has been facilitating the credit service needed for the abattoirs from Ethiopian Commercial Bank.

Halal Food Industry Meat Export Abattoir: Halal export abattoir is another large export abattoir with annual production capacity of 16, 200 ton of beef and 4500 ton of shoat meat. It is located in Modjo town on a total land area of 4 hectares. Its construction phase is nearly completed, but did not start operation due high electric power fluctuation and lack of efficient transformer supply.

Zayen Export Abattoir: This abattoir is located in Arsi zone, Dera town and covers a total land area of 6 hectares. It has annual production capacity of 5000 ton of shoat meat and 15,000 ton of beef. Zayen export abattoir is under construction by foreign partners. Unfortunately the partners reach to disagreement on certain issues. Currently the project is on trail and there is also attempt to continue the construction by local investors (EMDTI, 2014).

Petram Export Abattoir: The abattoir is located in Bishoftu and covers a total land area of 5 hectares. It has annual production capacity of 5760 ton shoat meat and 18,000 ton beef. The main challenges that hinder the progress of the abattoir development are lack of credit services, shortage of livestock supply, and challenges associated with office bureaucracy of custom, insurance and banks in providing on time services.

Kegna Export Abattoir: It is located around Awash Melkassa, around 110 km far from Addis Ababa. However, it is found difficult to access sufficient information about this abattoir.

2.4.7 Regulatory Issues and Gaps Affecting the Meat Industry Sub-sector

In the 21st century, it is a must for food processing industries (for instance meat sector) to meet international rules and agreements to join the dynamic global market. Currently, Ethiopia has planned to improve livestock development with the focus of increasing meat sector productivity. Below, regulatory issues and problems/gaps developing countries with much emphasis to Ethiopia facing are discussed below.

International Sanitary Rules and Agreements: The WTO agreement on the application of Sanitary and Phytosanitary (SPS) agreement is aimed at minimizing the negative effects of unjustified health barriers on international trade. The agreement requires member countries; with a view to achieving the widest possible harmonization of the animal health measures they take to ensure the protection of human and animal life and health, to establish those measures on the basis of international standards, guidelines and recommendations. For animal health and zoonsis, the SPS Agreement refers to the 'standards, guidelines and recommendations developed under the auspices of the Office International des Epizootics (OIE)

The OIE International Animal Health Code and the International Aquatic Animal Health Code contain standards, guidelines and recommendations designed to prevent the introduction of infectious agents and diseases pathogenic to animal and humans into the importing country during trade in animals, animal genetic material and animal products.

The health and other certificates issued for animals and animal products export must indicate that the animal or meat is free from diseases, safe and fit for human consumption, i.e., without harmful levels of chemical, biological or antibiotic residues in the meat, and have an original veterinary health certificate;

International Certificates: Export-oriented meat processing plants need to be certified with HACCP, ISO-9002, and other required standards to meet OIE norms.

Disease Free Zones, Quarantine Facilities and Holding Grounds: To stay under the umbrella of changing international standards, Ethiopia expected to update animal health, livestock products and derivatives required by OIE/FAO/WHO (for exports, imports and domestic production and distribution).

Gaps of SPS Standards, Diseases and Market Strategies in Ethiopia: In addition to the above regulatory issues, literatures identified the following important points that need to be considered in the sector.

- Small scale of export operations causes deficient SPS facilities and lower standard than developed countries.

- Due to lack of operational fund, it is difficult to apply separate treatment to products destined for foreign markets, since domestic SPS standards and methods of production are not compliant with those required by the foreign importer,
- High risks of diseases and infections.
- The lack of Disease Free Zones (DFZ) and under financing (including mismanagement in the past) of the livestock sector.
- Existing quarantine centers are not properly equipped and some are inconveniently located (for example, Logia), though there are plans to build four new holding grounds/quarantine stations.
- The livestock market authority (LMA) is not represented in regional governments and this absence of linkage creates difficulty for implementing and sustaining strategic plans at the grass-root level.
- External market information gap from importing countries.
- Insufficient and inconsistent supply of price competitive export quality meat and livestock,
- Lack of capacity for cattle slaughter, cold chain processing, packaging and cost effective cold chain transport of export quality meat products by road and sea for delivery to Middle East & North African (MENA) and other international markets,
- Limited knowledge of market preferences for type and quality of meat products and lack of established and profitable contracts with meat importers in international markets.

2.4.8 Support Needed to Strength Meat processing and Export Sub-Sector

The Government of the Federal Democratic Republic of Ethiopia (GFDRE) recognizes livestock as one of the country's key economic resources. The government's policy aims to increase in-country value addition by encouraging meat exports over live animal exports. The detailed on government support on major areas of the sector are discussed below.

Strategy: To support the sector the Ethiopian government, launched a new Livestock Development Master Plan (LDMP) under Ministry of Agriculture and Rural Development (MoARD). The intended target for this master plan is to support meat production for both the domestic and export markets and encompass technology packages for meat production, the establishment of disease-free zones and a standardized sanitary and phytosanitary (SPS) system.

Market: To strength market structure of the sector and introduce new market destination, Ethiopian government created Livestock Marketing Authority (LMA) to complement national livestock policy. In the process of developing and understanding livestock marketing in Ethiopia, i.e., four subject areas have been recently identified by the LMA, which include livestock resource census, livestock marketing studies, hides and skins market assessment and investigation on contraband livestock trade.

Investment: It is encouraged by enabling investment climate including stable political and economic environment; security; large domestic and proximity to strategic markets; packages of incentives both to FDI and national investors such as exemption from capital goods import duties; tax holidays; duty incentive schemes and carry forward losses a number of investments in slaughterhouses and feedlots have been registered in the country.

Animal Health: To prevent outbreak of animal disease, the Ethiopian government contribution for the sector includes establishment of Veterinary laboratory Services at different levels, establishment of strong and modern surveillance system, veterinary public health services, and emergency preparedness and contingency planning.

2.4.9 Laws, Regulations and Guidelines governing Meat Industry in Ethiopia

Review of the different laws, proclamations and regulations the country is summarized to indicate the level of standard expected and to verify the application level of the rules in livestock management in the sector.

A. **Proclamations:** In order to manage the sector properly, the government of Ethiopia put in place different proclamations. Accordingly, the following are some of the important proclamations identified in the sector.

   - Animal disease control No 267/2002. Refers to prevention and control of diseases; outbreak notification authority, provisions, declarations and measures and powers; establishment of quarantine stations; entrance and exit ports for export of LLP, international animal health sanitary certification, animal movement permit.

- Meat inspection No 274/1970. Gives power to MoA to control and regulate lawfully establishment of foreign and domestic markets to ensure wholesomeness of foreign and domestic markets dealing with LLP handling and processing.
- Meat inspection amendment No 81/1976. Gives power to MoA to issue regulations and establish criteria useful to determine LLP as fit for human consumption, classification and inspection of LLP, processing plants and database management.

Regulations: On the basis of the proclamations stated above, different regulations are introduced to govern the performance of the sector. Some of the regulations used in the sector include:

- Meat inspection No 428/1972, which is set to govern abattoirs and commercial establishments dealing with slaughtering, preparation and processing of LLP for export from or import into Ethiopia.
- Animal diseases prevention and control regulation. It aims at enhancing the disease reporting, investigation and surveillance mechanisms at federal and regional levels. It also sets modus operandi for intervention and control of disease outbreaks.
- Regulation to control movement of animals and transportation of animal products and by-products. Sets mechanisms to prevent spread of infectious diseases out of the foci of occurrence and increase confidence of recipient/importing countries.
- Regulations to provide for the registration and licensing of animal health professionals. Issues regulations governing the registration of animal health professionals, delivery of services and other miscellaneous provisions.

2.5 Review of Assessment Results on Meate Processing and Export

Studies made to assess the contribution of the industrial sector identified manufacturing sector as the backbone of the economy. Prebisch (1950) and Singer (1950) identified that the manufacturing sector has long been the main engine of economic growth and structural transformation. World Economic Forum (2000) also supported this agreement by stating that the competitiveness an economy is ensured through productivity of the manufacturing sector. Rodrik (2004) stated that the success of East and South Asian countries in manufacturing and export was not the result of conventional recommendations of liberal markets and the restricted role of the government but a mix of standard and non-standard policies.

Meat processing and export is one component of the manufacturing sector with high economic contribution. Trends over the last successive years show that meat processing and export in the global market have been increasingly important (Sintayehu et al., 2010). However, there were different challenges associated with the sector. One of the challenges include problem of proper analysis the markets and ignoring dynamic adjustments to sector characteristics and relationships (Raikes et al 2000; Kaplinsky and Morris 2001). In this case, undertaking value chain analysis help to examine the inter-relationships between diverse actors involved in all stages of the channel (Giulani et al 2005; Pietrobelli and Saliola 2008). It provides the basic understanding needed to design and implement appropriate programs and policies to support stakeholders' participation. However, failure to utilize the value chain approach and avoiding small farmers' participation has been a challenge to ensure success in meat processing and export sector (GTZ 2007).

Unlike other countries, meat processing and export sector in Ethiopia is affected by various factors. Daniel (2008) identified long export trade routes, problem of convenience transportation system, lack of feed and water in holding grounds as a serious challenge to meat processing and export business. LMA (2004) indicated frequent occurrence of livestock diseases and low supply of livestock to processing center as the main challenges of low performance of meat processing and export. Workneh (2006) argued that gaps in the legal system and market structure of the country and expansion of illegal livestock smuggling greatly contributed for poor performance of meat processing and export. Thus, it is important for the country to work on the challenges stated above if the country wants to improve the productivity of the sector.

Mohammed et al (2004) and Yitay (2007) stated that lack of modern livestock reproduction system, integration of livestock with crop production, the influence of agro-ecology and market orientation have strong effect on the productivity of the sector and greatly affects the performance of meat processing and export. Ayele et al (2003) reported that poor and inadequate knowledge on livestock market structure, performance and price contributed for the problem of designing policies and overcome perceived challenges in the market. These challenges hindered the countries competitiveness in the export market as alternative suppliers and ability to respond to the export market opportunities (Ayele et al., 2003).

Sintayehu et al. (2010) reported that the major factors contributing for weak performance of meat processing and export as expansion informal livestock trade. In their argument, it is indicted that the reason for the expansion of informal livestock trade and exports are existence of numerous procedures required to export formally including export licenses, quarantine, banking clearance for remitting foreign exchange, minimum weight restrictions, and informal minimum price requirements. Hence, it is important for the concerned organ of the government to consider the fact and adjust its procedures.

In general, there are different factors that affect the performance of livestock, meat processing and export sector. Some of these factors are associated with the value chain of the livestock market and others are associated with the livestock production system. In addition, the status of meat processing facilities and its export system are important factors hindering the effectiveness of the sector. Thus, it is important to consider this fact and act to ensure success and utilize the opportunities available in the economy.

