Review on Ethiopia's Global Position in Meat Production and Export: Analysis of Sectoral Opportunities and Challenges

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Abstract
Meat and other slaughter by-products being exportable food items have been contributing to the foreign export earnings and GDP growth of Ethiopia since the beginning of meat processing. Even though the country is blessed with huge livestock resources, the share of meat and other slaughter by-products exported from the overall export commodities is not more than 2% and the per capita meat consumption is below the average of Sub-Sahara African countries. This study was therefore, implemented to review the potentials and tradeoffs of meat production, processing and marketing in Ethiopia and seeking strategic intervention options to unleash the potentials after reviewing the available national and international resource materials. The study therefore indicated that, as opposed to Ethiopia's strategic location to market and sound climatic condition, the country is not benefiting from the huge livestock resources due to knowledge gap; limited compliance to meet the international requirements including food safety standards like ISO, GMP and HACCP; limited promotion done in marketing; limited intra-Africa trade integration; poor linkage among stakeholders; few market outlets and other interlinked problems. On top of these meat consumption trends is almost stagnant and the calorie intake per capita from meat is in a declining state. Therefore, policy support in terms of diverse incentive mechanisms; encouraging more research and development work so as to benefit smallholder farmers, pastoralists and processors and the need for traceability and residue monitoring, market promotion and conducting benchmarking and twinning programs are some of the measures to be taken in order to be competitive in the global market. Better business communication with potential buyers and back and forth linkage with stakeholders along the value chain is also very important for the transformation of the sector from the current staggering stage to globally competitive agribusiness.
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Introduction

According to CSA (2020/21) report, the total cattle population for the country is estimated to be about 70 million. Out of this total cattle population, the female cattle constitute about 56 percent and the remaining 44 percent are male cattle. About 42.9 million sheep are estimated to be found in the country, out of which about 70 percent are females, and about 30 percent are males. According to the survey result, the number of goats reported in the country is estimated to be about 52.5 million. Out of these total goats, 70 percent are females and about 30 percent are males.

The economic contribution of livestock sub-sector in Ethiopia is about 12% of the total and 33% of agriculture GDP and provides livelihood for 65% of the population. Despite the contribution of livestock to the economy and to smallholders' livelihood, the production system is not adequately market-oriented. The promise and potential of the Ethiopian meat processing industry value chain is to become a thriving industry that can produce packaged meats destined for Middle Eastern, European and East African markets (Teseme, W & Tolesa, G, 2020).

Africa remains a relatively small player in global export market for meat products. In Africa, in recent years, annual meat production from ruminants was 7.5 million tonnes, of which 65% was from cattle, 32% from small ruminants and 3% from Came lids (Mankor, 2016)

The report further indicated that, the African continent accounts for about 4% of the world production of animal products and its share in world trade in animal products is less than 1% and its meat consumption (kcal/capita/day) between 1961-2007 is not at its progressive. Globally, imports of meat products from developing market are on the rise and provide the potential impetus for new suppliers, including those in Africa (AASTU, 2016).

The ability of Africa to take advantage of these new opportunities will depend largely on its ability to compete effectively with other global competitors. But Africa including Ethiopia faces a number of challenges in its bid to become more integrated into other global meat export markets due to issue of limited competitiveness with other diverse competitors (Karl, 2009).

Meat Production and Export

World Meat Production

It is estimated at 337.2 million tonnes (in carcass weight equivalent) in 2020, similar to the previous year, as increased poultry and ovine meat outputs compensated for pig and bovine meat production contractions. In the pig meat sector, although African swine fever continued to adversely impact production in East Asia, mainly China, the Philippines and Viet Nam, the sector made a faster recovery than had been anticipated. Bovine meat output declines were widespread with reductions in all major geographical regions. A combination of regional and country-specific factors, ranging from the limited availability of animals for slaughter (Australia and Brazil), institutional constraints to purchasing and transporting animals (India) and Covid-19-related market disruptions (the European Union), pushed bovine meat production levels lower (FAO, 2021).

