Sub-Sector Mapping & Value Chain Analysis of the Livestock Sub-Sector in Somalia

TECHNICAL REPORT

Mogadishu, January 2021

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

This technical report was conducted by UNIDO Somalia Programme team of experts, within the framework of the "Agro-technology development for Economic Growth in South and Central Somalia" project, implemented by UNIDO and funded by AICS/Italy.

ITALIAN AGENCY FOR DEVELOPMENT COOPERATION

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Acronyms

1.	MoCI	Ministry of Commerce & Industry
2.	FGS	Federal Govt. of Somalia
3.	GDP	Gross Domestic Product
4.	FAO	Food & Agriculture Organization
5.	UNFPA	United Nations Population Fund
6.	FSAU	Food Security Assessment Unit
7.	IGAD	Inter-Governmental Authority for Development
8.	ICRC	International Committee for Red Cross
9.	ILRI	International Livestock Research Institute
10.	MT	Metric Tonne
11.	USAID	United States Agency for International Development
12.	COOPI	Cooperazione Internazionale
13.	CEFA	European Committee for Training and Agriculture
14.	NGO	Non-Governmental Organization
15.	OEC	Observatory of Economic Complexity
16.	EU	European Union
17.	FSNAU	Food Security & Nutrition Analysis Unit
18.	FEWSNET	Famine Early Warning Systems Network

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1. Executive Summary

Under the purview of Agro-Tech project that is being implemented by UNIDO in Central and South Somalia regions, capacity building programs of the productive sector in these regions are being implemented. In order to understand the sectoral situation in the Livestock sub-sector, a sub-sector analysis and value chain mapping was conducted. This study primarily was conducted using primary data points and review of existing secondary reports. The objective of the study is to allow UNIDO strategies on its initiatives for technology up-gradation, promote investments, identify skill gaps and organize relevant skill enhancement trainings.

The report presented an overview of the Livestock sub-sector in Somalia and subsequent value chain analysis of Milk and Meat processing. It presents the existing statistics on the sub-sector, the various breeds of animals, the production system, various support agencies, mapping of the various stake-holders etc. The report in addition analysed the primary data to substantiate or validate many of the secondary report information. Based on these findings, skill need assessment was done and capacity building initiatives were proposed.

It is very apparent and substantiated that Livestock production has been the backbone of the Somali economy for many centuries. It is the most important source of food and income for the predominantly rural population, accounting 55.03 % of the total population as of 2018 according to World Bank Report. Agricultural exports are prominent component in the overall country's total export and is valued to be $634 million, which is more than five times the value before the civil war, thanks to livestock exports, which rose by a factor of almost 10 since the late 1980s.

While analysing the primary data, it reflects interesting combination of animals reared by a farmer. Livestock farmers rearing camel tend to also do Shoat while Cattle rearers except few exceptions of goat rearing tend to rear cattle as the sole animal. Most of the livestock rearers are practicing nomadic pastoralism with improvised methods of stall feeding without any construction of assets. Though limited numbers (14%) of the rearers did practice stall feeding or reared animals at a fixed location. It can be seen from the primary data, most of the respondents have indicated that smaller animals like Goat and Sheep are reared and sold as whole animal, while the primary reason for rearing Cattle and Camel is selling milk.

Somalia is primarily a milk producing nation or have substantial large milk sub-sector but if one talks about the dairy sub-sector, it has a very poor dairy sub-sector. In-fact, it is a net importer of dairy products with concentrated milk constitutes 4.7% of the total imports valuing 157 million US$ in 2018 (Source*: OEC World).* Considerable amount of other dairy products like Butter and Cheese are also imported. The reason that can be attributed to this trend is lack of processing facilities of milk and very weak cold chain and transportation network that leads to huge spoilages.

Somalia's livestock exports have been mainly live animals. In-fact, in the 60's and 70's, it comprised almost 70% of total Saudi Arabia's import (*Samatar et al. 1987*). The main export destinations are mostly Middle East countries including Saudi Arabaia, Yemen, UAE, Oman, Qatar etc. Exports are also reported both through cross-border illegal trade or through legitimate channels to East African countries. In the last decade, a few export standard slaughter-houses have been established in some parts of Somalia. Tied up with exporters, these slaughter-house has been able to export chilled meat in carcass form.

2. Background

2.1 Project Background

The Agro-Tech project which is being implemented by UNIDO is providing assistance in the revival of productive sectors in Central and South Somalia regions by establishing a network of three agro-technology and enterprise development units to support Somali businesses in starting, rehabilitating and upgrading agro-industrial operations, particularly by accessing to new technologies, markets, market-based skilled labour and financing facilities.

Emphasis in the project implementation will also be provided in supporting the labour force responding to the needs of the market with market based vocational and technical skills trainings to feed the growing needs of the MSMES sector with skilled labour capable of making modern and better tools, and in installing, operating, maintaining and repairing old and modern agriculture and agro-industrial equipment.

Furthermore, a credit facility to facilitate access to finance to project supported entrepreneurs is to be established and deployed within the framework of the project.

Overall, the project will aim at increasing the potential for economic opportunities and job creation in the agro-industrial sector of the Southern and Central regions of Somalia by focusing on four key actions:

i. Promoting agro-technology upgrading and entrepreneurship development;

ii. Delivering vocational and technical skill trainings to improve productivity of agro-industrial tradesmen and micro-industries

iii. Facilitating access to technology, markets and finance; and

iv. Providing institutional support in the area of agro-technology transfer, investment promotion, and entrepreneurship development.

In order to design the vocational training curriculum, the modules will be made based on skill gap analysis in three of the intervention sub-sectors- Fruits & Vegetables, Livestock and Fishery. Hence, to have an understanding of these three sub-sectors, a sub-sector mapping and value chain analysis is planned for each of these three sub-sectors and provide recommendation in the areas of the value chains where the skill gap analysis could look at.

This project has been funded by the Italian Cooperazione with FGS- Ministry of Commerce & Industry (MoCI) as the line Ministry.

2.2 Socio-economic profile of Somalia

Facing decades' civil war, Somalia has gradually stabilized its economy with institutions and systems being built. The country is still fragile with highly dependent on aid and remittances, which is reflected when drought or major economic upheavals occur. As per the World Bank report the GDP of the country is growing at a steady rate (2 to 3 %) since 2013 with an exception of 2017 when due to a slump, the GDP shrunk. The 2018, nominal GDP for Somalia is **4.72 billion USD** with per capita GDP is 332 USD, which is not even 1 USD a day. The GDP estimate in Somalia is calculated using the expenditure method.

Item	Amount
Household final consumption expenditure	7,358
Government final consumption expenditure	531
Gross fixed capital formation	309

• Private investment spending • Public investment spending	
Net exports of goods and services	-3,478
	Export: 1,224
	Import: 4,702

All figures in million USD

It can be seen that the substantial contribution to GDP is house-hold consumption and not government expenditure or industrial production. The negative net exports shown above shows that the Imports is almost the same of GDP, which **indicates that the economy is highly import driven and is the main source for fuelling the house-hold consumption**.

An analysis of the import/export figures received from Mogadishu Port Authority (Fig. for year 2019).

The tables below provide a snapshot on import items.

Food Items	Building Mat	Other Items
• Sugar • Rice • Flour • Pasta • Cooking Oil • Oatmeal • Milk powder • Tomato paste	• Cement • Wood/Iron • Iron sheet • Tiles /plates • Painting	• Garments • Electronics • Spare-parts • Drugs • Sanitary items

It can be seen from the above table that food import constitutes a significant amount which is further substantiated by FAO-World Bank report that states Somalia faces chronic food crop deficit with own production can only 22% of the per capita needs.

The limited exports that goes from Somalia is highly agriculture oriented with 93% share is from Agriculture of which Livestock (Whole animal) presents 50% of the total. The other agriculture items are Sesame and dry lemon which is exported. Most of the live animal is exported to Saudi Arabia- specially catering to Hajj visitors and during Eid Al-Adha.

While, official remittances from the diaspora are estimated at about $1.4 billion a year, equivalent to about 23 percent of Somalia's GDP (IMF 2017) and could be the major contributor to house-hold private consumption that is the back-bone of Somalia's GDP. About 3.4 million people—roughly 40 percent of the population—depend on remittances for their daily needs, and about 80 percent of all new business ventures are funded by remittances. The IMF figures for 2017 quotes that Somalia received foreign assistance as ODA is 1.65 billion USD.

Somalia, being import depended country with minimal exports, the balance of payment is highly skewed with trade deficit as mentioned in 2018 as 3478 million USD. This negative balance of payment is normally covered through foreign remittances (almost 25% of GDP) and external grants classified as ODA (Overseas Development Assistance).

2.3 Scope of the Study

- Mapping of the existing Livestock sub-sector in Somalia.
- Analyse various value chains operating within the sub-sector.
  - Production system
  - Demand and Supply Analysis
  - Value addition within the Chains
  - Marketing Channels
  - Actors/Sub-actors/Stake-holders
  - Horizontal and Vertical Linkages/Relationship among the Actors
  - Governance
  - Inter-firm cooperation
- Recommendations in selected areas of the operating value chains on the probable areas of skill set building.

2.4 Methodology/ Approach of the study

The methodology adopted was with twin pronged approach for conducting the studying which includes primary information collection & analysis and secondary data analysis for achieving the overall objectives.

The assessment of the Livestock subsector and its value chains was conducted by UNIDO, using the following steps:

- Scoping visit to the field
- Secondary literature review
- Study tools development
- Field research
- Analysis and report preparation

Each of these activities is detailed below:

a. Scoping visit to the field

The first step taken by the research team was to acquaint themselves with the ground realities and understand the broad parameters of the sub-sector operating in the country. The team interacted with various experts, key informants of the sub-sector and prepared a preliminary report, which was shared with the PMU.

This scoping visit helped the research team to have a preliminary idea about the various players in the value chain. This was useful in designing the various questionnaires that were used to collect data from field.

b. Secondary Literature Review

Different secondary literature was collected and reviewed to develop a general idea on the sub-sector and its associated value chains and the study area. Extensive web search was done to locate secondary information that would be useful for analysis. The secondary literature was continuously referred throughout the primary data collection as well as during analysis and report writing period. In addition, inputs from expert opinions from various institutions have been collected and used in the study.

A list of prominent articles and documents that were referred to has been provided as part of the annex

c. Study Tools Development

As a part of the primary data collection, it was decided to have individual survey of the value chain actors. **The individual survey was conducted with livestock farmers, traders, processors.** Separate sets of questionnaire/ checklist were developed for each actor and used in the field research.

d. Field research

The field research component was conducted for a period of 30 days. During this period, individual interview with livestock farmers, individual interviews with traders, individual interviews with key informants including processors of milk and meat processors were conducted by team consisting of local expert and UNIDO local staff.

The interaction with stakeholders focused upon tapping the knowledge base of the local stakeholders, the status of livestock production in the country and also assesses their capacities for involvement in the activity.

The interactions and visits were supported by analysis of the secondary data related to livestock production and trade, and also helped in forecast and estimation.

e. Analysis and report writing

All the data collected from individual interviews were then fed into MS Excel sheets from the hard copies of the questionnaire. These data were then used to generate tables, which were analysed to find the situation and the status of the value chain. These tables are then incorporated into the report, and the combination of the data analyses of primary data and inferences from the secondary literature reviewed coupled with opinion from key informants were the basis for the report.

2.5 Scope & Limitation of the study

Some of the limitations faced by the study team during its course of work is reported below:

- The sample size for primary data has been selected mostly from Banadir and Juba-land, where accessibility of the research team was high. The input received from these samples along-with secondary data has been extrapolated to generalise for the country, which might have overlooked many local conditions prevalent in other regions.
- The primary data collection has been through re-call methodology, which has the limitation due to non-documentation of records as well as the fear of mixing of records pertaining to other crops.
- Fruits and Vegetable cultivation and trading is a highly un-organized economic activity, hence the authenticity of secondary data used is at times doubtful.
- Somalia has come out of civil war only few years back. Many of the research Institutions as well as Government entities for data collection are still in their infancy. Due to this situation, the availability of secondary data was very difficult and limited. Even, whatever secondary data reported, the authenticity is not beyond doubt.