CHAPTER THREE: RESEARCH METHODOLOGY

Research is a process of systemic and methodical inquiry and investigation to increase the body of knowledge. Since discipline is established by developing a body of knowledge, every research expected to add new knowledge to the body of existing data. Thus, this chapter focuses on the research methods used while conducting the study. It includes data source and collection methods, sampling and sample design, study approaches and data analysis methods used in the study.

3.1 Research Design Approach and Type

Creswell (2009) stated that there are three basic views that are considered to be bases for quantitative, qualitative and mixed research methods that are post-positivist, social constructivist and participative and pragmatic respectively. In order to achieve the objective of the research, considering the nature of the problem and the type of the assessment, this study employed both qualitative and quantitative research approaches (that is mixed method).Adopting mixed methods has a number of benefits. First, it helps for triangulation pertaining to a situation where researchers seek convergence, corroboration, correspondence of results from quantitative and qualitative methods to increase validity of constructs and inquiry results. Secondly, it helps researchers seek elaboration, enhancement, illustration, clarification of the results from one method with the results from the other method. Third, it helps researchers to use the results from one method to help develop or inform the other method. Fourth, mixing methods support the discovery of paradox and contradiction, new interpretations, the recasting of questions or results from one method with questions or results from the other method. Finally, it helps to increase the scope of inquiry to extend the breadth and range of inquiry by using different methods for different inquiry components.

Considering the objective of the study, which aims at assessing the performance of meat processing and export sector of Ethiopia, it is crucial to describe existing facts and future potential of the sector. Hence, the research is explanatory type. This type of research focuses on enquiring “what”, “when”, “how”, “why” and “which” of the event and it is found to be more appropriate to have detailed insights and understandings on the topic under consideration. Questionnaire used in this study helps to find out the research problem at hand.

3.2 Study Location

The study has been conducted on two towns with relatively good number of export abattoirs. These two towns are Bishoftu and Modjo. The towns are located in Oromia Regional State, within a radius of 100 km from Addis Ababa. Specifically, Bishoftu is located at a distance of 47 Kms while Modjo located at distance of 70 Kms South East of Addis Ababa. There are around two abattoirs in Bishoftu and three abattoirs in Modjo. These study sites are selected because of two major factors; relatively large number of abattoirs and large proportion of carcass/meat destined for export are produced in these areas. In addition, these export abattoirs have relatively large number of meat production staff. In each selected export abattoir 500 - 2000 sheep and/or goats slaughtered every day depending on the demand from customers, availability of supply of animals and air cargo space.

3.3 Data Type and Source

In order to achieve the objective of the research both primary and secondary data were utilized from different sources. The primary data were collected from staffs and officials who are working in the Export Abattoirs using semi-structured questionnaire. Furthermore, secondary data were collected from reports that are issued by National Bank of Ethiopia, Ministry of Finance and Economic Development, and Central Statistical Authority. In addition, relevant books, working papers, previous researches reports, websites, journals, unpublished materials and other related documents are used as information sources in the research.

3.4 Instruments for Data Collection

Introducing appropriate data gathering instruments will help researchers to combine the strengths and adjust any inadequacies of data sources. It also helps to minimize the risks of arriving on not credible conclusion. Consistent and reliable research indicates that the research is conducted using appropriate data collection instruments. Use of proper data collection instruments increase the credibility and value of research findings (Koul, 2006). In line with this fact, semi-structured questionnaires were developed and used to collect primary data. In addition, reports of the different government organ were reviewed to collect secondary data. These two sources of data were assumed to be sufficient for addressing the objectives of the study.

In order to support the collection of sufficient data, the research questionnaire was prepared with two sections. The first part intended to gather information about the demographic characteristics of respondents. While the second part is concerned with questions related to the operational performance of selected abattoirs and provide respondents with the chance to identify and indicated the challenges and opportunities associated with the sector. On the other hand, existing reporting format of the different offices were used in a way that support data analysis. Accordingly, the past five years performance data of the sector was collected from the official reports of the NBE, MoFED, and CSA and used to analyze the current status and operational performances of Ethiopian meat processing and export industry.

3.5 Sample Design

As stated above, the intention of the study is to assess the operational performance of the Ethiopian meat processing and export sector. In order to achieve the stated objective, the study used non-probability convenient sampling technique. Accordingly, Modjo and Bishoftu towns were identified for their proximity to the researcher and the number of abattoirs operating in the area. This may solve the problem of time and cost and help smooth application of the research. Moreover, with respect to sample frame, the researcher selected five abattoirs (two export abattoirs from Bishoftu and three export abattoirs from Modjo towns) out of the 16 abattoirs operating in the country. These abattoirs include Helmex and Bishoftu ELFORA export abattoirs from Bishoftu and Organic, Luna and Modjo Modern Export Abattoirs from Modjo. The selection of these abattoirs is also considered their year of experience and their current status in the business. This effort has solved the problem of insufficient sample size and data as well.

Alreck and Settle (1995) indicated that the choice of sample size is normally made after considering statistical precision, practical issues and available resources. In addition, Fowler (1984) noted that there is no a single precise way for the determinations of sample size hence there are a number of inadequacy for deciding on sample size. Considering these facts, it is found important to seek sufficiently diverse groups of respondents while determining sample size. Such effort would help to obtain meaningful spread of perceptions concerning operational performance of meat export industry. In order to define the number of respondents, first employees are classified into their respective group of engagements. Accordingly, employees of each organization are grouped into three major groups of respondents, including meat processing,

administration and marketing and sales. Consequently, a total of 20 staffs from meat processing, 10 from administration and 5 staffs from marketing and sales were considered for each abattoir. This made the total sample size or the number of participants involved in the study to be one hundred seventy five (175). However, the total employees of the factories are around 1550. This shows that the sample size is sufficient to draw logical conclusion about the industry. The study used convenient sampling technique while establishing the sample frame and selecting the respondent to be involved in the research.

3.6 Data Analysis and Presentation

As stated above, the research employed both qualitative and quantitative data analysis techniques. Data acquired through questionnaire were analyzed descriptively based on the number of respondents participated in the study. Similarly, quantitative data collected from reports of different organizations like NBE, MoFED, etc were analyzed using simple descriptive statistical techniques like frequency table, graphs, and charts. On the other hand, qualitative data collected using the stated instruments are also analyzed through narration, comparison, interpretation, etc. Qualitative analysis was used for data collected from sample respondents and reports the relevant sector. Mainly, narrations were used for qualitative inquiries that were secured via questionnaire. In order to undertake the required analysis the study employed data analysis tools like Ms-excel.

CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS

Detail analysis was made on the data collected from the Ethiopian meat processing and export sector. Its aim was to examine the performance, challenges and opportunities, and prospects of the sector. On the basis of the data composition, analysis results of the study were documented in two sections. The first section focuses on the performance history of the selected abattoirs for the past five years and the second section deals with the views of respondents collected through questionnaire. The analysis also tries to make cross reference between the two results so as to draw valid conclusions regarding the operational performance of meat processing and export sector.

4.1 Meat Export Performance Trend of Selected Abattoirs

Assessment made on the performance of meat processing and export indicates that there has been encouraging performance change for the past five years. However, the performance of each abattoir has not been consistent. The export performance of selected abattoirs for the past five years (2010/11 – 2014/15) shows that the sector has been registering annual growth of production in tones . Looking at the performance of the five top meat exporter of the sector, it is possible to observe that the performance of Modjo Modern export abattoir has been the best and consistent in terms of annual export in tones. However, the average export performance of the company for the past five years is lower than that of Luna. The lowest average export performance, in terms of tones, was registered by Helmex.

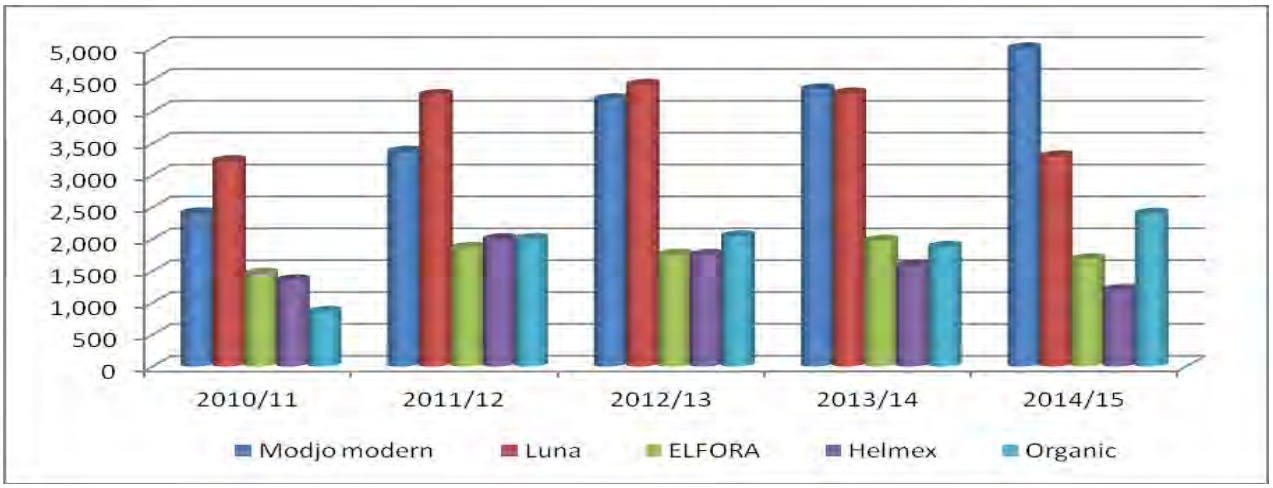
Table 2 : Export performances of selected Meat Processing and Export Abattoirs (in tones)

Abattoirs Name	2010/11	2011/12	2012/13	2013/14	2014/15	Average
Modjo Modern	2,405.00	3370.60	4195.20	4349.50	4993.80	3862.82
Luna	3,225.00	4260.40	4420.50	4285.90	3299.16	3898.19
ELFORA	1,455.00	1862.10	1755.60	1975.80	1683.12	1746.32
Helmex	1,352.00	1998.80	1751.50	1586.00	1203.04	1578.27
Organic	857.00	1999.50	2044.30	1878.90	2400.19	1835.98
Total	**9,294.00**	**13,491.40**	**14,167.00**	**14,076.10**	**13,579.00**	**12,921.58**

Source: CSA Report, 2014/15

As stated in the table above, Modjo Modern export abattoir is has produced and exported around 2.4 and 5.0 thousand tones of meat to neighboring countries in 2010/11 and 2014/15 respectively. On the other hand, Helmex export abattoir, the lowest processer and exporter of meat during the stated period, has produced and exported around 1.4 and 1.2 thousand tones of meat in 2010/11 and 2014/15. Except Modjo Modern, the growth in tones of meat export shows variation due to different factors like problem of supply, market, etc.