Meat type	Ethiopian Meat production in ton	World Meat Production in ton	Share of Ethiopia in %
Camel Meat	44,514	563,472	7.9
Beef	802,055	58,932,544	1.4
Goat Meat	275,149	7,830,055	3.5
Sheep Meat	217,723	9,338,769	2.3
Grand Total	**1,339,440**	**76,664,840**	**1.7**

Table 1: World Goat, Sheep and Beef Meat production and position of Ethiopia
Source: FAOSTAT, 2020

Meat Production in Ethiopia

The contribution of meat and meat byproducts export to GDP is growing but not to its potential as it is observed in a number of reports. On the other hand, there are more than 300 local abattoirs which produce meat for local consumption at different locations with different capacity and facilities but with no standards. (USAID, 2010). According to (FAO, 2020) Ethiopia have the capacity of 1,339,440 ton meat (Camel, Beef, Goat, and Sheep**).**

This make the country

Based on cold dressed weights, for livestock slaughtered in abattoirs, Ethiopia has been classified as one of the lowest in the world, with carcass weights averaging 110 kg/head for cattle, 10 kg/head for sheep and 8 kg/head for goats, all of which are below the average productivity of all least developed countries (MoA, 2012 and MoST, 2016).

Inferior carcasses from agro-pastoral and pastoral systems in Ethiopia can be attributed to many important factors including and not limited to low genetic potential for indigenous cattle, prolonged nutritional stress, overstocking which leads to overgrazing and heavy parasite burdens etc. (ECA, 2012 and Arend, 2006).

According to Belete (2009) diseases and parasites hamper small ruminant production by causing high mortalities especially among suckling animals. Diseases and parasites cause reduction of productive and reproductive performance of small ruminant production. On the other hand, water shortage and drought occurs due to relatively smaller rainfall and shorter rainy seasons in most of goat producing areas of the country.

Animal Type	Number of slaughters	Meat in Ton	Share in %
Cattle	391,991	391,991.00	28.9
Sheep	4,441,433	328,995.04	24.3
Goat	3,982,556	295,004.15	21.8
Camel	124,440	124,440.00	9.2
Poultry	14,354,131	215,311.97	15.9
Total		**1,355,742.15**	**100**

Table 1: Meat Production in Ethiopia;
Source: CSA, 2020/2021

Note: - Conversion rate was derived from EMDIDI, 2020 to change live animal to ton (135 heads for Goat and Sheep, 10 heads for Cattle and Camel and 1 Chicken = 1.5 Kg)

As it was seen from the above table majority of meat produce in Ethiopia is Beef (28.9%) followed by sheep meat (24.3, %), Goat meat 21.8%, chicken (15.9%, and camel meat 9.2%. Despite the fact that Ethiopia has the tenth largest livestock population in the world, the production of beef, goat and sheep meat is still low and contributed only about 1.7 percent of the world total meat production.

World and Ethiopian Meat export

World Meat Trade

World total meat exports reached 38.7 million tonnes, up 5.7 percent from 2019, albeit slower than the 7.4 percent growth registered in 2019. Asia's imports expanded by 15.8 percent to over 22 million tonnes, accounting for 63 percent of global meat imports, principally driven by the continued ASF impacts on East Asia's pig meat production. Induced by the deficit, meat imports by China rose by 57.6 percent, to 11.7 million tonnes, with pig and poultry meats rising the most. Meanwhile, North American imports, primarily led by the United States of America, expanded by 6.8 percent, reflecting weaker year-on-year growth in domestic bovine and poultry meat production than in previous years. Meat imports from all other regions (Africa, Central America and the Caribbean, Europe, Oceania and South America) decreased, reflecting reduced food services sales, economic hardships, foreign exchange limitations and internal stock accumulations. Many countries registered significant import curtailments, including Viet Nam, Japan, the European Union, the United Arab Emirates, the Republic of Korea, the Russian Federation and Mexico. The fact that 14 out of the top-20 meat importing countries registered lower imports in 2020 shows the widespread nature of import curtailments (FAO, 2021).

World meat trade is projected to grow to 37.6 million tons in 2020, an increase of 3.9% over the previous year, a growth rate significantly lower than the 6.9% in 2019, reflecting the import restrictions of many countries, consistent with the negative impacts of Covid-19 on the global meat trade and the deep global recession. In contrast, China's meat imports are projected to increase by 44% or more than 3 million tons from 2019, absorbing around 30% of the world's meat exports. Much of the projected increase in world meat imports is likely to be due to exports from Brazil, the United States, Canada, Mexico, the Russian Federation and the European Union. (FAO, 2022).