3. OVERVIEW OF LIVESTOCK SUB-SECTOR IN SOMALIA

3.1 Introduction

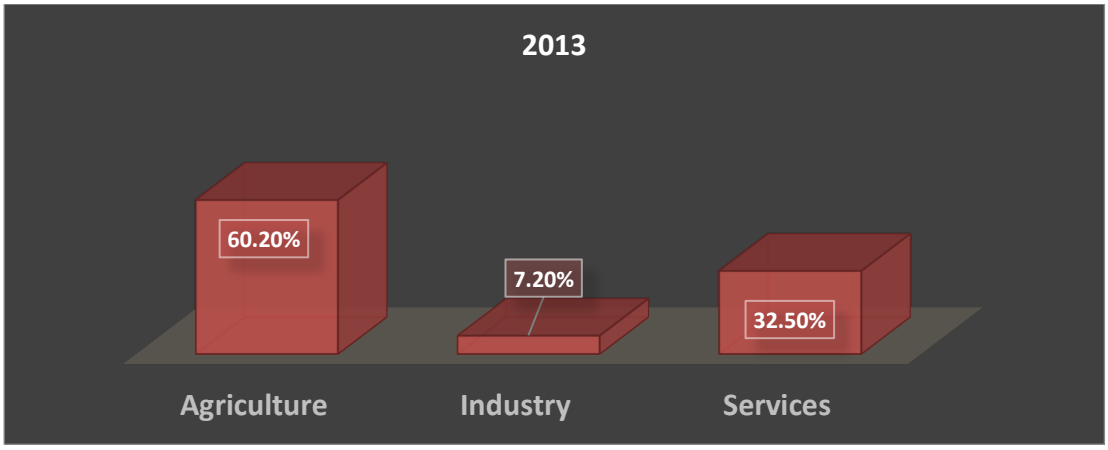
Somalia has been traditionally a pastoral society with livestock rearing a part and parcel of the economy and society. Somalia's terrain consists mainly of plateaus, plains and highlands with year round hot climate with sporadic rainfall. This has resulted in arid and semi-arid lands where livestock becomes a vital source of livelihoods.

Livestock production has been the backbone of the Somali economy for many centuries. It is the most important source of food and income for the predominantly rural population, accounting 55.03 % of the total population as of 2018 according to World Bank Report. Prior to the war, some 46% of the total population were engaged in nomadic pastoralist and livestock accounted for 40% of the GDP and 80% of all export earnings.
Livestock provides a source of income as well as food in form of meat and other animal products like milk which is an integral part of food security. The pastoral communities get their calories from milk and meat consumption and also supports the families through sales of animals for their cereal and non-cereal foodstuffs.

According to a UNFPA report of 2014, estimated 26% of the Somalian population are classified as nomads, for whom livestock sub-sector is the sole source for livelihoods. It is estimated that around 65% of the population (source: FAO) is some way or the other is dependent on livestock subsector

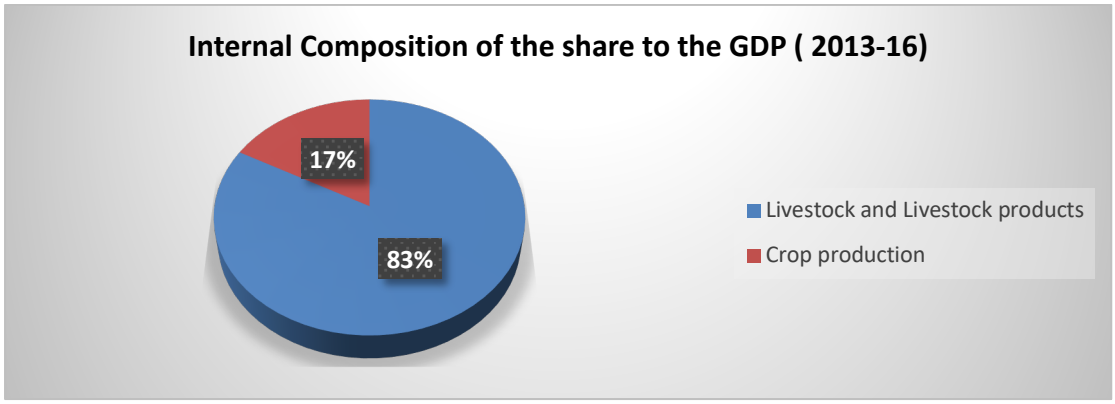
Roughly speaking, the share of the components in the GDP of the country is reflected below:

Figure 1: GDP of Somalia by sector of origin



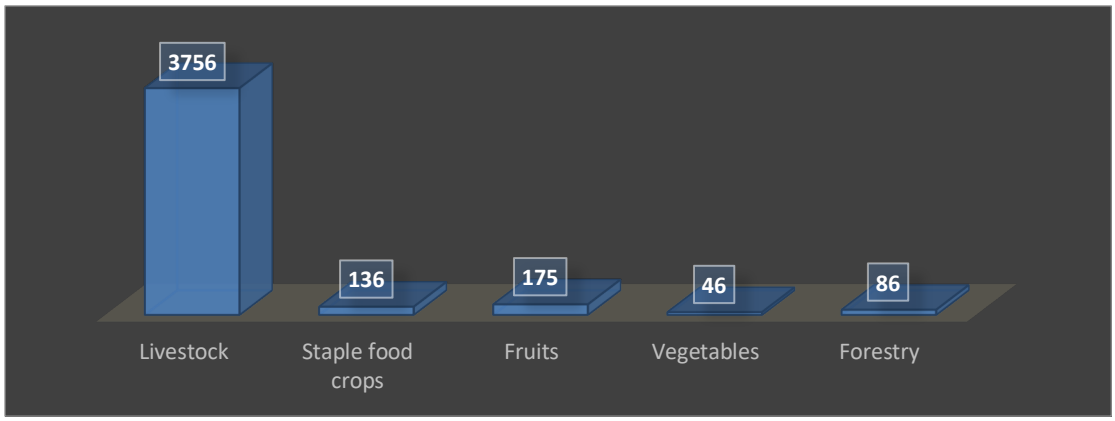
Source: CIA World Fact Book

Figure 2: Composition of Agriculture sub-components



Source: Somalia- Country Economic Memorandum – Vol I , FAO and World Bank

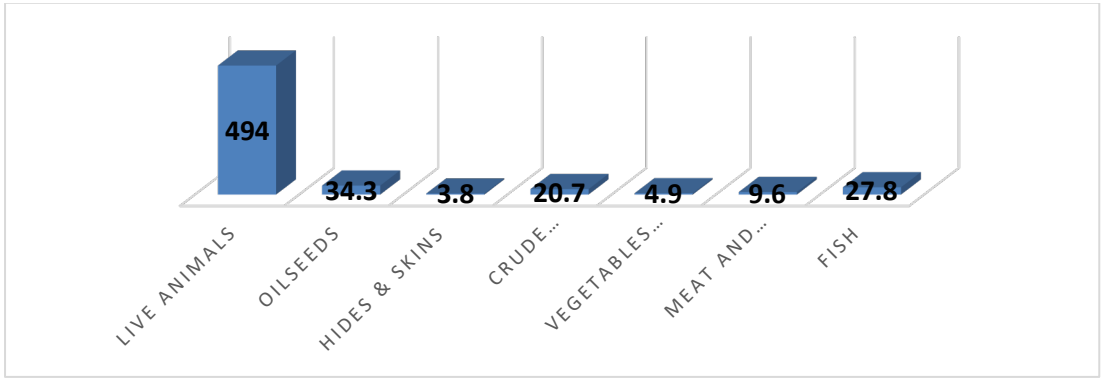
Figure 3: Gross production value of livestock & crops in Somalia-2013-16 (Million US$)



Source: Somalia- Country Economic Memorandum – Vol I , FAO and World Bank

Agricultural exports are prominent component in the overall country's total export and is valued to be $634 million, which is more than five times the value before the civil war, thanks to livestock exports, which rose by a factor of almost 10 since the late 1980s.

Figure 4: Top export items in the Agriculture sector for the year 2015 (In million US$)



Source: Somalia- Country Economic Memorandum – Vol I, FAO and World Bank

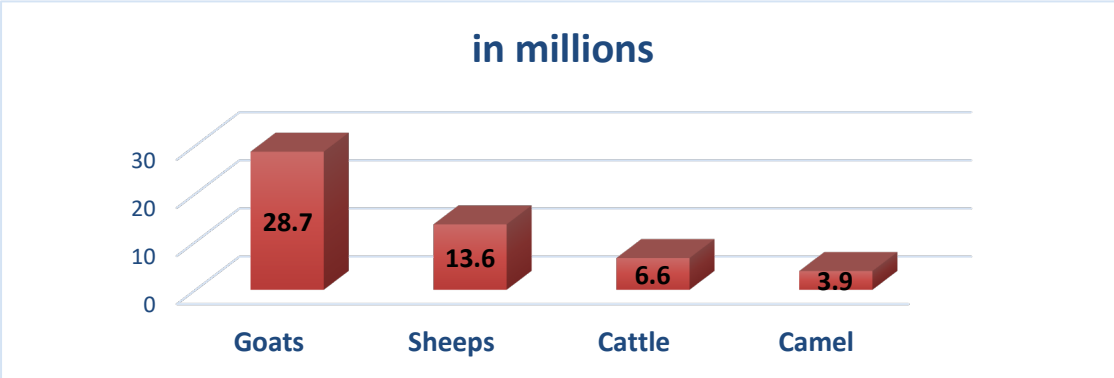
3.2 Types of Livestock

The country has the following livestock reared- Sheep, Goat, Camel, Cattle as the predominant animals while poultry and piggery are also reported to be reared in smaller numbers.

3.2.1 Livestock numbers and distribution:

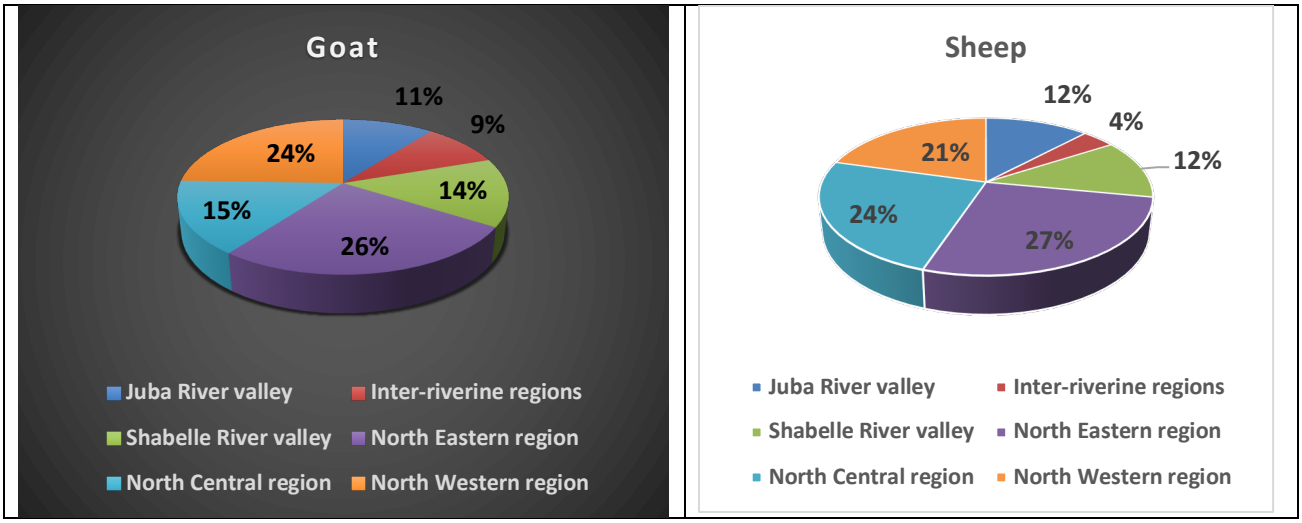
Various agencies have done census of animal population but these figures can be inter-related but do not exactly match in absolute numbers. Nevertheless, we are presenting figures quoted by FSNAU which are for year 2017 and are pre-drought figures.