Figure 1: Export Performances of selected Meat Processing and Export Abattoirs (in tones)



Source: CSA Report, 2014/15

The performance of the remaining three export abattoirs is found between the two extreme ends. While examining the performance the five export abattoirs, Modjo Modern and Luna constituted around 30% of the annual average meat export share of the five selected abattoirs for the past five years followed by Organic and ELFORA export abattoirs, which constitute around 14% meat export share of the five abattoirs. The lowest share of the five abattoirs is owned by Helmex, which has around 12% of the export share.

In terms of income, it is also possible to observe similar performance trend among the five meat export abattoirs. Hence, Modjo Modern export abattoir has been generating average annual export proceeds of around $18.25 million for the past five years. This money constitutes around 32% share of the average total annual export income of the five export abattoirs. Similarly, Luna export abattoir has been generating average annual export income of around $15.29 million for the past five years. This money constitutes around 27% share of the average total annual export income of

the five export abattoirs. The lowest export share was registered by Helmex, which constitutes 10% share of the five export abattoirs for the past five years.

Table 3: Export performances of selected Meat Processing and Export Abattoirs (in '000 USD)

Abattoir Name	2010/11	2011/12	2012/13	2013/14	2014/15	Average	Ave. Share
Modjo Modern	9,669	15,200	21,080	21,480	23,830	18,251.80	0.32
Luna	1,105	16,400	20,190	20,750	17,980	15,285.00	0.27
ELFORA	5,473	8,300	9,290	11,030	9,540	8,726.60	0.15
Helmex	399	7400	7,930	7,670	5,770	5,833.80	0.10
Organic	2,857	8900	11,080	9,890	13,180	9,181.40	0.16
Total	**19,503**	**56,200**	**69,570**	**70,820**	**70,300**	**57,278.60**	**1.00**

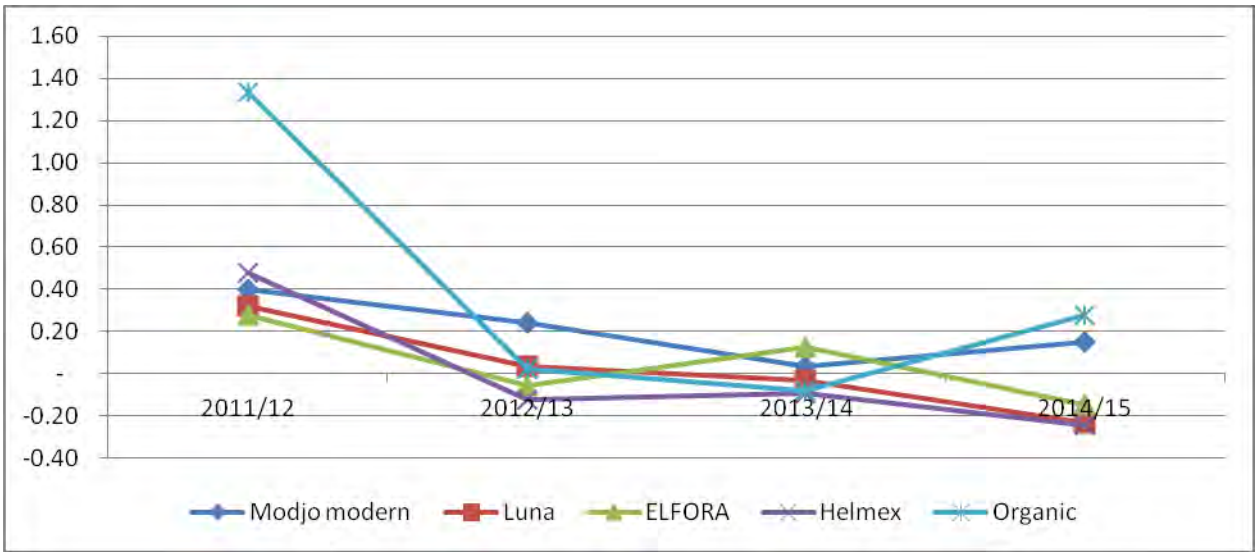
Source: CSA, 2014/15

As indicated in table 3, Modjo Modern export abattoir generated the highest income of around $23.8 million in 2014. On the other hand, Helmex export abattoir has generated the lowest meat export income of $5.8 million in the same period. The table also shows that, except for Modjo Modern, the export performances of the abattoirs under assessment were not consistent.

4.2 Annual Growth Rate for selected Meat Processing and Export Abattoirs

Looking at the annual growth rate of meat processing and export for selected abattoirs, it is possible to observe inconsistencies. The graph below shows the existing growth performance fluctuation among selected abattoirs. Accordingly, Modjo Modern export abattoir registered the highest growth rate of 0.40 in 2011 and reached on the lowest growth rate in 2013 before returning back. This shows that, though the company registered consistent growth across the five years period, the annual export growth rate of the company was not uniform. Though its volume of production was low, Organic export abattoir had registered the highest growth rate of 1.33 in 2011. This growth rate was later decline to its lowest performance (0.08) in 2013 and started to recover. Unlike the above two abattoirs, Modjo Modern and Organic, the remaining three abattoirs registered consistent negative growth rate during the past consecutive years.

Figure 2: Annual export growth rate of selected Export Abattoirs (in tones)



Source: CSA, 2014/15 and Own computation

In addition to low growth rate among all export abattoirs, there is uniformity in performance trend of the different abattoirs. This may indicate that there is common external challenge that prohibited the companies to register better export performance. Using the information collected from the stated abattoirs, the study identified that all the abattoirs have been working below their capacity. Considering the potential of the country, all abattoirs operating in Ethiopia have not yet contributed to the extent the country is expecting from the sector. The main reasons for such lower achievement associated with lack of adequate supply of live animals that meet the required amount and standard specified by the importing countries, low number of abattoirs with adequate facilities and poor slaughtering house design, which is not in line with the animal's welfare.

4.3 Survey Results of Sample Export Abattoirs

In order to understand the performance status and operational challenges of meat processing and export sector, detail assessment was made using semi-structured questionnaire. Reliability test result, profile of respondents and detail analysis result of the study is documented and presented in the next section.

4.3.1 Response Rate and Respondents' Profile

On the basis of the arrangement made on the questionnaire, respondents view were organized into two sections, the first section gives brief information on the response rate followed by general respondents' profile. This means the section focuses on the demographic characteristics of respondents. The second section focuses on the operational performance of export abattoirs in the view of respondents and their challenges and opportunities while operating in the sector.

A. Response Rate

The study covered a total of 175 sample respondents working in two cities, Bishoftu and modjo, and five different abattoirs. Questionnaires were proportionally distributed to all abattoirs and all of them were properly filled and collected, making a response rate of 100%. This is an interesting response rate and considered as sufficient to draw logical conclusions about the population.

B. Demographic Characteristics of Respondents

In order to understand the profile of study participants, respondents were requested to fill questions related to their attributes such as location, gender, age, occupation, years of service, and education level. The result of the study indicated the following picture about the participants of the study.

Gender of Respondents: In terms of gender, majority of the respondents (61%) participated in the study were male while 39% are female. This shows that the result of the assessment is relatively dominated by male participants (Annex-3).

Age of Respondents: While looking at the age of respondents, around 77% of the total respondents is found under the age group of 30 – 64, indicating that majority of the participant are found under economically active age group. The remaining 23% are found within the age group of 15 – 30, indicating that there also young operators in the field (Annex-3).

Education Level of Respondents: The level of education for majority of respondents (71%) is below grade 12. This may indicated that the sector needs more of experience than education and use larger proportion of lower level educated staff as compared to the educated ones. However, around 29% of the respondents are individuals with higher level of eduction (Annex-3).

Occupation of Respondents: The result of the analysis shows that around 60% of the respondents are engaged in meat processing while the remaining 27% and 13% of the participants are working on administration and marketing and sales efforts of the organization respectively. This indicates that the study incorporated larger proportion of meat processor than others (Annex-3).

Work Experience of Respondents: In terms of experience, around 46% of the respondents have an experience of 5 – 15 years in meat processing and export business. The proportion of fresh staff respondents is very low. This fact is very helpful to get more relevant information from those experienced and well exposed employees of the sector (Annex-3).

Location of Respondents: Looking at the location of respondents, majority of the respondents (60%) is found around Modjo and the remaining 40% of the participants of the study are located in Bishoftu (Annex-3).

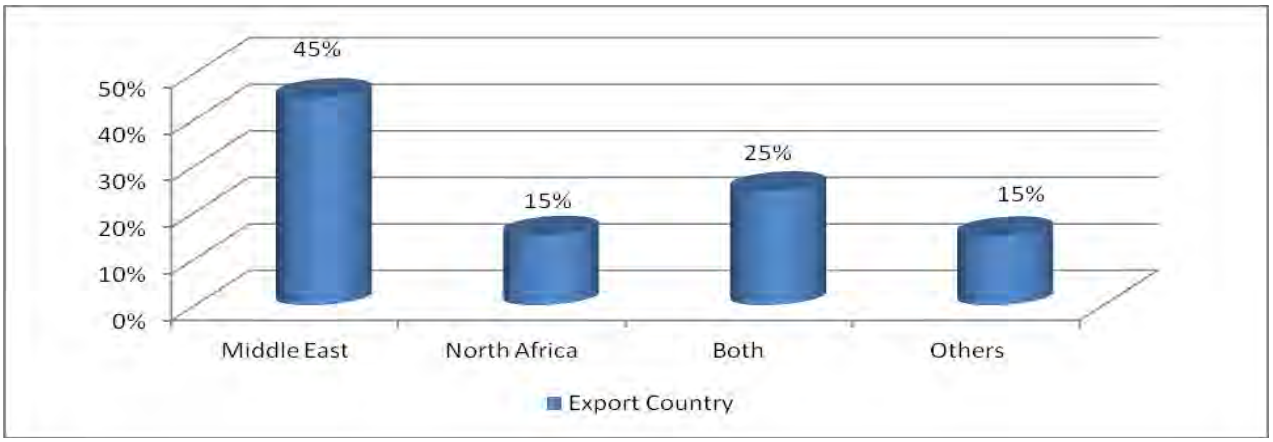
4.3.2 Analysis Result of the Study and Discussion

This section covers the overall assessment and findings of the study. It discusses the views of operators in relation to operational performance of the sector. Here assessment was conducted in relation to export destination, market preference, availability of cattle supply, level of market demand for processed meat, capacity of export abattoirs, etc.