Meat exports are concentrated, and the combined share of the three largest meat exporting countries – Brazil, the European Union, and the United States – is projected to remain stable and account for around 60% of global world meat exports over the outlook period. In Latin America, traditional exporting countries are expected to retain a high share of the global meat trade, benefiting from the depreciation of their currencies and surplus feed grain production. Brazil, which is the largest exporter of poultry meat, will become the largest beef exporter with a 22% market share. India's exports of beef will plummet by 53% to 0.6 Mt by 2030, given the government reforms concerning animal welfare that are assumed to remain in place over the outlook period; exports fell by 14% in 2020, and are expected to fall a further 26% in 2021 (OECD/FAO, 2021).

Globally, sheep and goat meat exports have been dominated by Oceania, mainly Australia and New Zealand. In the last five years, the average annual export volume of sheep and goat meat has increased by 3% for Australia while remaining constant for New Zealand. Smaller percentages of goat and sheep meat originated from some countries in Europe (United Kingdom, Ireland, Spain, and Belgium), Asia (India and China) and Africa, Namibia (Enahoro, 2021).

With South American trade ramping up in recent years, China has been a key target market for expansion. After the sudden emergence of the ASF-induced pork deficit in China in 2019, trade flows between these nations advanced rapidly, with Chinese officials promptly approving dozens of South American plants for exports. Almost half of all the beef exported from Brazil in 2020 was sent to China, representing a remarkable shift in focus from last year when China accounted for 24% of Brazilian beef exports. Currency movements have also had a profound impact on the affordability of South American exports. The Brazilian real depreciated from 2018 through 2020, finishing 2020 near an all-time low of US$0.19, making Brazilian beef more affordable on the global market. (MLA, 2021).

On a volume basis, Brazil has been the largest beef exporter in the world since 2017, followed by Australia, India, and the United States of America (USA). India's rise in beef exports is a new phenomenon over the past decade, fuelled by rising developing country demand (Enahoro, 2021).

As with all meat products, but especially with beef, trade is predominantly in boneless cuts, with frozen cuts predominating on a volume basis. High-value fresh cuts are typically traded to European and East Asian countries from Latin America and Australia/USA. Trade in offal is also substantial, with significant and rising exports to West Africa from European markets and Brazil. Exports to China are rising substantially; for example, China now comprises 70% of Uruguay's beef exports (Perry and Rushtan, 2021).

Sheep meat exports from Australia and New Zealand have benefitted from the weak NZD and AUD relative to the US dollar, as well as from strong global demand. Shipments to China are projected to remain high as significant growth in Chinese demand for sheep meat is expected for the duration of the ASF outbreak. This contrasts with decreased demand from the United Kingdom and continental Europe in the first half of the outlook period. Imports by the Near East and North Africa region are projected to increase. As a result, Australia is expected to continue to increase its lamb production at the expense of mutton. In New Zealand, export growth is projected to be marginal as land use has shifted from sheep farming to dairy (MLA, 2021).

In 2019, the US came to an agreement with the EU to 'ring fence' a portion of the EU High Quality Beef (HQB) grain fed quota (shared with Uruguay, Argentina and Australia), which provides the US with exclusive access to 18,500 tonnes swt of the quota, which will increase incrementally to 35,000 tonnes swt over a seven-year phase-in period. At the start of 2020, the US reached an agreement with Japan to bring tariffs on US beef in line with signatories to the Comprehensive and Progressive Trans-Pacific Partnership, but it will operate within its own smaller safeguard. The US-China Phase One trade agreement also entered into force in January 2020, but little trade is yet to materialize (MLA, 2021).

SN	Country	Volume in ton	SN	Country	Volume in ton
1	Brazil	1,724,462	17	Belarus	148,764
2	Australia	1,550,498	18	Belgium	128,780
3	USA	946,810	19	Nicaragua	123,041
4	New Zealand	873,272	20	Austria	100,113
5	Argentina	617,088	21	Italy	98,390
6	Netherlands	478,318	22	Pakistan	75,885
7	Ireland	416,791	23	Denmark	64,089
8	Canada	378,690	24	South Africa	38,045
9	Poland	374,270	25	Colombia	31,685
10	Uruguay	319,422	26	Chile	30,168
11	Paraguay	271,819	27	Costa Rica	28,365
12	Mexico	266,751	28	Lithuania	28,341
13	Spain	241,825	29	UAE	28,168
14	Germany	240,229	30	Ukraine	24,779
15	United Kingdom	204,996	31	Ethiopia	16,888
16	France	98,103			

Table: World most meat (beef, Sheep, and Goat) exporting Countries
Source: FAOSTAT, 2020

As it is seen from the above table, Brazil was the leading country exporting 1.7 million tonnes of beef, Sheep, and Goat meat in 2020. In case of Africa, South Africa exports the largest volume of meat 38,045 tonnes following Ethiopia 16,888 tonnes and she was 31th in the world in Meat export.