Figure 5: Livestock population of Somalia in 2017



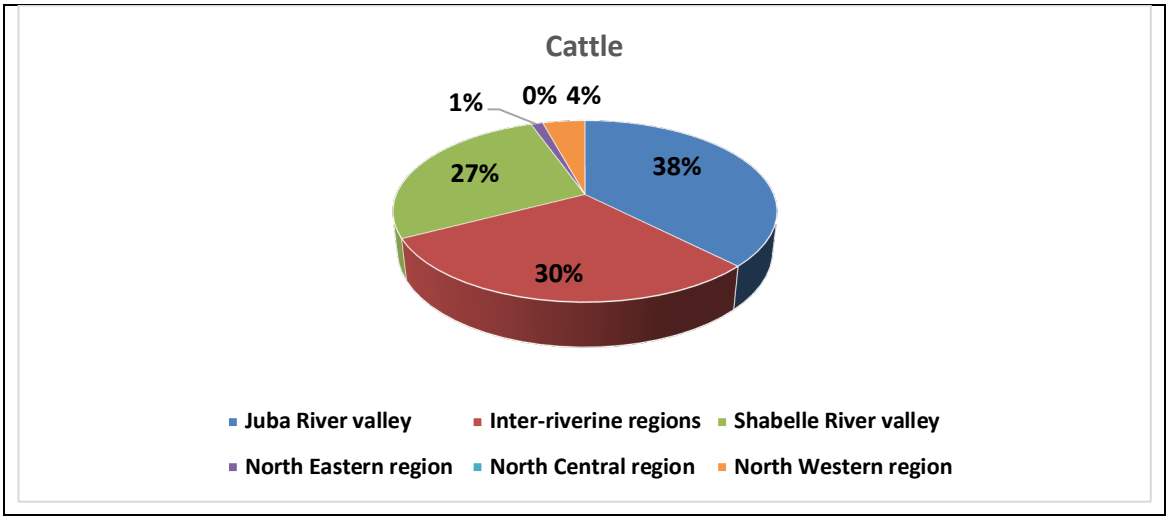
Source: FSNAU

Figure 6: Geographical distribution of Goats and Sheeps



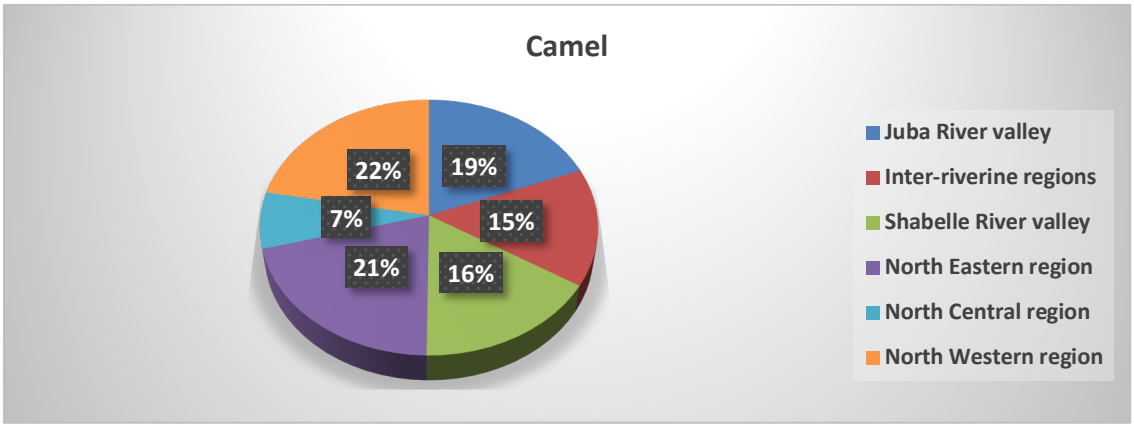
Source: Somalia- Country Economic Memorandum – Vol I, FAO and World Bank

Figure 7: Geographical distribution of Cattle



Source: Somalia- Country Economic Memorandum – Vol I, FAO and World Bank

Figure 8: Geographical distribution of Camels



Source: Somalia- Country Economic Memorandum – Vol I, FAO and World Bank

The goat and sheep population has more or less uniform presence across the country but has significant presence in the North Eastern and North Central Region. The camel population has uniform presence across the country. While the cattle population is mostly concentrated in the river valleys- Juba River valley, Inter-riverine regions and the Shabelle River valley. The above analysis is based on 2014 data.

Since the data available for Somali-land was for 2009, hence it was not used in the above analysis. The absolute figures are presented below:

	Goat	Sheep	Camel	Cattle
Somali-land	8,072,000	8,458,000	1,646,000	394,000

Source: Somaliland National Development Plan 2012–16

3.2.2 Breeds of Livestock

- Cattle:

The genetic resource or breed of cattle found in Somalia are mainly the East African Zebu type of which the following breeds are recognized: Somali Boran, Gasara , Dauara and Surqo.

Somali Boran It is a large animal with a typical mature height at withers of 117–147 cm and 114–127 cm for adult males and females respectively and mature weights of 500–850 kg and 380–450 kg for adult male and females respectively. The coat colour is predominantly white with black points and can also be pigmented.	
Gasara It is a small animal, maximum weight of between 250 and 300 kg, the coat colour is lead-grey, dark grey, dark red, pied or fawn with a white face, horns are short and thin, the hump is very pronounced.	
Dauara The animals are small with a maximum weight of between 280–320 kg, the coat colour is red or sandy red sometimes with patches of black, the hump is small, the horns are short and thin and they can be loose or absent, the back slopes sharply upwards raising the rump higher than the withers.	
Surqo The breed has is the same size as the Somali Boran with a large body and short legs, the coat is white coat, light brown and dark mahogany. it has a moderate thoracic to cervico-thoracic hump. The breed is mainly used for meat and milk.	

Courtesy: ILRI Project Report: Author Anne Muigai

- Goats

The main types of goats found in Somalia, are the Long-eared Somali goat, the Short-eared Somali goat and also to some extent Somali Arab goat.

Somali long-eared goat The body is relatively large between 70 and 75 cm and weighs up to 42 kg in adult mature males the facial profile is straight, the coat colour is white and relatively shiny, the coat hair is short and fine and 19% of the males 8% of the females have been reported to be polled, the ears can be horizontal or semi-pendulous.	
Somali short-eared goat It is a small goat with a height of 61–65 cm and a body weight of 28–33 kg in mature males, the coat colour is predominantly white and the hair is short, the facial profile is straight and up-to 19% males and 8% females have been reported as polled, the ears are horizontal or semi-pendulous.	
Somali Arab goat This goat is the smallest goat found in Somalia, with females averaging 65cm in height and 26 kg weight in mature males. It is dark or light brown in colour with long hair. The goat is prolific with many twin and triplet births.	

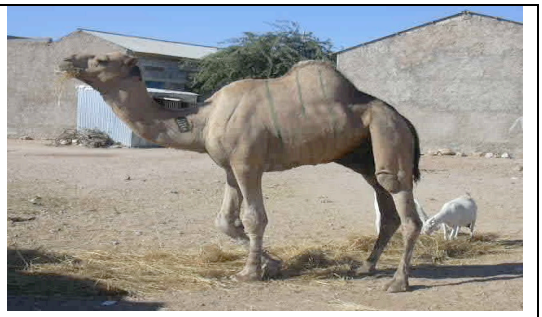
Courtesy: ILRI Project Report: Author Anne Muigai

- Sheep

The most common form of breed in Somalia is Somali Black head. The breed is characterized by a fat-rump tail, a black head and the rest of the animal is white, though the h ooves may be black, it has a strong head with poll and nose pads of fat giving a convex appearance to the head profile, the horns are absent and the ears are moderately long, the mature body weight of the males in Somalia is between 35–45 kg.	

Courtesy: ILRI Project Report: Author Anne Muigai

- Camel

The breed of Camels available in Somalia are one-humped Arabian camel (Camelus dromedarues). The environment where these camels grows are reflected in their body characteristics. For example, the ones raised in the open grass-lands of Nugal valley are short in height, while those in the southern regions, where bushes predominate are taller and heavier.	

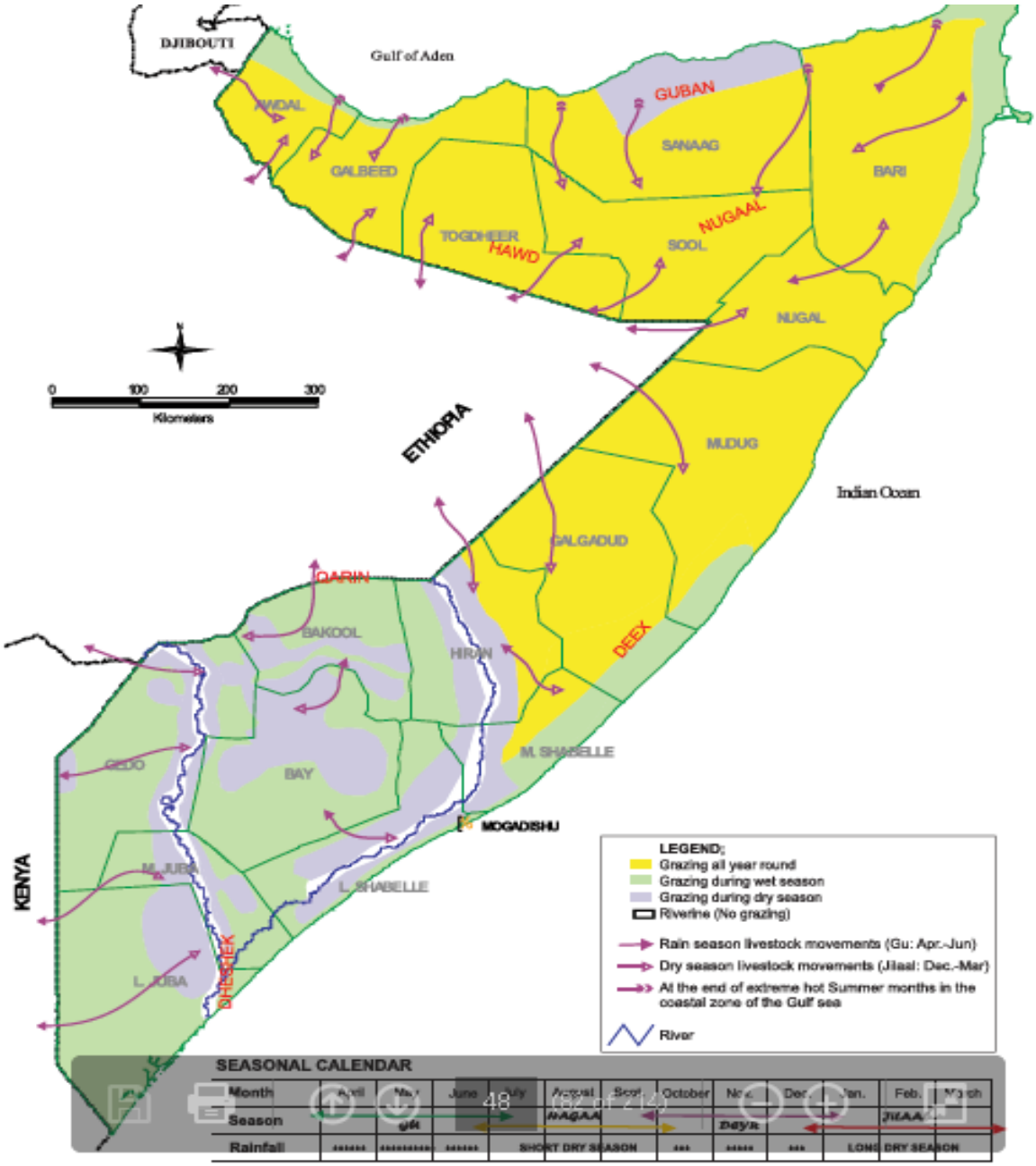
Courtesy: Report on AnGR: Author Dr. Ahmed Hash I Nur

3.3 Livestock production system

The main livestock production system observed in Somalia can be categorised into three main groups- **nomadic pastoralists**, **agro-pastoralism** and **urban stall feeding**.

The nomadic pastoral system is confined to the drier areas of the coastal plains and mountain valleys and the plateaus where the only source of feeding for the animals are the range-land grazing. The livestock rearers move from one area to the area in search of grazing land. Typically, the flock size in nomadic pastoral system is large to very large.