A) Export Market Destination and Cattle Preference

Result of the assessment revealed that around 25% of the respondents agreed with the choice that export abattoirs export their product to both Middle East and North Africa. However, majority of the respondents (45%) confirmed that export abattoirs export majority of their meat products to Middle East rather than other countries. This shows that the Middle East is a priority market for the Ethiopian meat export (Figure 3).

Figure 3: Export Destination for Cattle products



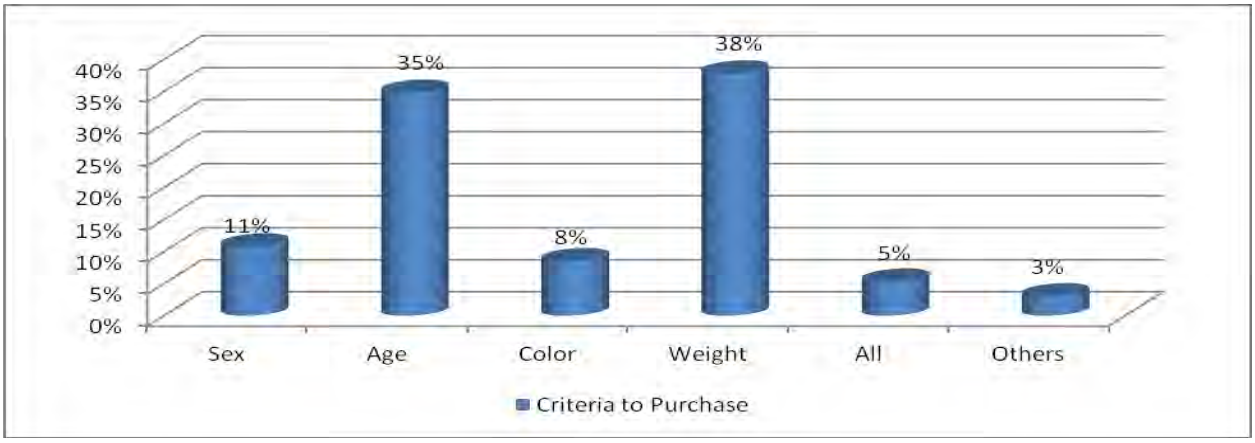
Source: Survey result and own computation

While looking at the market preference for cattle, majority of the respondents (66%) confirmed that Boran is more preferable. The availability of these types of cattle is also good compared to others. This may be due to proportionally higher level of concentration and distribution of these kinds of cattle across the country.

B) Criteria used to Purchase Cattle

In order to purchase cattle from the market, exporters use different criteria. The most common criteria used to purchase cattle to be slaughtered are age and weight. Respondents rated these two criteria (age and weight) as the most important factors to be considered while procuring cattle for export business with a proportion of 35% and 38% respectively.

Figure 4: Criteria used f while purchasing cattle

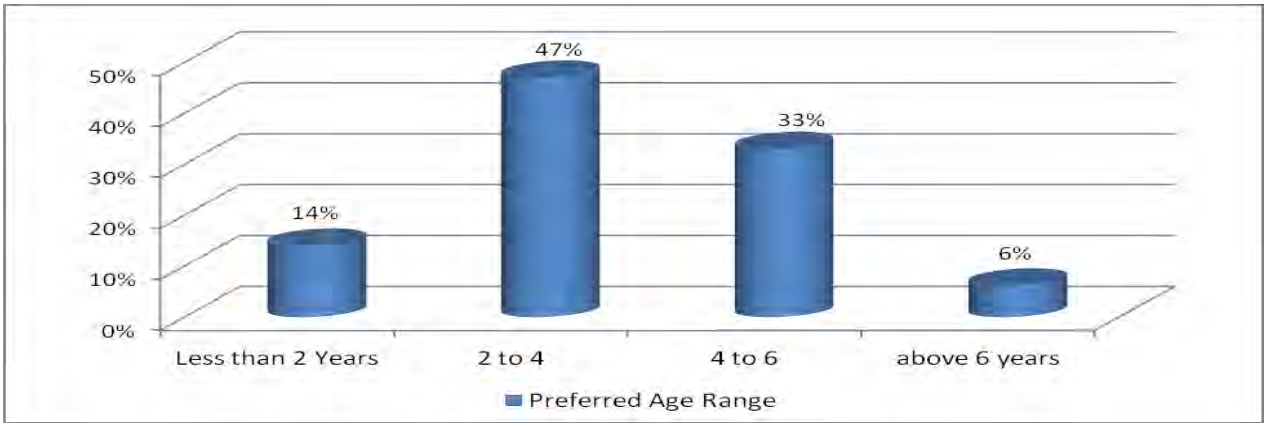


Source: Own computation

In some cases, exporters also consider sex. This may be due to the weight variation between male and female cattle. This shows that other attributes are less important in purchasing cattle for slaughtering to export market. While looking at the market sex preference, around 58% of the respondents preferred male compared to female cattle (35%) and the remaining 7% preferred both sex for export meat processing business.

In terms of age, around 47% of the respondents choose cattle with an age group of 2 to 4 years for exportable meat processing. On the other hand, around 33% of the respondents prefer cattle with age group between 4-6 years. This shows that young cattle are preferable for export meat processing than the older one.

Figure 5: Preferred cattle age range for meat processing and export

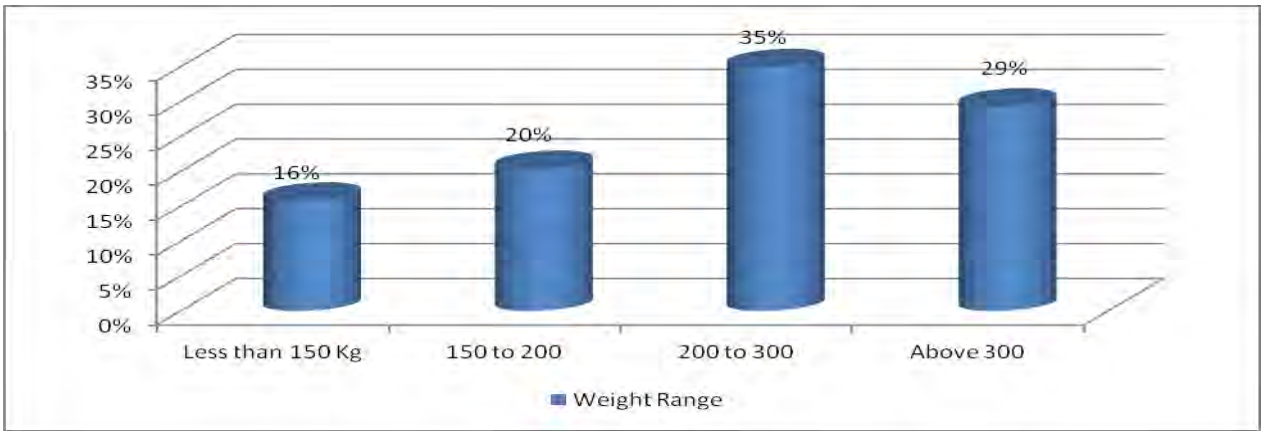


Source: Own computation

While considering the availability of these groups of cattle, around 84% of respondents confirmed that these groups of cattle are available in the market. However, relatively small number (16%) of respondents has a doubt on their availability. One of the common means of identifying cattle age is looking at their teeth. In this case, majority of respondents (59%) confirmed that the number of broken teeth give a clue on the age of a cattle. On the other hand, other respondents, constituting 26% of the samples, selected observation as a means to identify age of cattle.

Similarly, most of the respondents selected a weight range of above 300 as their preference for slaughtering. This choice may not go with the respondents' preference of age of cattle, where younger cattle may not have higher weight and large amount of meat.

Figure 6: Weight range preferred for meat processing and export



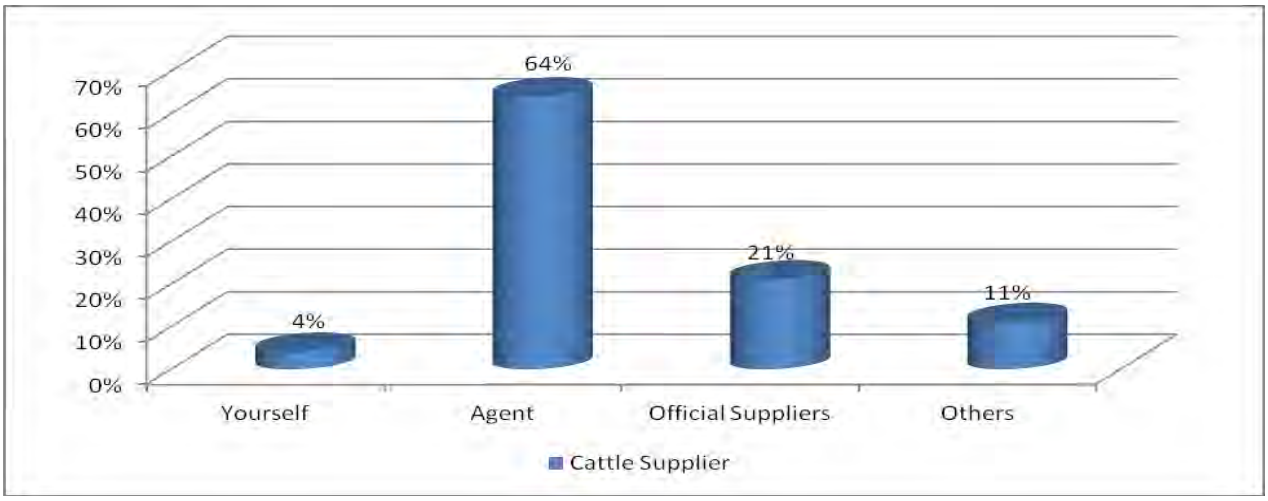
Source: Own computation

As it is indicated on the figure above, majority of the respondents (35%) has a preference for cattle to purchase with a weight range of 200 kg to 300 kg for meat processing and export. Those respondents with a preference of cattle weight with a range of above 300 kg constitute around 29% of the total sample. While assessing the availability of these types of cattle in the market, majority of the respondents (75%) confirmed their existence. However, around 25% of the remaining sample has a doubt on their full existence. The study also identified that color of a cattle has no importance for meat processing and export. However, some of the respondents selected white color cattle as their preference.

C) Common Suppliers of Cattle

Supply has significant effect on addressing the growing demand for meat. As per the result of the survey, majority of respondents (64%) indicated that agents are the main sources of cattle supply. Official supplies such are fattening farms are also the second largest supplier of cattle.