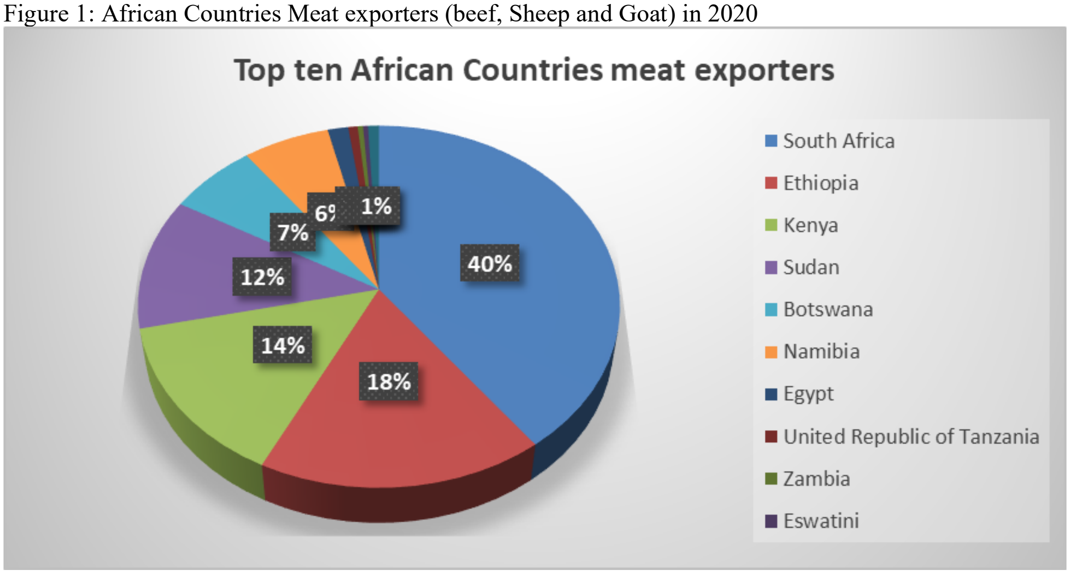
Australia exports approximately 75% of beef production – far more than most but comparable to New Zealand and Uruguay – and as such, is heavily exposed to currency fluctuations, the health of the global economy and market access changes. Australia is a major player when it comes to exports, particularly in providing high value product backed by integrity and quality assurance systems. For FY2019–20, Australia was the beneficiary of a soft Australian dollar that contributed towards making it the most valuable year for beef exports on record (MLA, 2021).

Ethiopian Meat Export Trend and Current Status

There are Ten (10) functional export abattoirs involved in exporting small ruminant chilled meat and Beef. Helmex /Maereg, Abyssinia and ELFORA (in Bishoftu), Luna, Modjo Modern, Akseker and Organic (in Modjo town), Ethio- Meat abattoir is located in Metehara, Frigorico Boran Foods or Allana/the largest abattoir (Adami Tullu, East shewa Zone), and Alnujum slaughterhouse is found in Dukem town. Almost all the existing abattoirs in Ethiopia have facilities for goats and sheep but facilities for cattle are mostly limited for local consumption and few abattoirs start export of beef recently (EMDIDI, 2021).

The poor market linkage including limited Intra-African trade integration and information system and the failure to comply with the international standards and market requirements are other bottle necks to the sector. On the other hand, the coming into being of integrated agro-industrial park to deliver one stop shopping services, the presence of guiding development strategies for the sector, the continues support of Ethiopian government to the sector including export incentives, Ethiopian strategic location to the terminal market, the commitment of the government in developing the infrastructure include road network and other efforts of the government to make Ethiopia as a power house for the region will be a good opportunities for the committed investors (Eshetie T, Hussien K, Teshome T, 2018).

Figure 1: African Countries Meat exporters (beef, Sheep and Goat) in 2020



Source: FAOSTAT, 2020

The figure 1 above shows that, South Africa is the leading country in meat export from the continent with 40 percent. Ethiopia exports 18 percent of meat from continent specifically, beef, Goat and Sheep meat.