Figure 9: Grazing land and animal movement for grazing



Source: Somalia- Country Economic Memorandum – Vol I , FAO and World Bank

In the agro pastoral or mixed farming systems, mostly seen in the flood plain areas where fodder is grown, integration of crop production and livestock production is seen. Some fodder is also grown under irrigation in the river valleys and is based on flooding supplemented by mechanical pumps in some river valleys. The flock size in agro-pastoral system is medium to small.

The third form is urban stall feeding system, where farmers mainly buys fodder and crop by-products as feed for their livestock. This is seen in Somalia due to large scale migration of rural population to urban areas. The flock size is very small in this case.

Traditionally, Somalia was more of nomadic pastoral system but gradually it is being reducing due to pastoral communities is in search for businesses, employment opportunities, security and social amenities in the urban centres. Nomadic pastoral production of camels is highly vulnerable to recurring droughts and subsequent ethnic conflicts over water and pastures. This has contributed to forcing part of the pastoral communities to abandon the traditional nomadic pastoral production

3.4 Livestock associated value chains

Livestock sub-sector in Somalia are primarily dominated by two value chains- Meat processing and Milk. Both these major value chains have subsidiary value chains. The meat processing value chain can be divided into subsidiary value chains. One catering to the domestic market while another is chilled frozen carcass for exports. Livestock exports is a chain which effectively caters to the export meat market. Similarly, the milk value chain has subsidiaries –one plain milk sells and while the others are for traditional dairy products like *Ghee* or newly established dairy processing firms.

Other minor value chains noticed in the Livestock sub-sector is processing of raw hides and skins – primarily for exports and small chain on use of bones and tallows for producing jewelleries and accessories.

3.5 National policies and support agencies

The Federal govt. Of Somalia revamped Veterinary code which existed since War period in 2016 and was approved by the parliament. Similarly, Somaliland adopted a revised national veterinary code in 2008. Both codes include advances in veterinary legislation and reflect the guidelines of the World Organization for Animal Health (OIE).
Under the code, number of acts were formulated, such as Meat **Inspection Act** which is also an integral component of disease notification and related information, Emergency **preparedness and response (EPR) laws,** regulations and guidelines, A **Pesticides Act** addressing veterinary, agricultural and environmental concerns, A Veterinary Code of Ethics, **Aquatic Animals and Products Act and Regulations** covering animal production/Zoo Technical Services and Agribusiness.

In accordance with provisions under this Code; of Somalia shall have a statutory body in collaboration with veterinary doctors and technicians referred to as the National Veterinary Board. The Board shall establish standards for training and registration of veterinary surgeons and other cadres of animal health service providers and in collaboration with the ministry of livestock, forestry and range ensure the functioning of the animal health services

The import rules include no animals or animal products shall be imported without a license issued in writing by the Chief Veterinary Officer. Imported animals and animal products shall be accompanied by a valid international veterinary certificate provided by the Veterinary Authority of the exporting country.

It is prohibited the exportation of productive female animals, embryo, ova, and semen, hatching eggs or wild animals specific for Somalia's ecosystem or in danger of extinction.

The vehicular transportation of live animals has rules and restriction monitored by the livestock Ministry in compliance with animal welfare standards.

The abattoirs / slaughter-house have inspections, where except in an emergency, livestock slaughtered at a designated place, shall, prior to such slaughter, be inspected by an inspecting officer in accordance with the code of practice. After slaughter, the inspecting officer shall, if satisfied that the carcasses are suitable for human consumption, shall attach a tag, or mark the carcasses as laid.

There is an official order which states that no roadside slaughter of animals or private slaughtering of animals are allowed under the Municipality of Mogadishu. All animal slaughter for consumption will need to be done in the Mogadishu Slaughter-house.

There number of agencies both government and non-governmental who are providing support services to various livestock rearers. These agencies include the Federal and regional ministries of livestock, FAO, NGOs such as ICRC, Coopi etc. In addition, there are six livestock professional associations which are delivering animal health services. They deliver vaccinations, treatments, and disease investigation and disease detection, generally with external funding. They also manage agro-vet stores and train community-based animal health workers on diagnosing and treating livestock diseases,

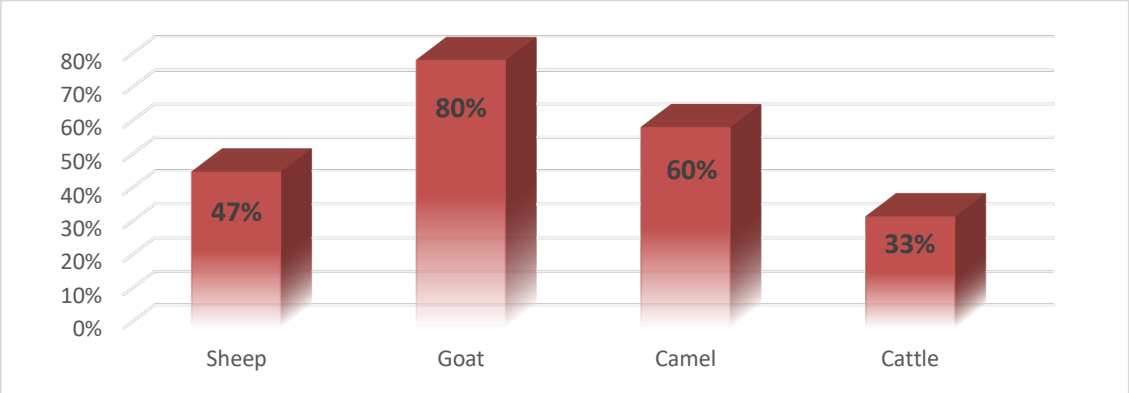
In the segment related to dairy products, weak or absence of institution related to policies, and regulatory systems for dairy products supporting production, handling, storage, marketing, and consumer awareness is noticed. Also, poor enforcement of milk quality standards is observed.

4. UNDERSTANDING OF LIVESTOCK REARING IN SOMALIAN CONTEXT

Primary interactions were held with various livestock farmers to understand the functional dynamics involved in livestock rearing in Somalia. The data collected from the field is analysed to present an understanding of the present practices followed in the sub-sector. All the contents in this chapter is based on the primary data collected by the survey team and is not influenced by any secondary reports.

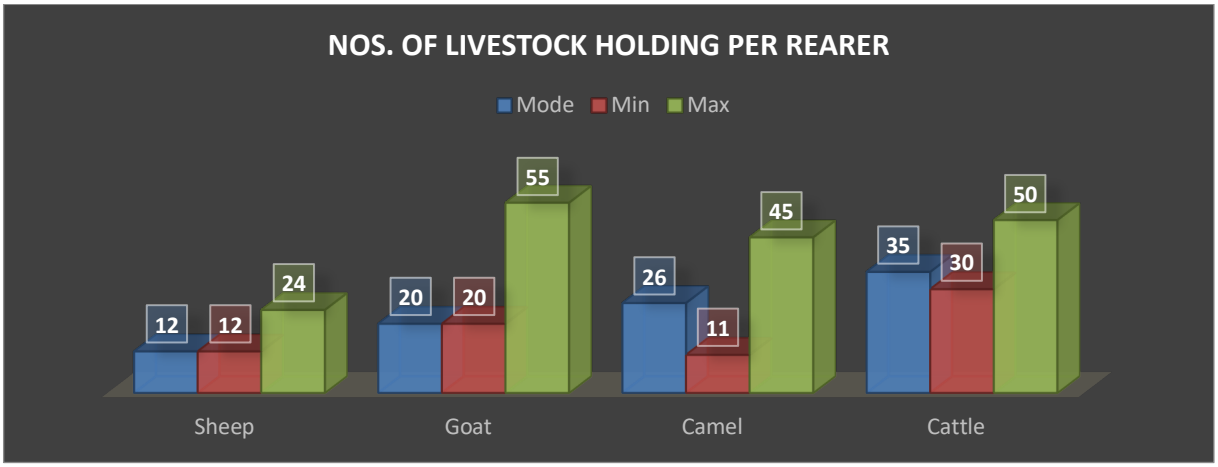
4.1 Composition of animals reared

Figure 10: Spread of the type of animals reared



It can be seen from the above figure that goat rearing is the most common animal reared while cattle is the least. 80% of the livestock farmers' rears goat while 60% of them also does camel. Only 33% of the farmers' rear cattle, which may indicate that nomadic pastoral practices are more common.

Figure 11: Average holding of animals by the livestock farmers

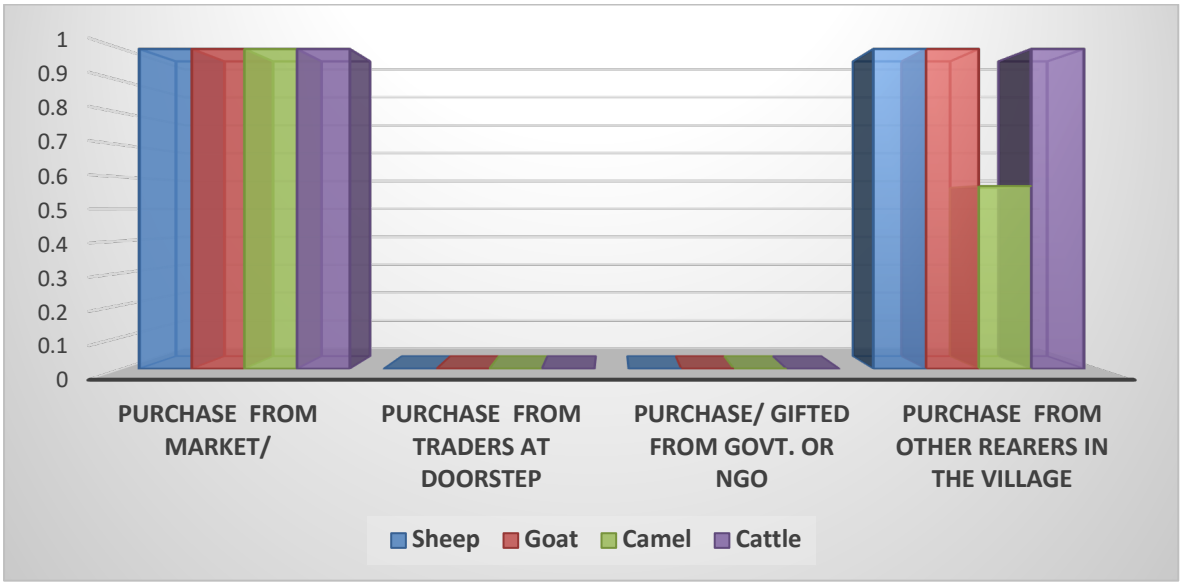


From the above figure, it can be inferred that the cattle rearing seems to need a larger threshold numbers for sustainability.

While analysing the primary data, it reflects interesting combination of animals reared by a farmer. Livestock farmers rearing camel tend to also do Shoat while Cattle rearers except few exceptions of goat rearing tend to rear cattle as the sole animal.

4.2 Source of procurement of livestock for rearing

Figure 12: Source of procurement of Livestock

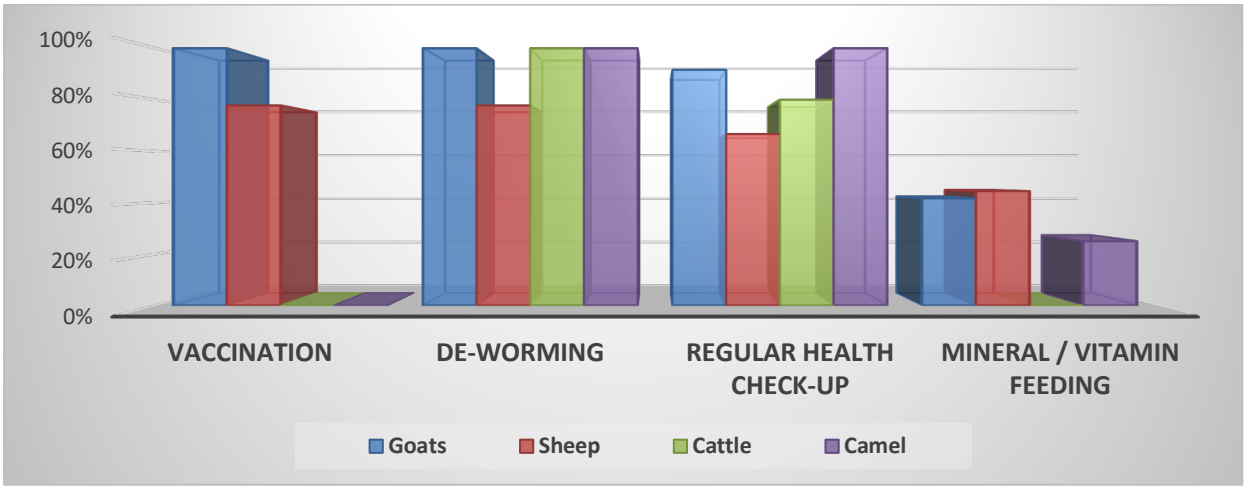


It can be inferred from the above figure that primarily the livestock farmers either buys the animals for rearing from the market or from the other rearers in the village. Only exception to some extent is for Camel where the primary source is the market while only occasional purchases from other rearers.