Figure 7: Suppliers of cattle for abattoirs



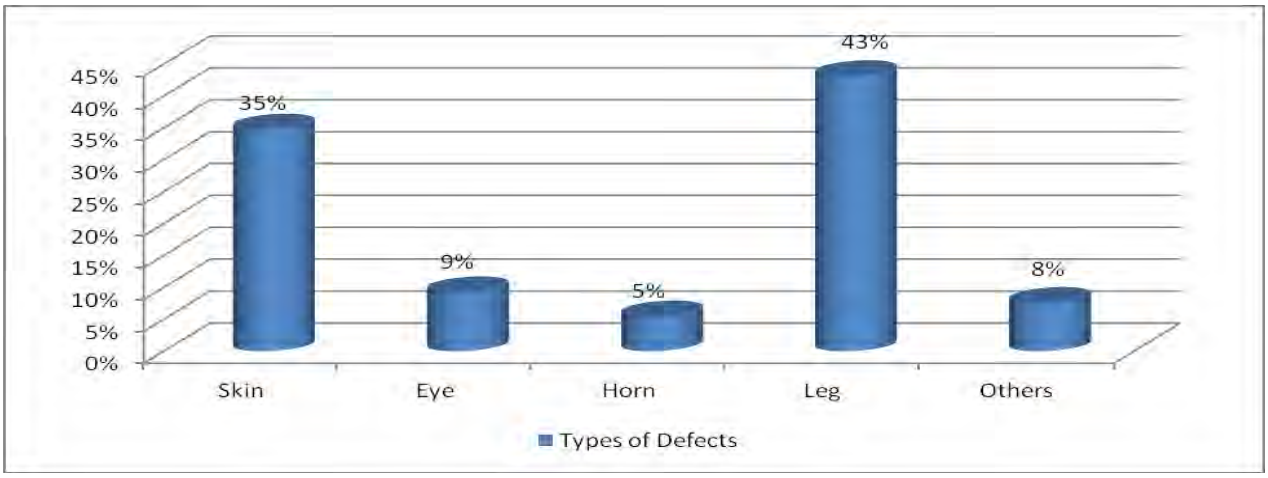
Source: Own computation

In addition to agents and official suppliers, ordinary farmers and local cattle breeders supply significant share of cattle for abattoirs. This shows that, in addition to agents, ordinary farmers are now the main sources of cattle for export abattoirs.

D) Effect of Physical Defect on Meat Processing and Export

As per the assessment result of the study, majority of the respondents confirmed that physical defect has an effect on meat processing and export business. However, the effect varies across the type of defect. Accordingly, around 78% of the respondents indicated that leg and skin defect has serious effect on meat processing and export.

Figure 8: Effect of defects on meat processing and export



Source: Own computation

On the other hand, the effect of horn and eye is minimal in the business of meat processing and export. This shows that businesses operating in meat processing and export consider the type of defect exposed while procuring cattle from the market.

E) Availability of Cattle Holding Ground and Daily Meat Supply

Results of the analysis shows that majority of the abattoirs have holding ground for their cattle. However, the size of the holding ground varies from abattoir to abattoir. The largest space is owned for export abattoir reaches around five hectares of land (Elfora, Modern, and Luna). The rest abattoirs have operation space of around two hectares.

The study identified that, depending on the size of the abattoirs, the number of cattle to be slaughtered varies. Majority of the respondents (47%) confirmed that the number of cattle slaughtered per abattoir reaches between 1500 and 3000 per day. However, around 46% of the respondents indicated that the slaughtering capacity of the abattoirs is between 1000 and 1500 per day, indicating slight variation.

Figure 9: Slaughtering capacity of abattoirs per day (In number)

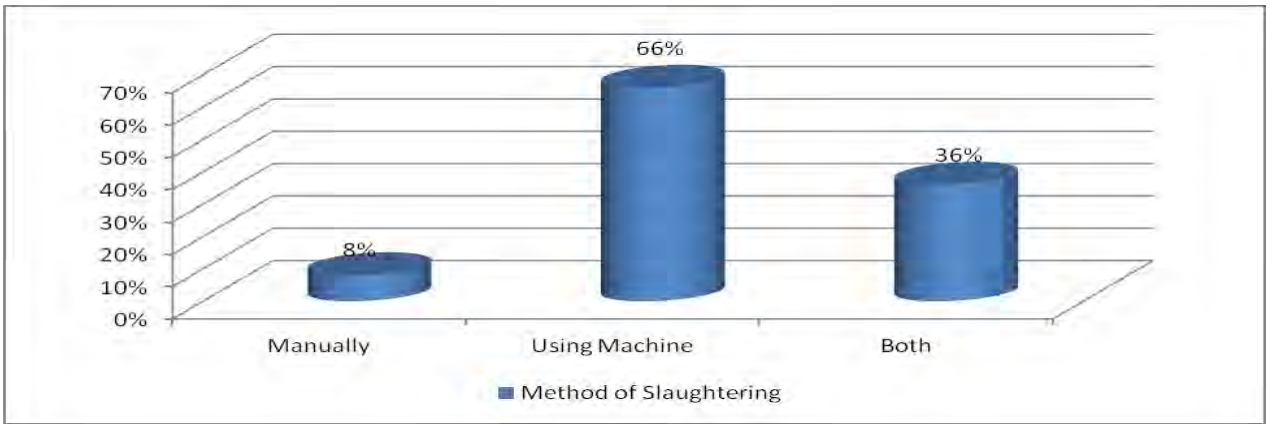
Source: Own computation

The result of the analysis shows that majority of the abattoirs has a daily slaughtering capacity of less than three thousand. Given the market potential of the country, the capacity of each abattoir is relatively small and requires further effort to expand their capacity. This is also an opportunity for other investors in the area.

F) Method of Slaughtering

All abattoirs use either manual or machine based slaughtering. Due to the level of development of the business, cultural and religious facts, the means of slaughtering varies across abattoirs. Despite the above facts, the result of the survey indicated that majority of the respondents (66%) identified use of machine as the only means of slaughtering for meat processing and export. However, large proportion of respondents (36%) revealed that significant number of abattoirs use both machine and manual slaughtering.

Figure 10: Extent of automation and method of slaughtering



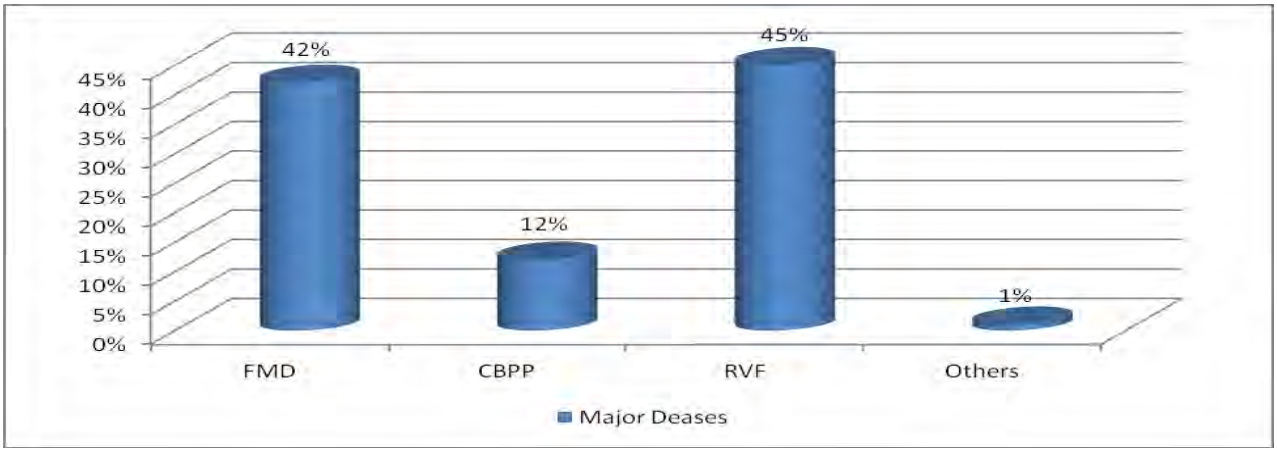
Source: Own computation

However, the study clearly indicated that most of the abattoirs do not have complete meat processing facilities. As a result, they use a combination of manual and mechanical processing to avail the required meat to the market. This effort has its own drawback both in the quality and amount of meat to be deliver for the market.

G) Diseases affecting Meat Processing and Export and Its Inspection

Meat processing and export businesses are highly affected by animal disease. Subject to the information collected from respondents, RVF (47%) is the most common disease affecting cattle followed by FMD (42%) and CBPP (12%). These diseases have affected the number of cattle to be slaughtered and the performance of export abattoirs significantly.

Figure 11: Diseases affecting meat processing and export



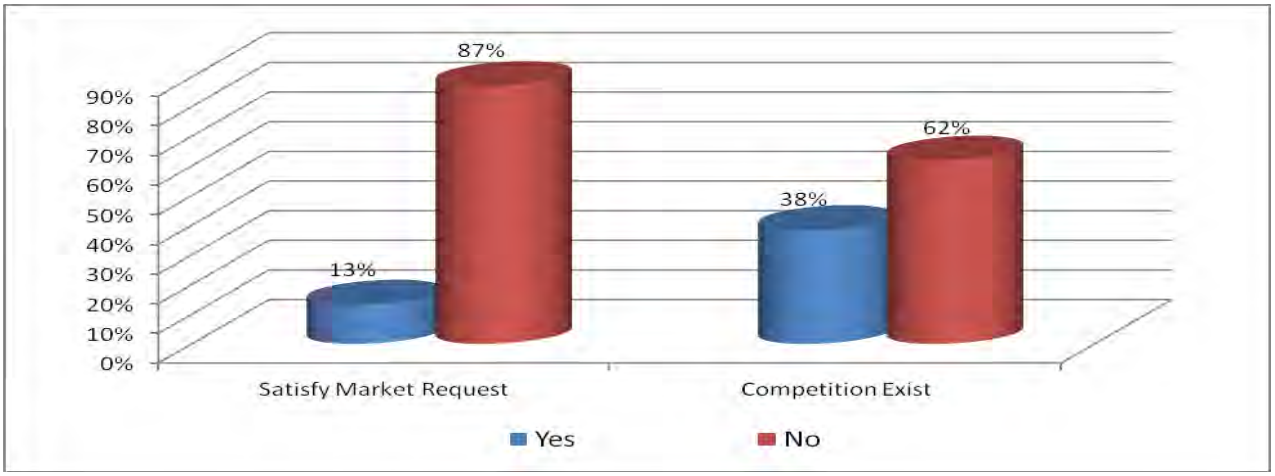
Source: Own computation

In order to meet the meat export standard, inspections have been conducted on individual cattle. In most cases such inspections of cattle have been undertaken by professionals of the company. However, occasionally, the Ministry of Agriculture undertakes inspection to ensure export quality standard at national level.

H) Market Demand and Competition

Assessment made to identify the level of market demand and check the existence of competition indicated that there is strong demand for meat products. However, the level of competition is weak compared to other sectors. In this regard, majority of the respondents (87%) confirmed that the market is not yet satisfied with the existing supply. Moreover, large number of respondents (62%) revealed that the level of market competition is weak as the level of demand is high.