Trends of Meat export in Ethiopia

According to ERCA (2018/19) report, the foreign currency earned from livestock products was (195.17 million USD) 8.5% share from the whole country's export in general, and Meat and Meat products takes 4%, whereas live animal takes only 2% share in particular. Ethiopian annual meat export volume was estimated 20,000 tonnes. Meat export have about (92.65 million USD) 47.5% share from the whole livestock products (meat, leather, milk, bee products) export in the same year. From this about 80.35 million USD (86.7%) gained from Sheep and Goat meat, 6.2 million USD (6.73%) from beef and 6.06 million USD (6.55%) was gained from Slaughter by-products exports.

In 2008/9, there were only four export abattoirs having production capacity of 30,380 (23,180 tonnes sheep and Goats meat, and 7,200 tonnes beef meat) generated 15.43 million USD per a year. Then after, government paid attention for the sector's investment to increase the number of export abattoirs as well as their production capacity; the number of export abattoirs increased from Four (2007/8 EFY) to Eleven (2018/19 E.C). The abattoir's production capacity per year also increased to (56,556 tonnes sheep and Goats, and 40,411 tonnes beef meat); the foreign currency earnings from meat export also dramatically increasing from 15.72 million USD (2007/8) to 92.65 million USD (2018/19). Starting from 2013/14 to 2017/18, Ethiopian meat export was increasing by an average of 5 % per year, whereas live animal export was decreasing by 24% at the same time (Mamo G D, 2019).