4.3 Healthcare of livestock

4.3.1 Types of healthcare measures

Figure 13: Types of healthcare measures practiced by livestock rearers



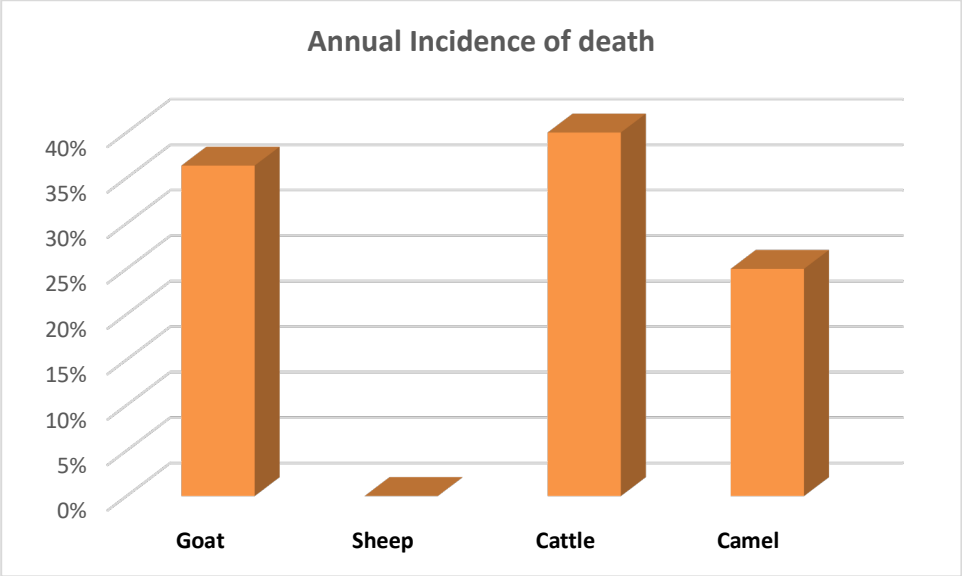
Analysing the above figure, it is apparent the vaccination in cattle and camel is an uncommon practice amongst the livestock farmers. The healthcare measures towards goats are the highest with 100% vaccination and de-worming done. Of all the healthcare measures, the most common is de-worming, while mineral/ vitamin feeding is the least prevalent activity among the livestock farmers.

While analysing the primary data collected from the livestock farmers, the frequency of vaccination done on goats and sheep annually is 1-2 times. While de-worming in cattle, goat, sheep is 2-3 times annually, it is

reported that in case of camel it is 3-4 times. The livestock rearers does regular health check-ups for all the types of animals and it is done once or twice a year.

4.3.2 Incidence of death in livestock

Figure 14: Annual incidence of death of animals in a rearing household

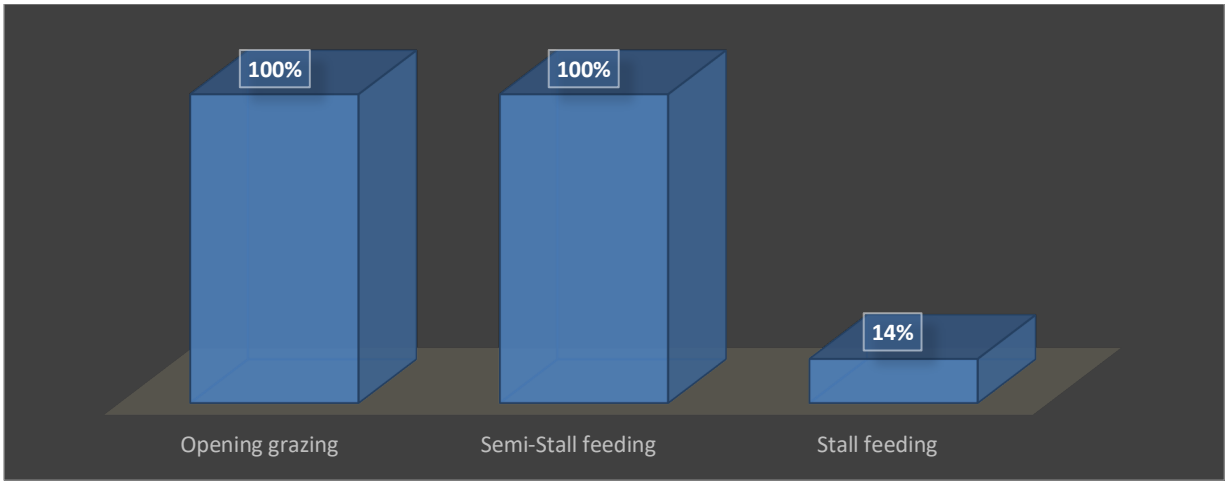


From the above figure, it can be inferred that maximum incidence of death happens with cattle rearers followed by goat and camel.

4.4 Grazing methods

4.4.1 Type of grazing

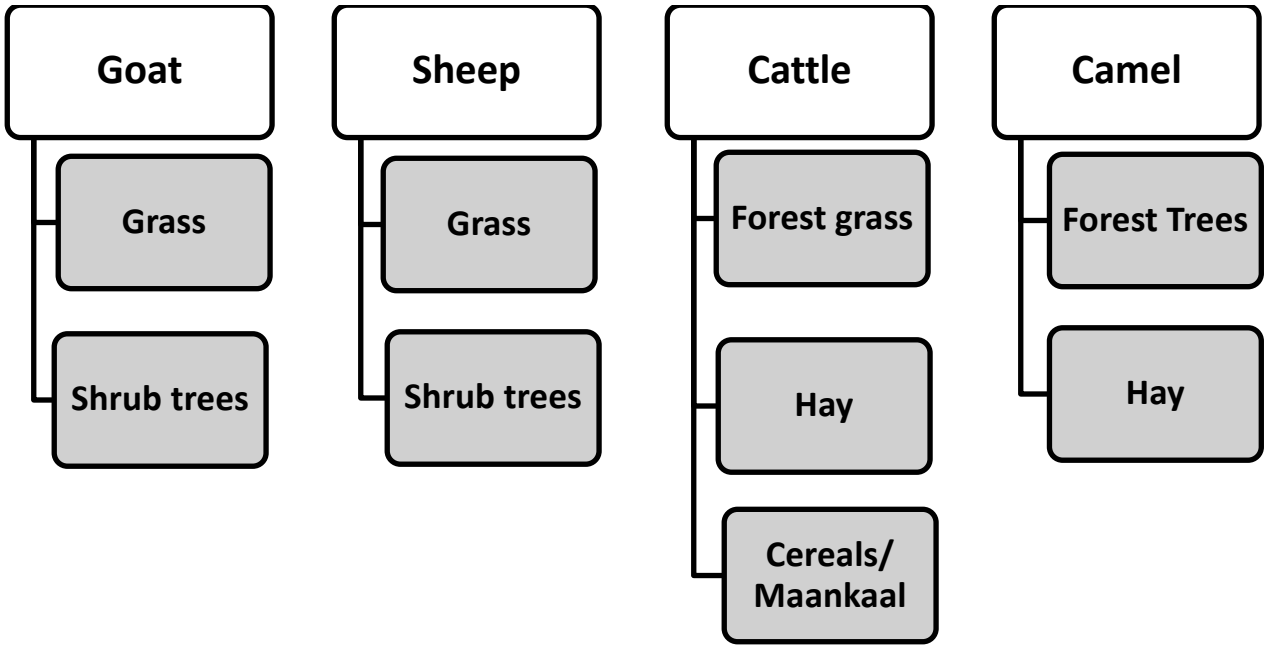
Figure 15: Grazing methods used by the respondents



It can be inferred from the above figure that most of the livestock rearers are practicing nomadic pastoralism with improvised methods of stall feeding without any construction of assets. Though limited numbers (14%) of the rearers did practice stall feeding or reared animals at a fixed location.

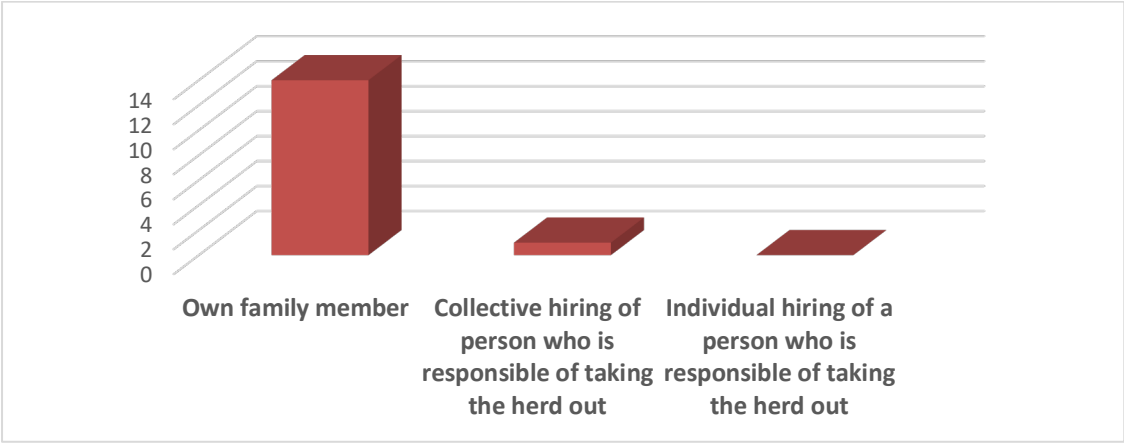
4.4.2 Type of fodder

Figure 16: Typical fodder eaten by reared animals



4.4.3 Grazing Responsibility

Figure 17: Animal grazing out responsibility



The grazing responsibility is primarily lies within the family, one or the other family member is responsible to take out the animals for grazing, which clearly indicates that most of the rearers are nomadic pastoralist.

4.5 Main purpose of rearing

Somalia, being a traditional pastoralist society, always reared animals for consumption of milk and meat. With gradual modernization, rearing of animals have become a source of livelihood. In order to understand the main purpose for rearing animals, primary data were collected and analysed. The figure presented below, provides a snapshot.