Figure 12: Market demand for meat and existence of competition



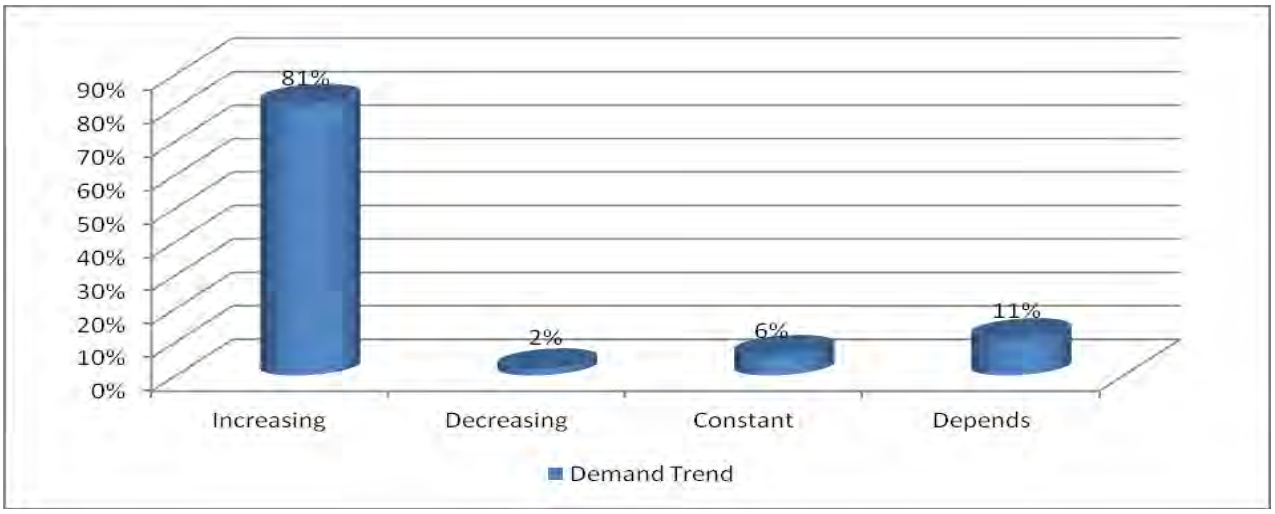
Source: Own Computation

On the basis of the above findings, it is possible to conclude that the sector still needs additional effort and more investment to satisfy the existing market demand.

I) Market Demand for Meat

According to the information collected from respondents, the demand for meat has been growing from year to year. In this case, larger proportion of the sample (81%) confirmed that the demand for meat products has been increasing. This may be due to an increase in the level of income of meat importing countries.

Figure 13: Observed trends of market demand for meat



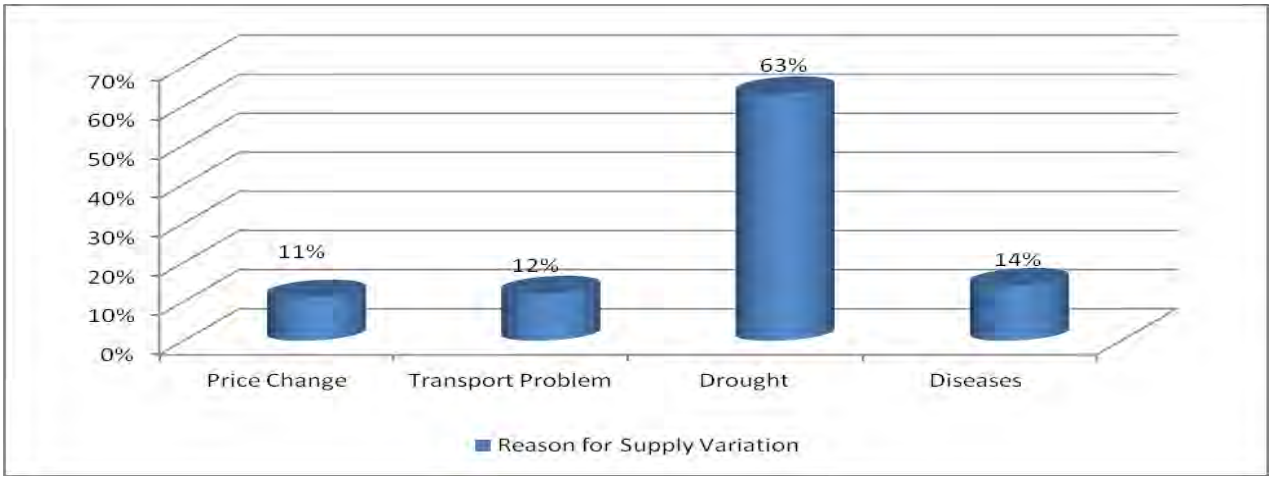
Source: Own computation

Individuals that opt for decreasing and it depends may associate seasonal fluctuation of meat supply with its demand. However, majority of the respondents opt for increasing trend of demand.

J) Cattle Supply Variation and Its Reason

Subject to the responses of survey participants, the major reason for cattle supply variation is draught (63%) flowed by disease (14%), transportation problem (12%) and price fluctuation (11%). This shows that change in climatic condition has strong effect on the supply of cattle and meat export market.

Figure 14: Reasons for market price variation



Source: Own computation

In addition to draught, it is possible to state that animal disease and lack of transportation access to market has significant role in price fluctuation, which in turn plays its own negative contribution on cattle supply.

K) Market Price Determination

Results of the analysis indicated that those companies engaged in meat processing and export determines the price of meat and related products. However, in some cases, government interferes in the market to set market price for these products. In line with this fact, majority of respondents (71%) indicated that the price of meat and meat products are fixed by the organization in which they are working in.

Figure 15: Responsible organ for market price determination

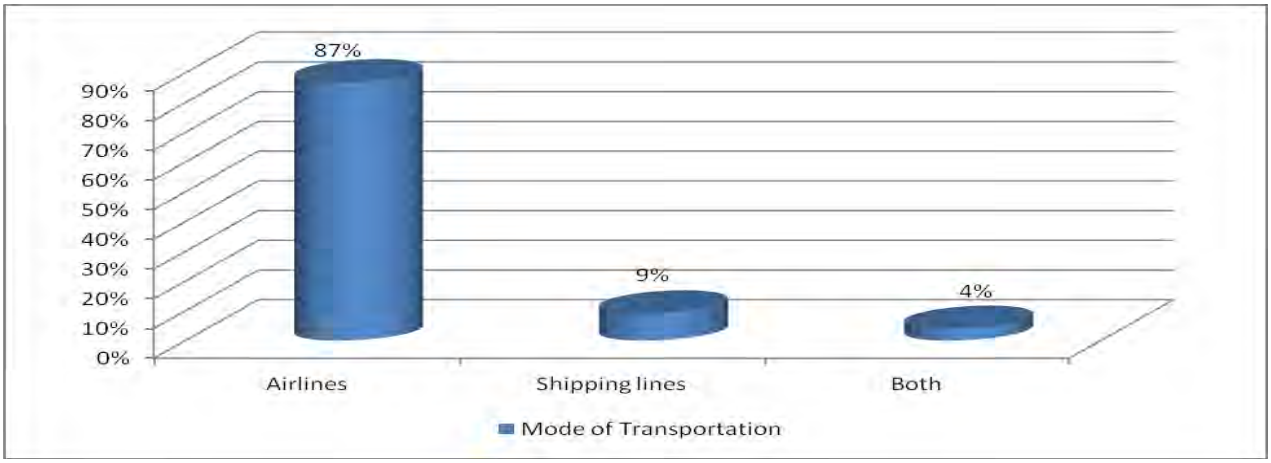
Source: Own computation

However, around 24% of the respondents indicated that selling price of meet has been fixed by government. This view of operators may be linked with previous market interference government on meat price.

L) Mode of Transportation

Meat is one of the most perishable products. As a result, it needs proper care while transporting from area to area. In line with this fact, the study identified that airlines is the main system of transportation for meat export. In addition, shipping lines is the second preferable means of transportation, especially for offal and related products.

Figure 16: Preferred mode of Transportation



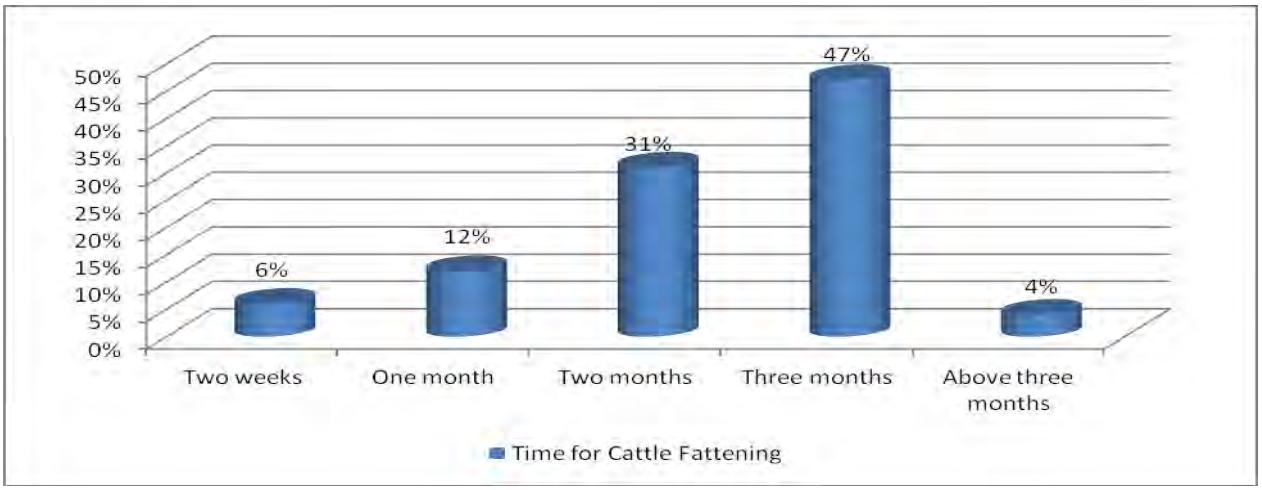
Source: Own computation

The figure above indicates that around 87% of the respondents opt for airlines followed by shipping lines. Only 4% of the respondents selected both mode of transportation, indicating low use of other services.

M) Cattle Fattening and Time Duration

Respondents of sample abattoirs are asked for the length of time for which cattle are maintained in abattoir. The result indicated that three months are the most common length of time used to maintain cattle in the abattoir.