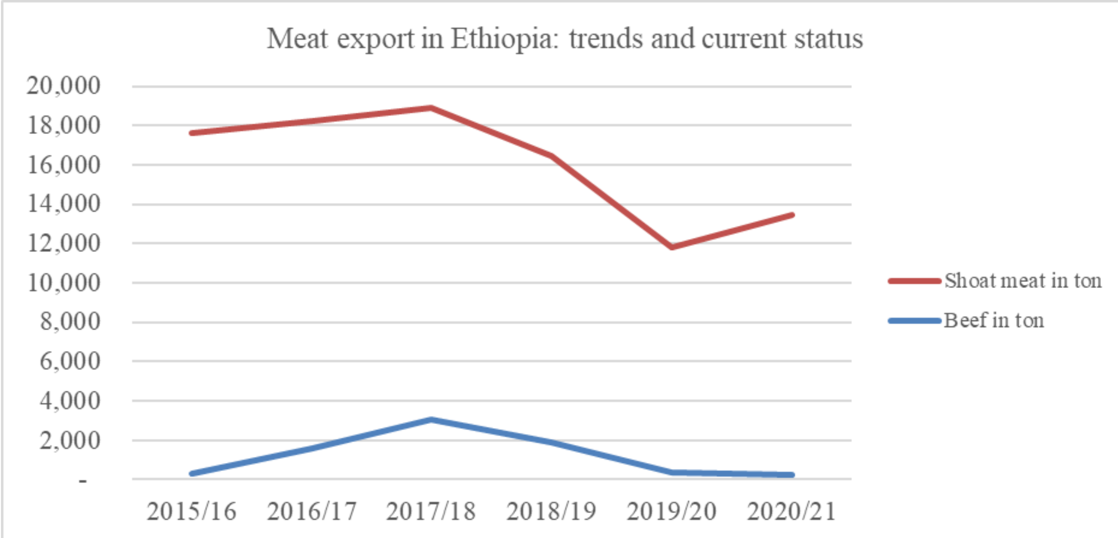


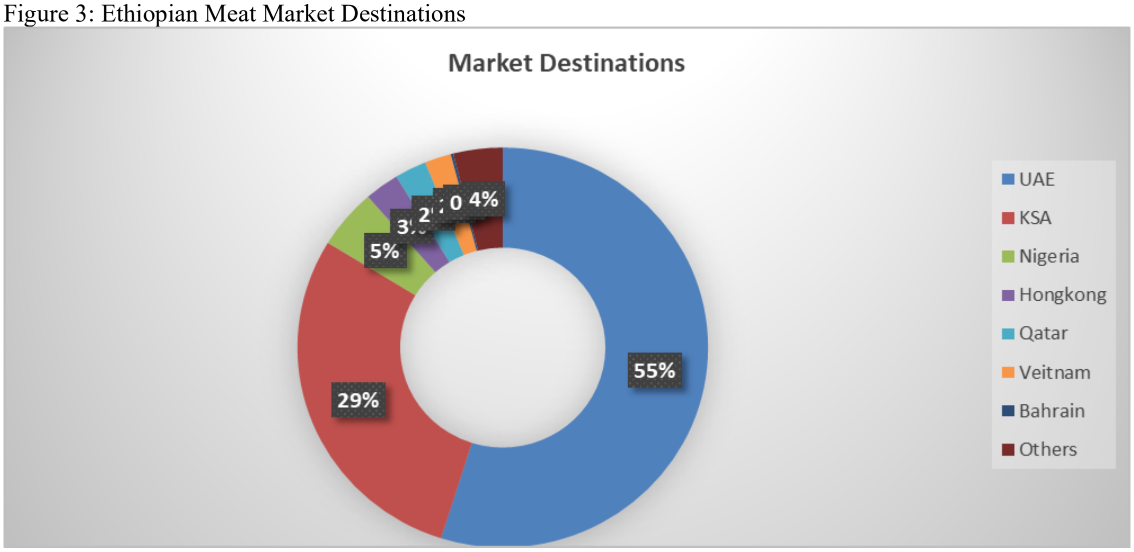
Figure 2: Ethiopian Meat export trends (2015/16-2020/21)
Source: ECC, 2015-2021

Figure 2 above shows that Ethiopian meat export increases from 2015/16 to 2017/18 and declined in year of 2018/19. However, it becomes increase from 2019/20 to 2020/21. The main reason of meat export declination was Covid 19 pandemic.

Ethiopian Meat Market Destinations

Considering the resource base and other comparative marketing advantages of Ethiopia, the export volume to the Middle East countries has been low as compared to other competitors (USAID, 2010). The following figure 3 illustrates the major market destinations of Ethiopian meat products.

Figure 3: Ethiopian Meat Market Destinations



Source: ECC, 2021

The above figure 3 illustrates, the major market destination for Ethiopian meat is United Arab Emirates which constitutes 55 percent share. The rest amount goes to other Middle East countries like Saudi Arabia (29%), Qatar (3%), Vietnam, and Bahrain, and to Far East country (Hong Kong). Few amount of meat exported to West African countries like Nigeria having 5% share.

Meat Consumption

Determinants of meat consumption are complex. Demographics, urbanization, incomes, prices, tradition, religious beliefs, cultural norms, and environmental, ethical/animal welfare and health concerns are key factors that affect not only the level but also the type of meat consumption. The past several decades have witnessed considerable changes in the impact of each of these factors across a broad array of countries and regions.

Population growth is clearly the main driver of increased consumption, and the projected global increase of 11% will underpin a projected increase of 14% in global meat consumption by 2030. It is the main reason why meat consumption is projected to grow by 30% in Africa, 18% in the Asia and Pacific region, and 12% in the Latin American region; the projected increase in meat consumption is 0.4% in Europe and 9% in North America (OECD/FAO, 2021).

Meat consumption in Ethiopia is low. Annual per capita meat consumption in Ethiopia is less than 8.5 kg per person per year, which is the second lowest in all of Africa. This has serious impact along the entire livestock value chain from breeding to meat production to hides, skins and leather production. Domestic meat consumption is segmented by taste, point of purchase and cut. There is a strong tradition of purchasing from butcher shops for snacks or fresh cuts, while many Ethiopians buy live animals directly from producers for religious holidays. Higher income consumers prefer lean meat purchased from supermarkets with proper packaging and labeling. Otherwise, domestic preferences are complimentary (opposite) of export preferences. That is, Ethiopians in general prefer meat from higher-fat female shoats and castrated male shoats (as opposed to non-castrated shoats with lower proportions of fat), and highland cattle (as opposed to lowland cattle) with the exception of young Boran bulls, which are prized by all (AGP, 3013).

Consumption of sufficient meat is a rare extremity in most developing countries. Developed countries consumed a consistent level of 77 kg of meat per capita annually, while developing countries struggled to maintain a diet with only 25 kg of meat per capita annually Ethiopians remained slightly below the meat intake of all low-income countries consuming 9kg per capita annually (Tesfaye, 2007).

There is low per capita incomes with 29% of the population still leaving below US $ 2.00 a day; High domestic meat prices (recently US $ 6-8.00/ kg depending on quality and outlet; 43% of the population (Orthodox Christians does not consume meat products for over 200 days per year in fasting, Noncommercial oriented animal husbandry practices limiting supply of animals for meat processing (Teseme, W & Tolesa, G, 2020).