Figure 18: Main purpose of animal rearing

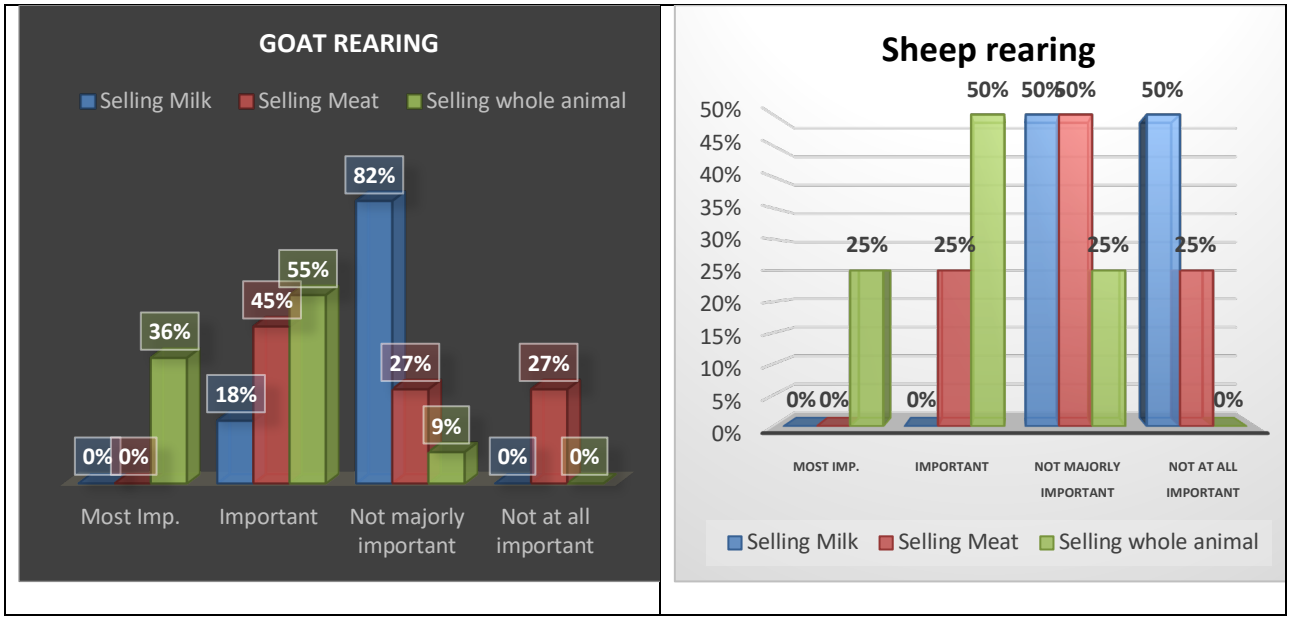
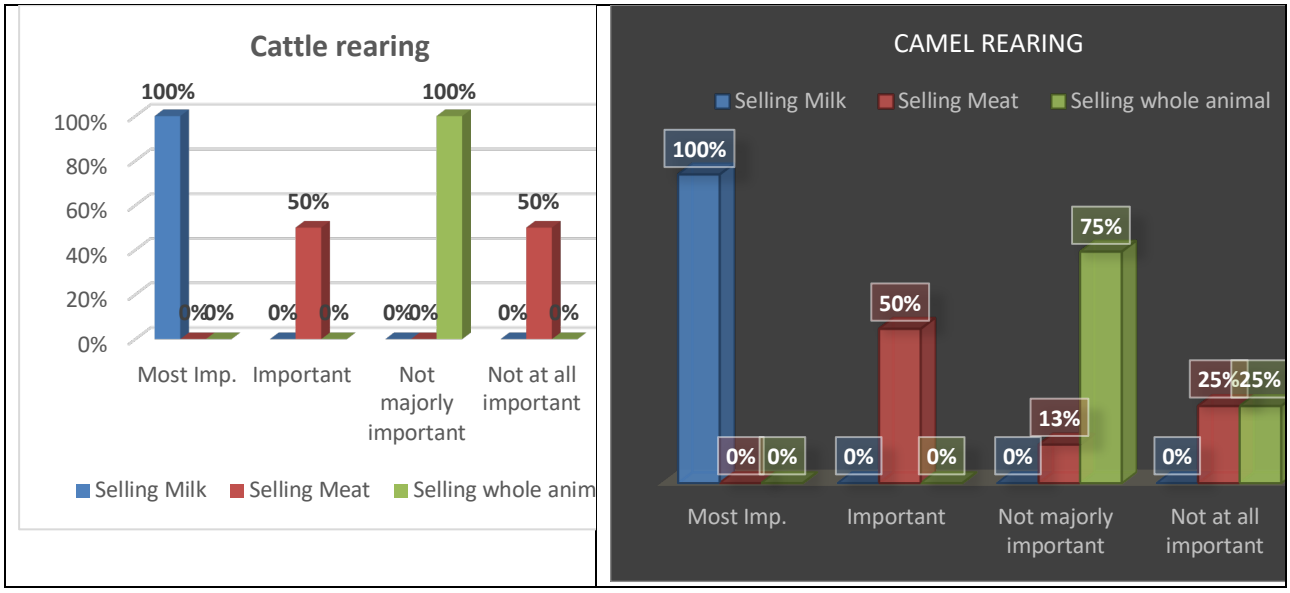


Figure 19: Main purpose of rearing



It can be seen from the primary data, most of the respondents have indicated that smaller animals like Goat and Sheep are reared and sold as whole animal, while the primary reason for rearing Cattle and Camel is selling milk.

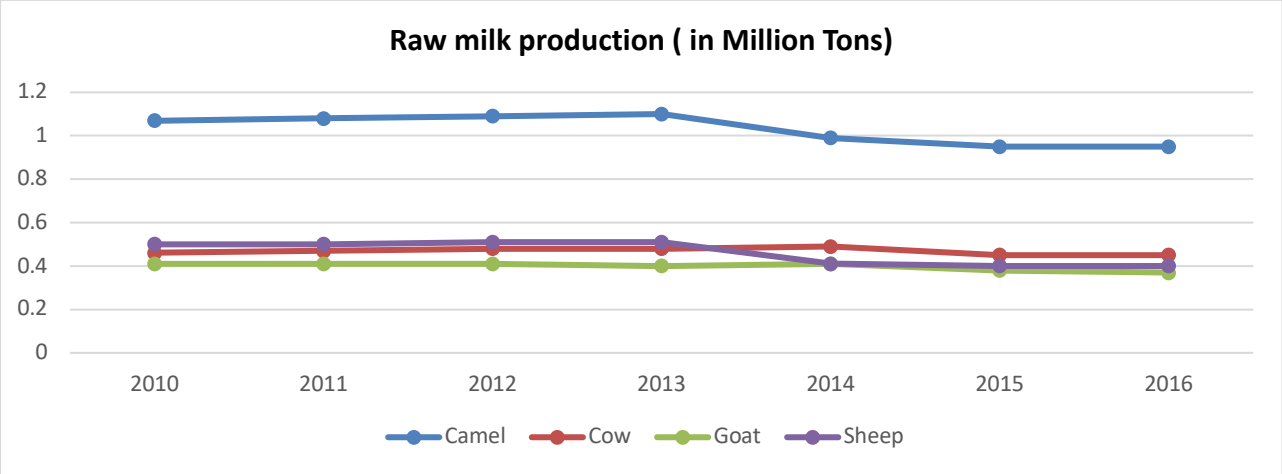
5. Milk Sub-sector and its associated value chains

5.1 Introduction

The production and marketing of milk has been a traditional livelihood source for the pre-dominant agro-pastoral society of Somalia. It provides employment and income for large segment of the population and particularly to the women-folk which provides them economic empowerment.

Fresh raw milk production in Somalia has seen a gradual increase since 1990s with slight decrease in the period 2013-15 but with a major set-back in the year 2017. In 2017, the country's milk industry collapsed when a devastating drought killed an estimated 6.4 million cows, camels and goats. Milk production plummeted to only 25 percent of the previous year

Figure 20: Milk production year-wise



Source: FAOSTAT

As can be seen from the above figure that the maximum milk production comes from Camels and then Cows. Camels being sturdy animals can survive and produce milk even in adverse conditions when there is shortage of fodder. Camel milk has been culturally preferred milk compared to the other livestock.

While the above figures provide the annual production volume but there is a significant fluctuation during a year, which is discussed later.

Somalia is primarily a milk producing nation or have substantial large milk sub-sector but if one talks about the dairy sub-sector, it has a very poor dairy sub-sector. In-fact, it is a net importer of dairy products with concentrated milk constitutes 4.7% of the total imports valuing 157 million US$ in 2018 (Source*: OEC World).* Considerable amount of other dairy products like Butter and Cheese are also imported. The reason that can be attributed to this trend is lack of processing facilities of milk and very weak cold chain and transportation network that leads to huge spoilages.

5.2 Estimate of milk demand and supply

An analysis has been done to understand the demand and supply gap of milk in the coming years to devise measures to reduce the gap.

Table 1: Estimated forecast for demand- supply gap in milk

Year	Population	Annual average milk consumption / capita (in litres)	Estimated milk demand (in million tonnes)	Annual milk production (in Million Tonnes)	Estimated gap in the demand and supply (in Million Tonne)
2020	15893222	404.63	6.431	2.44	3.991
2021	16357304	416.8	6.818	2.52	4.298
2022	16834937	429.27	7.227	2.59	4.637
2023	17326518	442.15	7.661	2.67	4.991

Assumptions:

- As per a study on 2015 -IGAD Centre for Pastoral Areas and Livestock Development, the milk consumption averaged 329 litres per person in 2013. Taking an estimated annual growth of 3%, the estimated milk demand has been calculated.
- As per FAOSTAT, the annual milk production in 2016 was 2.17 Million Tonnes. Taking an estimated annual growth of 3%, the estimated milk supply has been calculated.
- The population growth of Somalia has been taken as 2.92%, which was for the year 2019.

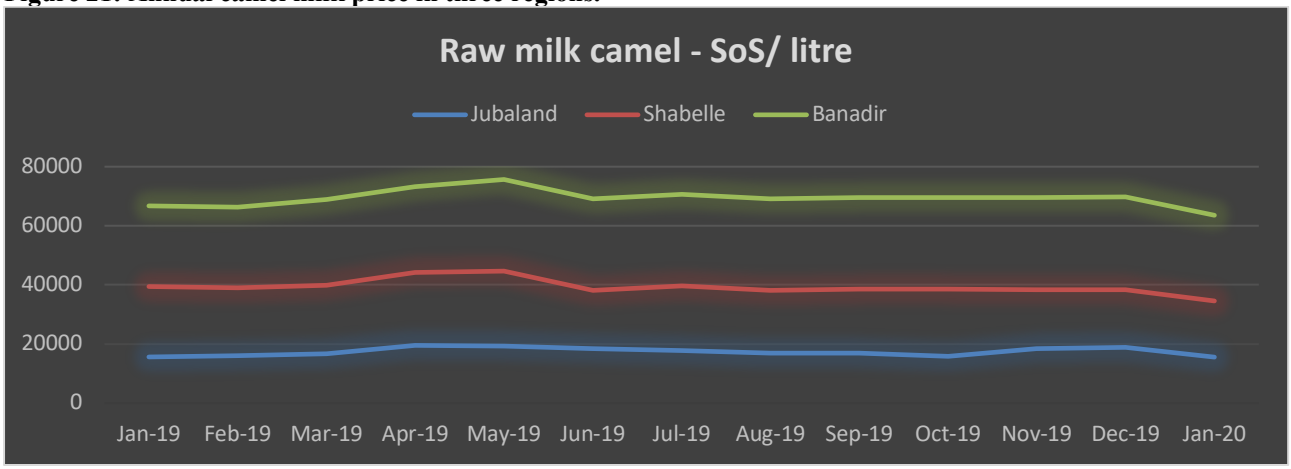
It can be seen from the above figure that there is a huge gap in the demand and supply, which probably is the reason for large volume of import of dried milk powder/ skimmed milk etc. This needs to be closely looked at for the reasons which attributes to it, even after the country being one of the largest livestock rearer. Lack of cold chain and refrigerated transport vehicles results in loss of milk due to spoilage and uneven distribution of milk geographically.

Secondly, the country being pastoral in resources, the rearers are maybe consuming a significant higher volume of milk while the urbanites are probably not getting sufficient supply.

5.3 Seasonal milk price fluctuation

There is a difference between the volume of milk produced between seasons. In the dry season, the production of milk falls drastically compared to the rainy season. According to a report published by HSED Group, Kenya on “Milk Matters Feasibility Study” in South Central Somalia, on average the households produced 4.48 litres of milk per day in the rainy seasons and 1.63 litres of milk per day. The low yield in dry season Jilal can be attributed to lack of livestock pastures, lack of water, diseases and death in the dry seasons.

Figure 21: Annual camel milk price in three regions.



Source: FSNAU

It can be inferred that there is milk price rise in the dry season across the regions which is definitely due to lower supply but interestingly the jump in price is not very significant owing to the fact that households tend to prioritise selling milk rather than consuming it during the dry season – Jilal – when production is low and prices are high. This is due to the fact that rearing of livestock is the major source of livelihood for agro-pastoralist.

Another important finding from the above figure shows that the demand and supply of milk is contained within region. There is probably no major transportation of milk between regions. It can be seen that the price of milk in Jubaland is significantly less than Banadir region. The capital region of Somalia- Mogadishu falls under Banadir region which is pre-dominantly an urban area with limited livestock rearers to supply milk. This shows that due to lack of chilling lines and refrigerated transportation in the milk sub-sector, supply of milk is still limited to a closer radius from the source of production.