Figure 17: Length of time cattle are maintained in Abattoirs



Source: Own computation

In addition to the three months period, around 31% of the respondents are selected two months as the length of period for fattening. Moreover, around 12% of the samples are also opted for one month. This shows that most abattoirs maintain their cattle for one to three months until they slaughter. This means, there is additional cost feed for maintaining livestock in each abattoirs.

4.3.3 Challenges and Opportunities identified in the Livestock Sector

As indicated in chapter two, Ethiopia has immense potential for livestock breeding and meat production. This potential is associated with different social and economic opportunities. Despite this fact, the livestock sector is surrounded by different challenges that hinder the growth of the sector. In line with the assessment made through questionnaire, different internal and external challenges are identified for the sector. Moreover, the available opportunities of the sector are isolated using questionnaire. Accordingly, the next section deals with the possible challenges and opportunities of livestock sector.

A. Major Challenges

In line with the result of the assessment, a series of challenges span the meat processing and export sector. These challenges are mainly associated with production, fattening and trading, and commercialization:

Production: From the study it is learned that the livestock production systems have low productivity and off-take, due to: (i) input constraints of feed and water to pastoral herd size and reproduction; (ii) reluctance of pastoralists to commercialize livestock because of social importance and lack of alternative assets; (iii) limited and periodic access to appropriate animal health services; and (iv) competition of draught power with meat for young males lead to aged and low-quality off-take in highlands.

Fattening and Trading: Formal trading is constrained by irregular and variable quality in supply of cattle because: (i) livestock cooperatives are not effective in delivering value added to their members; (ii) a large proportion of sales are on credit and incur late payment; (iii) limited transparency on quality, health, and weight; (iv) the feedlot industry faces severe constraints for feed, water, land, financing, and markets.

Other Challenges: Problems associated with genetic improvement of livestock, which include lack of selection and genetic improvement programs for indigenous breeds, limited crossbreeding of local breeds with exotic animals for dairy and sheep only, limited capacity of government ranches and multiplication centers for the supply of improved animals, inefficient and ineffective AI services, distribution of improved breeds or technologies in isolation from other associated inputs and services, weak follow-up and extension services and limitation on number of improved genetic resources distribution per household. Alternative systems have to be explored in order to have an effective and efficient improved breed improvement and supply system.

In terms of livestock finance and insurance, there is limited credit facility for livestock development. The problems associated with the existing credit facility include high interest rates, small amounts and discouraging upper limits of credit that is not attractive for livestock intervention. In addition, the focus of the available credit for livestock is on short term activities such as fattening that has short re-payment schedule. Moreover, there is no livestock insurance system in the country.

In marketing aspect of livestock sector, a number of constraints were identified in the middle of the value chain, at the aggregation and trading stage, where the formal trading channel has had mixed success in marketing irregular and variable-quality supply. Key challenges include: (i) ineffective livestock marketing cooperatives such as poor member patronage and limited access to production inputs; (ii) pervasive sale on credit and late payment; (iii) lack of transparency on quality, health and weight; (iv) a rapidly-growing feedlot industry constrained by feed, water, land and finance; and (v) informal cross-border trade driven by weak highland-lowland linkages and strong cross-border forces. Formal trade competes with substantial informal cross-border trade due to weak highland-lowland linkages and incentives offered by the informal market. Some of factors contributing to large volumes of informal livestock trade and exports include:

- ✓ Onerous procedures required to export formally including export licenses, quarantine, banking clearance for remitting foreign exchange, minimum weight restrictions, and informal minimum price requirements.
- ✓ Better prices and more reliable market across the border;
- ✓ Poor market linkages, featuring high transportation and transaction costs;

- ✓ Consumer goods (food, clothes, electronics) can be traded for livestock and are readily available from across borders;
- ✓ Bans on Ethiopian livestock and meat;
- ✓ Financial and non-financial advantages to informality, including taxation, black market foreign exchange rates, lack of bureaucratic delay and clan and linguistic ties.

B. Opportunities

The study also identified that there is huge livestock production potentials in Ethiopia for the fact that existence of high livestock population**,** diverse genetic resources**,** diverse agro-ecologies**,** different livestock production systems**,** increased demand for livestock products**,** increased interest in market oriented livestock production**,** less commercialization**,** inadequate livestock product processing and by product (offal) processing. Moreover, there are many alternative investment opportunities in livestock sectors that include:

- ➢ Establishment of ranches;
- ➢ Establishment of meat export abattoir;
- ➢ Rearing and breeding of cattle;
- ➢ Livestock fattening and export
- ➢ Trading of cattle domestically after the completion of a fattening cycle
- ➢ Production and processing of feed for domestic market and use
- ➢ Establishment of poultry farm
- ➢ Processing of offal for export

In addition, respondents stated the government initiatives to improve the livestock, meat processing and export sector. Accordingly, strong emphasis and sufficient incentives was given for the private investors who have an interest to participate in the sector. The major incentives of the sector were indicated as:

- ➢ Tax holiday for three to five years.
- ➢ Duty free material import that are intended to the investment from any country
- ➢ Easy way of delivering investment land

- Facilitating the financial support through financial institution like development banks with 30/70% (that means 30% of the total investment cost will be covered by the investors the rest 70% is handled by the bank) based on the some conditions and with respect to the viability of the project the system of delivering the finance will be changed in 20/80%(optional).
- Facilitation of infrastructure in the investment areas like road, airport, water supply, electric power supply

In general, the result of the assessment indicated that the performance of the different meat processing and export abattoirs has been operating with an environment of high demand and low supply. Assessment made on sample export abattoirs shows that they have been operating below their capacity due to different reasons. Some of the major reasons for low production include lack of sufficient cattle that meat export standard, poor organization of export abattoirs, problem of cattle and meat market chain, inadequate transport facilities, etc. As a result, due attention should be made to improve the current situation and enhance performance of the sector.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Ethiopia is one of the countries with large livestock population in the world. However, the country is known with less commercially oriented livestock production systems, inadequate production and marketing infrastructure, and inadequate services, institutions, and support systems. Its contributions to both agricultural value-adding and national GDP are not substantial. Literatures indicate that, at household level, livestock plays critical economic and social role in the lives of pastoralists, agro-pastoralists, and small farm holders. Livestock fulfills an important function in coping with shocks, accumulating wealth, source of nutritious food and serving as a store of value in the absence of financial institutions. As a result, improving livestock production and marketing is critical for enhancing livelihoods and to alleviating poverty in Ethiopia.

Unlike its economic importance, poor livestock management system resulted in low productivity and low income generation capacity. Problem of reliable and adequate supply of quality live animals and meat has been one of the major challenges facing meat export sector in Ethiopia. Development of the private sector and institutional capacity to reliably deliver the required quantities of live animals and meat of a specified quality standard as agreed upon by the importers is crucial. In this regard, some of the major challenges identified in the study include poor quality of live animals as a result of disease, insufficient feeding, and sanitary, marketing infrastructure deficiencies, lack of transportation facilities, etc. In order to fill this gap, it is important to adapt production and marketing methods that fit to the export market requirements.

Meat processing and export industry is one of the sectors that have been given development priorities by the Ethiopian government to increasing meat exports, especially beef in order to capture value of hides and offal's and to create job opportunities and market outlet to producers, particularly the pastoralists. Due to the favorable investment opportunity of the country, many investors are getting to this sector and most of the export abattoirs are established from 1991E.C onwards. Despite the huge potential of the country, the meat processing and export sector has been operating below expectation. The performance selected export abattoirs have been decreasing for the past five years due to problems stated above. In addition, the existing meat processing and export infrastructure of the different abattoirs also requires further emphasis. However, assessment

made on selected abattoirs shows that there is high demand for the product from both domestic and international consumers. Therefore, it is important to concentrate on solving the problems of these abattoirs and expand the sector in a way that contributes for the national economy.

In general, on the basis of the findings of the study, it is possible to say that meat processing and export business is found at its infant stage. The volume of meat export to neighboring countries is very low compared to other countries due to various challenges. In addition, the number of businesses engaged in meat processing and export is very low compared to the potential of the country. Furthermore, the technology and infrastructure used for meat processing and export are found at its low level and requires further investment to avail quality meat and related livestock products. Therefore, proper emphasis is expected to minimize the challenges of the sector and enhance its contribution to the national economy.

5.2 Recommendations

The meat processing and export industries can play a pivotal role in shaping the market for high quality meat domestically and using advantage of international market opportunities by utilizing the country‟s livestock potential.

In order to enhance the contribution of the livestock sector and curb the problem of meat processing and export of Ethiopia, it is important to consider the stated internal and external challenges of the sector and propose appropriate remedies that solve or minimize their impact and also design intervention together with member banks to alleviate constraints to access to capital, to effective transport, to foreign exchange, and to the import of trucks and cold chain equipment, will improve the effectiveness of the meat value chain The intervention can include the development of business cases for transport logistics and promote to potential investors.

On the basis of the foregoing findings and discussions, a series of recommendations are proposed for the problem at hand. Some of these recommendations include:

- Involving and creating awareness among small farmers and pastoralists on modern livestock breeding and fattening in a way that meets meat export requirements Strengthening the transportation link in areas with problems of road infrastructure

- Establishing efficient and accessible market information system that helps to facilitate easy transaction among participants.
- Establishing holding grounds in lowlands and carrying out uninterrupted livestock purchases to maintain sustainable and adequate livestock supply
- Establishing primary livestock and commodity markets in remote pastoral areas that will increase both the cash demand of the pastoralists and market access for their livestock
- Upgrading the marketing/management skills of livestock producers and their cooperatives
- Developing and adopting a unified livestock pricing system in the supply chain such as auction system, which is a mechanism where floor price is decided based on the available market price and bidders are invited to offer their prices based on the pre-set rules of game.
- Implementing uniform pricing system, developing standardized units of measurements for the animals traded (like body weight, heart girth, animal height, age etc); price will be set based on the developed standards, and bidders will compute accordingly.
- Developing and disseminating research output which helps to increase productivity through improving reproductive efficiency and improving nutrition and management practices on slaughter management and chilling techniques for highland shoats. Undertake further investment on meat processing infrastructure and human skill in a way that meets international standards.

In general, in order to enhance the performance of Ethiopian meat processing and export industry, all stakeholders of the sector, including Government, should work together in a way that improve the existing bottlenecks and enhance the expansion of meat processing industries such as export standard abattoirs and meat processing industries of international standard with all the necessary facilities to qualify for exporting processed and further processed meat products, recognizing livestock as one of the country's key economic resources.

5.3 Areas of Further Research

In this study focus is given for assessing the operational performance of meat processing and export business in Ethiopia. However, the determinants of investment in meat processing and export are not yet covered in this research. Thus, this study invites researchers to undertake further research on the determinants of investment in meat processing and export sector of Ethiopia.