According to the finding of (Tsedeke, 2007) 7.1 and 7.7 month respectively for kid and lambs are slaughtered for family consumption. And also Meat processing industry is on the rise in Ethiopia even though the sector is still much less than it should be given the resource potential. Currently there are about 15 export slaughter houses including 8 under establishment and more than 29 abattoirs serving the local market (CSA, 2015).

The rapid growth in the meat sector has been underpinned by rising demand for poultry meat, which has consistently increased around three times the population growth rate over each of the past five decades. On the other hand, growth in per capita consumption has been stagnant or non-existent especially in ruminant meat (cattle, sheep, and goats) and pork (when China is excluded) (FAO, 2012).

Poultry consumption in developing countries consistently outpaced production during the last ten years. The consumption of pork in developing countries, including China, one of the world's largest pork producers and consumers, has been decreasing. Similarly, red meat (cattle and goat) production and consumption growth has shown only a slight change globally during the last ten years (Enahoro, 2021).

Opportunities and Challenges of Meat Production and Export in Ethiopia

Opportunities

- High demand of Meat and strategic location to Middle East market
- Increasing number of export abattoirs in Ethiopia with big investment opportunities,
- The intra African free market integration which will open the new avenue for trade relationship,
- The existence of huge number of livestock population (cattle and small ruminants)
- Establishment of Livestock Development Institute, which will work on both improvement of livestock production and processing

Challenges

Market Related Problems:- Ethiopian exporters have been unable to supply demanded quantity as well as opportunistic selling. Seasonality of supply, lack of marketing infrastructure, inability to penetrate huge export markets and maintain substantial market shares, poor linkages between producers, processors and export abattoirs, illegal cross border trade, inadequate branding and promotion are the major market problems.

On the other hand, there is high production cost when compared to selling price, and demand of customers is limited to lowland animals

Shortage of Feed: - uncontrolled grazing management, water shortages/drought, and predation, High cost of feed for commercial farmers

Disease Outbreak: - The presence of livestock diseases (FMD) and lack of veterinary services aside from affecting the efficiency of production hampers export market development as a results of frequent bans by importing countries.

Technology: - Lack of capacity for cattle slaughtering facilities, cold chain facilities, processing and packaging facilities, inadequate well skilled manpower in meat technology, poor product development and diversification
Policy related problems: - Limited coverage of research and development interventions on the sector, limited coverage of research and development interventions, weak implementation of existing policies, problem of livestock investment policies and lease proclamation, taxation of live animals, implementation of live animal trade proclamation,
Extension Problems: - immature livestock traceability and livestock registration systems in the country, noncommercial oriented farming, poor extension support and breed improvement, low production/productivity፣

Conclusion

This study tried to single out the potentials and tradeoffs of Ethiopian meat production, marketing and consumption phenomena and suggested some improvement intervention areas for the sector. As to the production of meat, the majority of meat is produced by smallholder farmers and the pastoralists in the country. The meat produced per animal is very low as compared to the African peers due to the poor genetic background of the animals, under developed management system including feed supply, health service etc. The poor market linkage including limited Intra-African trade integration and information system and the failure to comply with the international standards and market requirements are other bottle necks to the sector. On the other hand, the coming into being of integrated agro-industrial park to deliver one stop shopping services, the presence of guiding development strategies for the sector, the continues support of Ethiopian government to the sector including export incentives, Ethiopian strategic location to the terminal market, the commitment of the government in developing the infrastructure include road network and other efforts of the government to make Ethiopia as a power house for the region will be a good opportunities for the committed investors.

Recommendations

Based on the findings from this study and personal observations, to improve the meat production and export in Ethiopia, the following recommendations are made

- Strengthening the backward and forward linkages to increase animal supply for Abattoirs and to minimize involvement of middlemen.
- Harmonizing the efforts of different stakeholders including the regulatory body, facilitators and researcher, logistics operators, marketing, development wing etc.
- Work on fight of illegal livestock trade and develop the local market information system
- Encouragement of modern ranching system and feed lot operations for sustainable livestock supply and products traceability
- Encouraging and capacitating meat producers-exporters to fabricate beef and export in frozen and different value added forms
- Encourage the private sector through incentive packages to reduce production cost of the Abattoirs.
- Amend and implement the existing live animal trade proclamation
- Searching for additional destination markets which are available for our meat products, demand highland meat and those who pay a better price
- Building expertise in meat cuts for export and domestic markets also as introducing new meat products.

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