5.4 Various actors/ stake-holders

Herders: They are the production centre of milk. Most of the case in Somalia, milk comes from the livestock rearers located in the rural areas. On average, from the data of the survey respondents, a herder has 30 to 50 animals. And depending on the location, the composition of animals varies. These herders are mostly agro-pastoralist and there is a tendency of nomadic movement for feeding of the animals.

Primary collector: These collectors are located near to the herders to collect milk from individual house-holds. Mostly, the primary collectors are women known locally as *Kaameley*. One primary collector roughly caters to 8 to 10 herder house-holds, which increases significantly during rainy season. The collected milk from various herders are mixed together and transported to the urban centres (secondary milk collectors). The primary collectors exchange the milk for cash, basic staples or other items, so they earn not only from their mark-up on the milk, but also by selling goods. They also provide credit to the herders if needed, for example during a lengthy dry season or period of economic hardship.

Secondary milk collectors: These are collectors in the urban centres who receive the milk from the primary collectors. Known locally as A*anoley* in Somali, the secondary milk collectors are based in markets in the towns. They receive the milk sent each day and sell it directly or distribute it to market retailers. The next day they send the empty jerry cans and a share of the money back to the primary collectors through the

same route Sometimes they also supply imported commodities to their primary collector partners. Interestingly, these primary and secondary milk collectors form informal trading network.

Transport companies: These are the vital stake-holders in the whole milk value chain. The milk collector networks hire these companies or individuals owning pick-up vans to transport milk from the primary milk collectors in the rural areas to the secondary milk collectors in the urban centres. Their role becomes vital since faster they transport the milk, less chances of milk getting fermented. The price of the milk fetched depends on the quality of the milk-fresh or fermented. This becomes critical due to the fact that there is absence of cold chain in the milk transportation to increase the shelf life.

Market retailers take the milk from the secondary collectors and sell it to consumers in the market. They add their own mark-up to the price, and pay the secondary collectors at the end of each day.

In last 3-4 years, there are number of cattle farms are coming up near to the urban centres. These are rearing mostly cows with stalled feeding. The milk collected are commercially sold to Institutions like hotels and restaurants as well as few milk processing units that are being stabled in last few years. These farms are self-sufficient and have their own transportation as well as cooling facilities

The formal milk marketing cooperatives were promoted by various agencies for milk collection and sales in some areas but is still very notional in operations. Though, some of the collectors have organized themselves into informal milk marketing cooperatives comprising of close family or nearby herders who collectively sell their milk at the nearest town.

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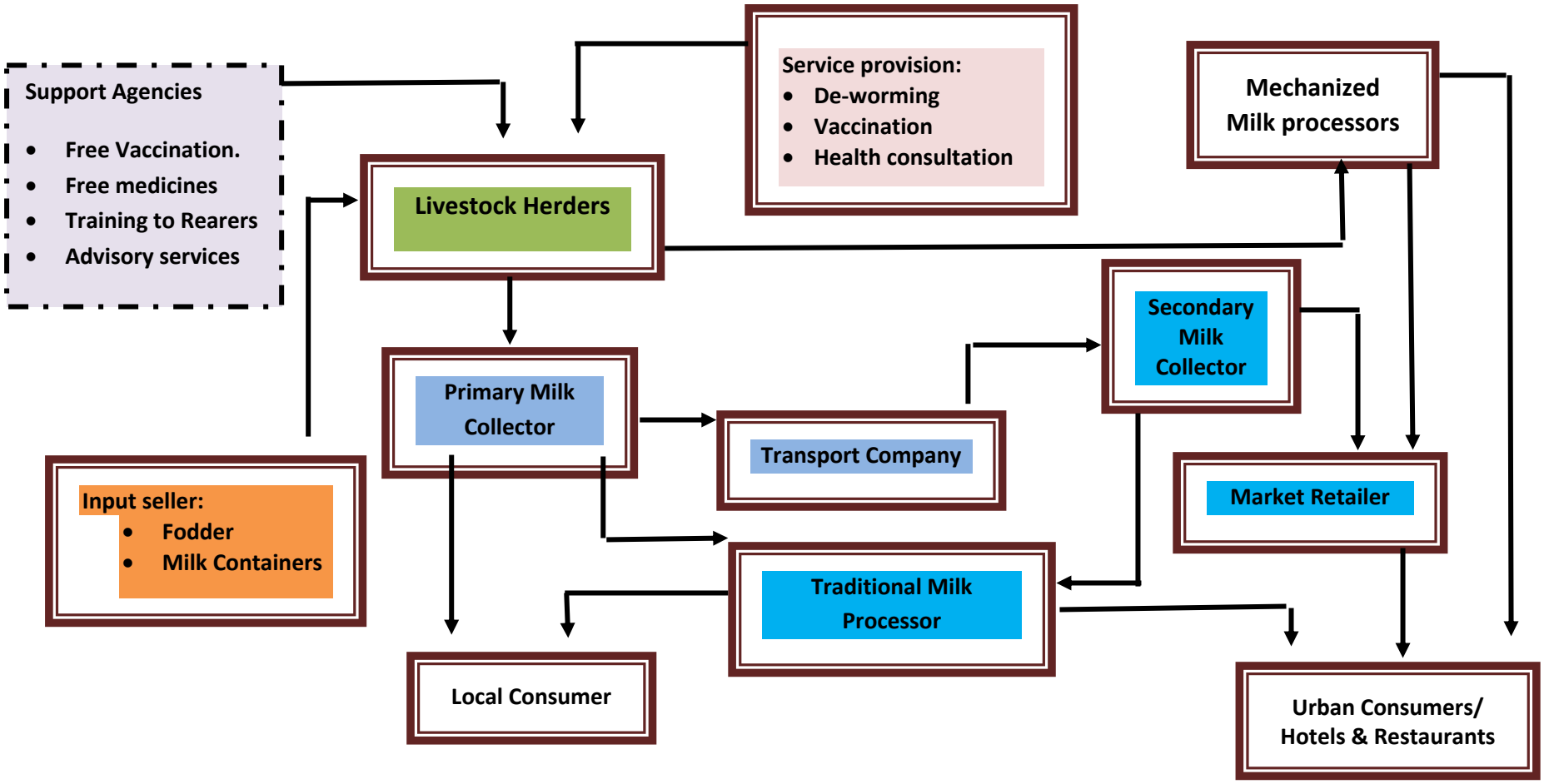
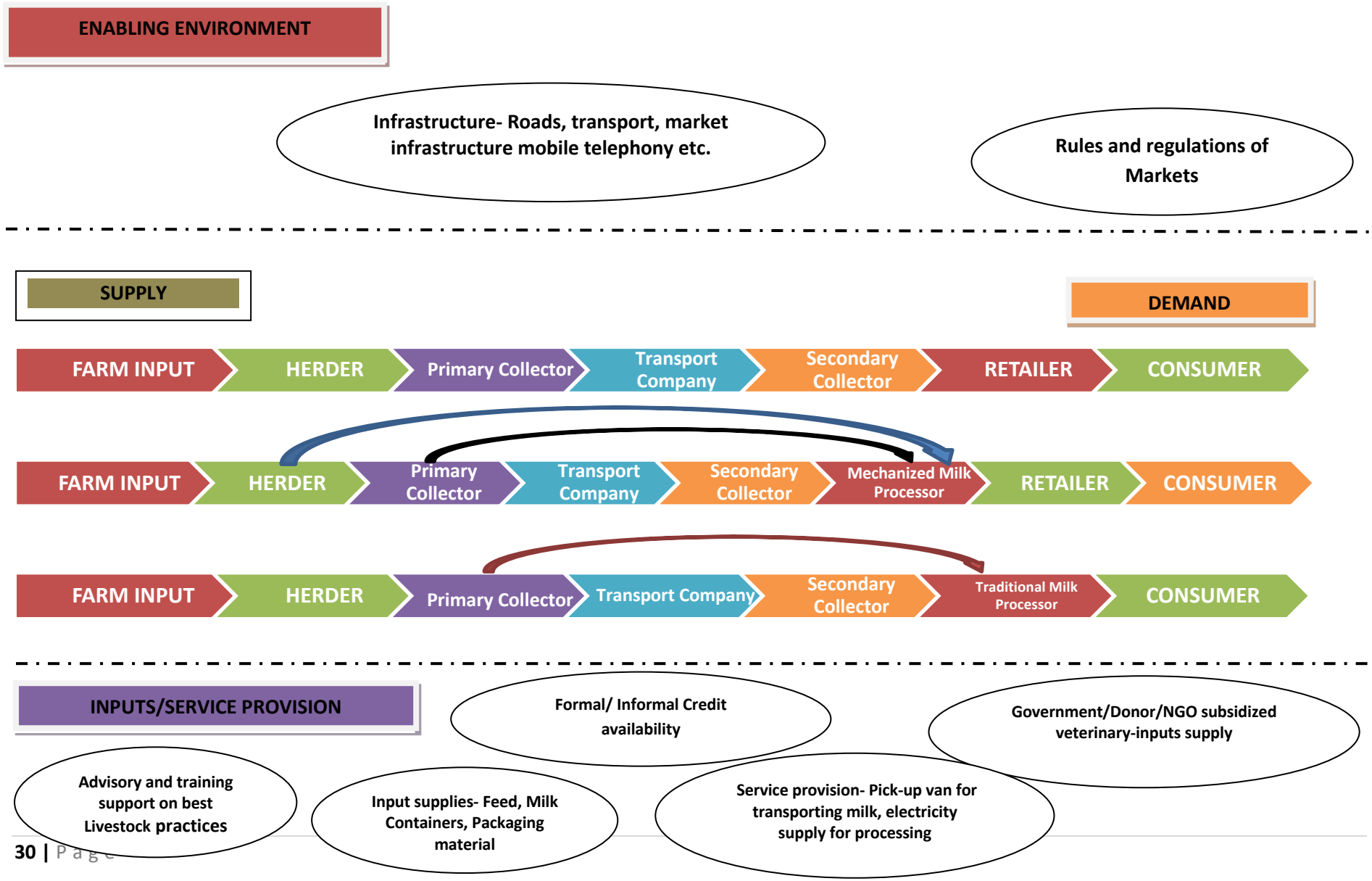
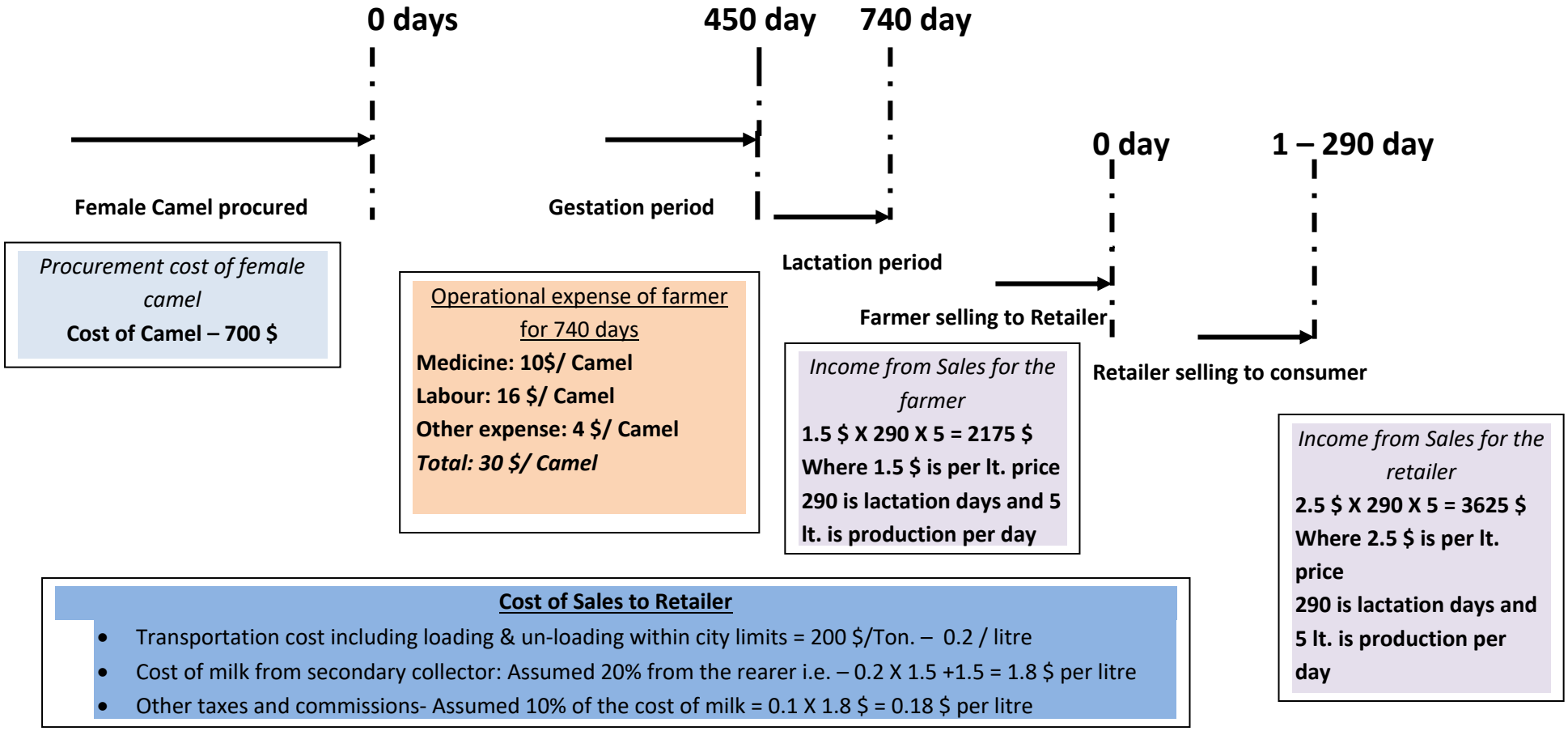
5.5 Sub-sector map