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ANNEX-1

Semi-structured questioner for Export Abattoirs

Dear respondents, I am a post graduate student of Addis Ababa University undertaking a research on "**The Operational Performance of Manufacturing Sector in Ethiopia: Meat Processing and Export Subsector.** Semi-structured questioner is used for the purpose of collecting the necessary data for this research. Therefore, I kindly request your assistance in completing the questioner. Please give your most appropriate answer and your answer will kept confidential and no need of writing your name.

<< Thank you in advance for your Cooperation >>

Name of the abattoir _____

Region _____

Zone _____

Woreda _____

Part I: Demographic Characteristic of the Respondents

1) Sex of respondent ☐ Male ☐ Female
2) Age of respondent
   a. Less than 15 years☐ b.15-30 years ☐ .30-64 years☐ d. above 64 y☐
3) Level of education?
   1. Grade 0-8 ☐ c. Grade 9-12 complete ☐ d. Diploma and above ☐
4) What is your major occupation?
   a. Meat processing ☐ b. Administrative staff ☐ c. Marketing and sells ☐
   e. others (specify)_____

Part II. Questions on the operational performance of the abattoirs

1) How long have you been in export of slaughtered animals business?
   1. < 1 year 2. 1-5 years 3.5-15 years 4. >15 years

2) To which country (ies) do you export slaughtered cattle? Name of the country (ies) ----------
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3) What kind of cattle breed do these countries prefer?

1. Horro 2. Boran 3. Both 4. Any other (specify)

4) Do you get the required breed at the market?

1. Yes 2. No

5) What are the criteria's to purchase these animals from the market?

1. Sex 2.Age 3.Color 4.weight 5.all 6. Other (Specify)

6) Which sex is preferable for your market?

1. Male 2. Female 3.Both

7) What age range is preferable for your market? ----------

8) Do you get this age group at the market?

1. Yes 2. No

9) If yes, how do you identify their age?

1. Teeth 2. Observation 3. Other (specify)

10) If no, what do you think is the reason? ----------
---

11) What weight range is preferable to purchase? ----------

12) Do you get this weight range at market?

1. Yes 2. No

13) If no, what do you think is the reason? ----------
---

14) Does skin color have effect on your cattle purchase?

1. Yes 2. No

15) If yes, what color is preferable?

1. White 2. Brown 3. Gray 4. Other (Specify

16) 16) Does physical defect affect your purchase of cattle?

1. Yes 2. No

17) If yes, what type of defects?

1. Skin damage 2. Blind eyes 3. Broken horn 4. Broken leg 5. Other ……..….

18) Do you have holding ground at the abattoir?

1. Yes 2. No

19) If yes, how many cattle can it accommodate at a time? ----------

---

20) How many cattle can your abattoir slaughter per day? ----------

---

21) How is your method of slaughtering?

1. Manually 2. Using machine 3. Other (Specify)

22) If manually, how many cattle can your abattoir slaughter per day? ----------

---

23) If using machine, how many cattle can your abattoir slaughter per day? ----------

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24) Are there complete slaughtering facilities and services in your abattoir?

1. Yes 2. No

25) If yes, please indicate/explain the available slaughtering facilities/services.

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26) If no, please indicate/explain the problem of not fulfilling the necessary facilities/services.

---

27) What are the major diseases inspected at your abattoir?

1. FMD 2. CBPP 3.RVF 4. Other (Specify)

28) Who is the inspector at the abattoir?

1. Ministry of Agriculture 2. Your professionals 3. Both 4.Other (Specify)

29) Do you satisfy your customer's demand/volume with respect to resource of the Country?

1. Yes 2. No

30) If no, what is your reason? ----------

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31) Do you think domestic market is competing with you?

1. Yes 2. No

32) If yes, how? ----------

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33) If no, how? ----------

---

34) Who specifies the selling price of slaughtered cattle?

1. Yourself 2. Government 3. Other (Specify)

35) Do you think the price for export market affect the domestic market?

1. Yes 2. No

36) If yes, mention how it affects. ----------

---

37) If no, why? ----------

---

38) How is the trend on demand/volume of your customers?

1. Increasing 2. Decreasing 3. Constant 4. It depends 5. Other(specify)

39) If decreasing, what is the reason?

1. High price 2. Low quality 3. Disease causes 4. Other (specify)

40) Who supply cattle for you?

1. Yourself 2. Brokers 3. Official suppliers 4. Others, please specify----------

41) 41) Does the supply of cattle to your abattoir vary from season to season?

1. Yes 2. No

42) If yes, what is the reason?

1. Price change 2. Transportation problem 3. Drought (Lack of grazing land)

4. Disease incidence 5. Or other, specify

43) In which months of the year do you think is the cattle price become higher and lower?

1. Month high price	**2. Month lower price**
---------- ----------	---------- ----------
---------- ----------	---------- ----------

44) Why do you think is the reason for cattle price variation across months/season? ----------
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45) What mode of transportation do you use?

1. Air lines 2. Shipping lines 3. Both 4. Other (Specify)

46) Which mode of transportation is the fastest one?

1. Air lines 2. Shipping lines 3. Both

47) How do you do if you cannot sell the slaughtered cattle you offered to the export market?

1. Take them to Restaurants 2. Take them to Hotels 3. Sell at lower price

4. Other means indicate----------

48) Do you fatten (condition) animals before bringing to market?

1. Yes 2. No

49) If yes, for how long?

1. Two weeks 2. One month. 3. Two months 4. Three months

5. > three months

50) What are other internal constraints you face? (Mention)----------
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51) What are other external constraints you face? (Mention) ----------
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52) What do you recommend to alleviate these constraints? (Mention)----------
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Thank you very much for your time!

ANNEX-2

Table 4: Overview of export abattoirs and offal processors in Ethiopia

Sr. No.	Export Abattoir	Year of establishment	Geographical Location (Region and	Land area (hectare)	Type of products	Installed annual Meat Production	Attained production capacity	Capacity utilization (%)	Importing countries	Current status	Comment
1	Organic	2006	Modjo, Oromia	2.5	➢ Chilled sheep and Goats	4,500	2400.19	53.33	➢ KSA ➢ UAE	Operational work in good capacity (70	
2	Modjo modern Export Abattoir PLC	2000	Modjo, Oromia	2.7	➢ Chilled sheep and Goats ➢ Frozen offal	5,230	4993.75	95.48	➢ KSA ➢ UAE ➢ Vietnam	Operational Functional, work in very good capacity	
3	Luna slaughter house plc	2003	Modjo, Oromia	2.5	➢ Chilled sheep and Goats ➢ Frozen offal	5,230	3299.16	63.08	➢ KSA ➢ UAE	Operational, work in very good capacity (85 %)	
4	Helmix (Hashim Nuru Jiru plc)	1998	Bishoftu, Oromia	5.6	➢ Chilled sheep and Goats ➢ Frozen offal	6,000 shoat meat 7,200 beef	1203.04	20.05	➢ KSA ➢ UAE ➢ Vietnam	Operational, but work under capacity (25 %)	Not working efficiently to find end markets
5	ELFORA Bishoftu	1973	Bishoftu (Oromia)	5	➢ Chilled sheep and Goats ➢ Frozen offal	4,608 shoat meat	1683.12	36.52	➢ KSA ➢ UAE	Operational, but work under capacity (35 %)	Not working efficiently to find end markets
6	ELFORA, Melgewondo	1961	Melge-Wondo, SNNPE		➢ Beef for local				➢ Previously to Egypt	Not operational , b/se not renewed the approval from VSD	Need rehabilitation of infrastructure
7	ELFORA, Metehara	2001	Metehara, (Oromia)	5	➢ Chilled sheep and Goats ➢ Frozen offal ➢ Chilled camel	2112	25.5	1.2	➢ UAE	Almost not Functional since 2000 (1%) Will increase capacity to 50 % once they get	Recently approved by UAE, and KSA will approve it soon

8	Aschraf group PLC	2010	Bahir-Dar, Amhara	5.5		5378 shoat meat 13219 beef	0	0		Not operational	Not approved by UAE and
9	Abergelle international livestock development PLC	2010	MeKelle, Tigray	5	➢ Chilled sheep and Goats ➢ Frozen offal	2,850 shoat meat 9,072 beef	28.13	0.98		Functional only 5 % because of transport costs and difficulties in direct	Approved by UAE, and KSA will approve it
10	Abyssinia export abattoir	2013	Bishoftu/ Bishoftu (Oromia)	1.5	➢ Chilled sheep and Goats ➢ Frozen offal ➢ Chilled beef	5,148 shoat meat 6,578 beef	22.3	0.43	➢ UAE	Functional, but work under capacity (20 %), Once KSA approval given, will	Approved by UAE, and KSA will approve it soon
11	Aksker Ethiopia casing PLC	2015	Modjo	2.5	➢ Chilled sheep and Goats ➢ Frozen offal ➢ Frozen beef	6,000 shoat meat 6,000 beef 3710 offal	815.13	21.7	➢ UAE ➢ Qatar	Operational, but work under capacity (20 %), Once KSA approval given, will	Approved by UAE, and KSA will approve it soon
12	ELFORA Combolcha	2000	Amhara, (Combolcha)		➢ Beef for local					Not Functional, b/se not renewed the approval from VSD	Need rehabilitation of infrastructure
13	ELFORA Gonder	2000	Amhara, (Gonder)		➢ Beef for local					Not Functional, b/se not renewed the approval from VSD	Need rehabilitation of infrastructure
14	Jima Abattoir		Jimma (Oromia)	1.96					➢ Middle east	Almost not functional	
15	Yongtai offal Processing		Bishoftu/ Bishoftu				380			Under construction	
16	NFA business Plc		Modjo (Oromia)				78			Operational	

Sources: (EMDIDI, 2014), (MoA, 2014)

ANNEX-3

COMPARISION USED TO MAKE ANALYSIS

Description	Measurement Indicator	Result
Sex	**F**	**75**
	M	**100**
Age	<15	0
	15-30	40
	30-64	135
	>64	0
Education	<8	65
	9 to 12	60
	Diploma and Above	50
Marital Status	Single	33
	Married	122
	Divorced	8
	Widowed	12
Occupation	Meat Processing	100
	Administrative Staff	50
	Marketing and Sales	25
Experience	<1	8
	1 to 5	25
	5 to 15	80
	above 15	62
Location	Bishoftu	70
	Modjo	105
Abattoir	Organic	35
	Luna	35
	Modjo Modern	35
	Elfora	35
	Helmex	35
Export country	Middle East	78
	North Africa	28
	Both	43
	Others	26
Country Preference	Horro	45
	Boran	115

Description	Measurement Indicator	Result
	Both	58
	Others	15
Access to breed	Yes	146
	No	29
Criteria to purchase	Sex	34
	Age	152
	Colour	37
	Weight	165
	All	41
	Others	13
Market Sex preference	Male	102
	Female	61
	Both	12