5.6 VALUE CHAIN FRAMEWORK FOR MILK SUB-SECTOR



5.7 Value addition in Camel Milk value chain



Figures are from primary data

Livestock farmer			Retail seller		
Procure → Grow → Sale			Purchase → Distribute → Sale		
• The livestock rearer procures camel – female for milk production.	• It is assumed that the female will be impregnated in 2 months and have a pregnancy period of 13 months. • The cost will be incurred by the rearer on feed (most cases these are grazed free), medicine, vaccination etc.	• The rearer sells milk daily to primary collector for 290 days (lactation period)	• The trader buys daily milk from various secondary collector on average 5 litres per day for the whole lactation period of 290 days	• Retailer transports the milk to the urban centre where it will undertake retail sale. .	• The retailer sells directly or does sub-retailing of the produce
Gross value received on sales		2175 $	Gross value received on sales		3625 $
Cost of the procurement		700 $	Cost of Procurement		2610 $
Cost of rearing		30 $	Cost of Sales		551 $
Value added		1445 $	Value added		464 $
Time period		740 days	Time period		290 days

5.8 Milk processing

Milk processing in Somalia is very limited with few exceptions coming up after gradual stabilization in the country but it is still very small with limited access to the market. One of the reason is under-developed milk cold chain which affects not only the supply side but also storage for final sales. Various donor /international agencies are making efforts to promote dairy processing plants in Somalia. According to USAID, it has provided assistance to 160 dairy and fodder farmers and five dairy processing plants in Somalia.

As per the study, there are couple of units which are using mechanized milching tools which promotes less contamination. Similarly, couple of units are processing milk using pasteurisers and producing dairy products like Cheese and Yoghurt. Though, it is very apparent that if the milk supply chain is not strengthened through chillers and refrigerated vehicles for transportation, these units will face productive inefficiencies. In addition, the high cost of energy in Somalia is also major deterrent for the milk processing units.

The impact of the above situation is the large volume of imported skimmed milk and other milk products to Somalia, even after being a pastoral society. The figure below provides an understanding on the volume of processed milk products coming into the country.

Figure 22: Imported milk products- Fig 1

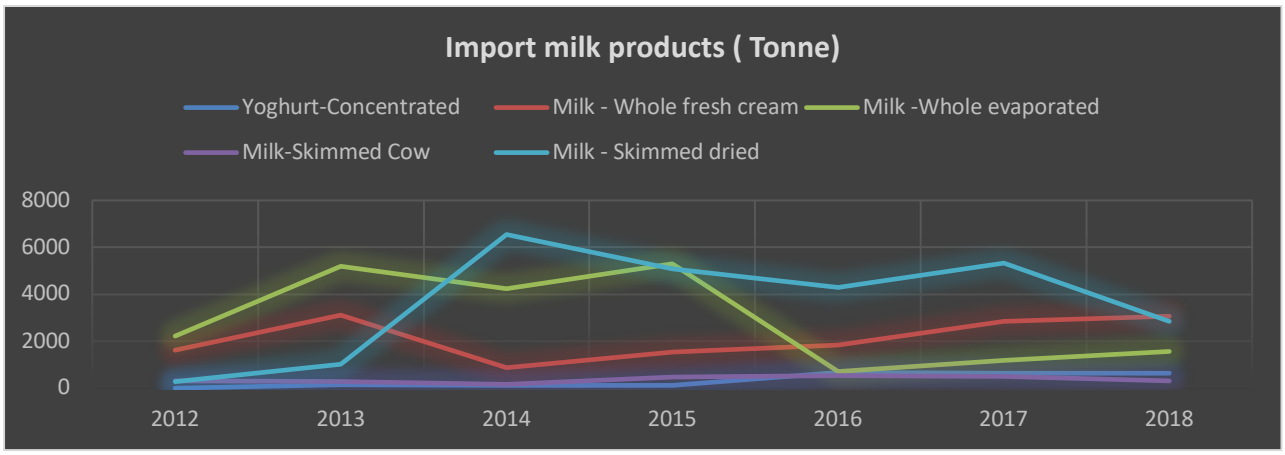
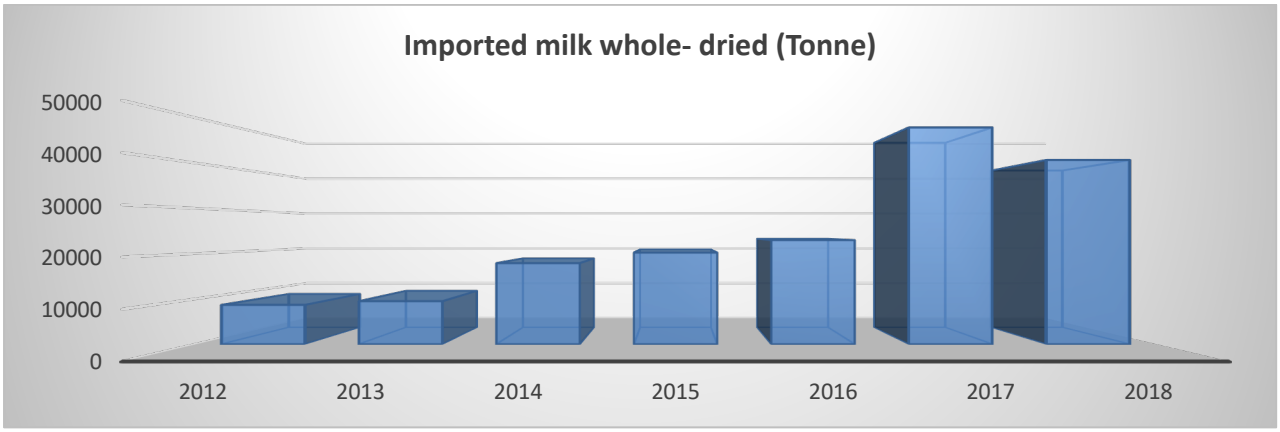


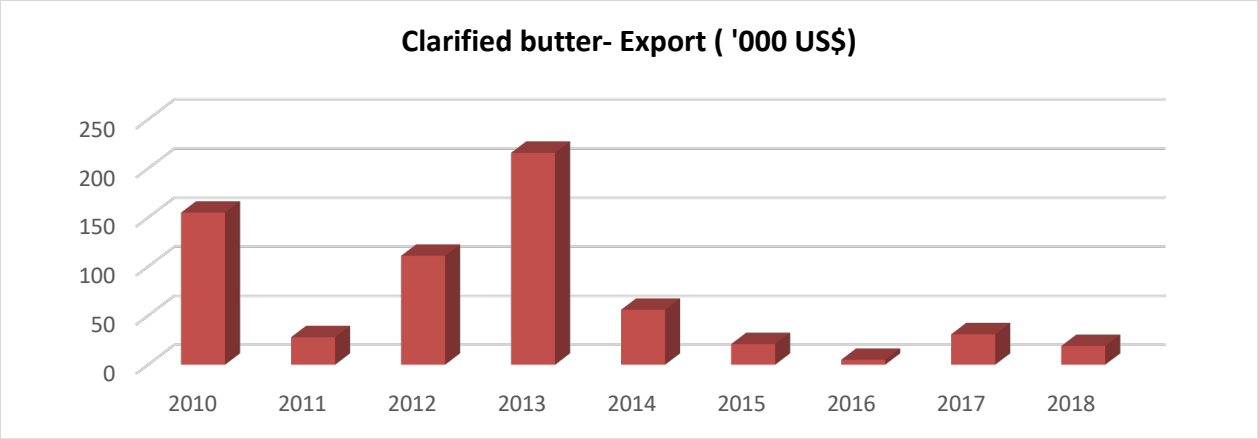
Figure 23: Imported milk products - fig 2



Source: FAOSTAT

Traditionally, Somalia has small scale milk processing where Clarified butter (Ghee) and Yoghurt are locally produced. Many local producers buy milk from herders and collectors which are surplus due to non-availability of refrigerated storage and transportation. Interestingly, as seen in the figure below, Somalia used to export Ghee (Clarified Butter) in significant volume but has gradually come down.

Figure 24: Clarified butter- Ghee export



Source: https://www.selinawamucii.com/

5.9 Milk handling and transportation

As seen in the sub-sector mapping, the herders milk their animals twice a day and store in traditional containers called *Dhiil* which they carry to the primary collectors. Other equipment used includes Koobos, which are empty cooking oil tins, and plastic utensils, such as jugs, cups and jerry cans. Normally, the herders walk and carry the container to the collector. In order to keep the container clean, it is treated daily with Charcoal. This practice gives a typical smoky taste to the milk.

The primary collector collects milk from various herders and consolidate the volume for transfer to the urban centres. Normally, the transfer of milk from the primary collector to the retailer is through plastic cans. Use of Stainless steel containers are hardly noticed. The transportation from the collection centre to the urban centres are by pick-up vans without any refrigeration facility. Similarly, the milk for retail sales is done in containers like used plastic cans, jugs, mugs etc.

Figure 25: Milk Containers

The traditional methods employed to clean milk equipment include using smoking equipment, immersing it in hot water or using ash & sand to clean. The plastic containers cannot be easily disinfected and even simple washing is difficult for most types of container. Milk preservation, just like milk container cleaning, is done using traditional methods, including storage in cold water and boiling water, though boiling milk is the most popular and widely practiced milk preservation method.

Another major drawback in the milk value chain is lack of proper retail out-lets for milk sales. Even in the urban centres, it does not have proper shelters to sell milk by the retailers. The conditions around the milk market are harsh which also affect the quality of milk due to strong afternoon heat and unhygienic conditions including dust.

Overall, raw milk collection, transportation and marketing is characterised by lack of hygiene, contamination, microbial growth due to un-clean containers, lack of cooling chains (Chillers and refrigerated vans) , mixing of different pools of milk etc. The sample of milk reaching the consumers has presence of Lanactococcus, Leuconostoc, Lactobacillus, Enterococcus and Streptococcus. Due to this, a considerable volume of Milk gets spoilt and fetches a 25% to 40% lower price compared to fresh milk. In order to reduce the milk contamination, appropriate milk containers and rehabilitation of milk market shelters are recommended

Figure 26: Informal Market place

5.10 Governance

Value chains involve regular interactions between the various actors implying repetitiveness in their relationships. Governance ensures that interactions between firms along a value chain exhibit some reflection of order rather than being simply random. Value chains are governed when parameters requiring product, process, and logistic qualification are set which have consequences up or down the value chain encircling package of activities, actors, roles, and functions.

Governance can be categorised into the following types; **legislature** (making the rules), the **executive** (implementing the rules) and the **judiciary** (monitoring the conformance to rules). This governance can be exercised by parties internal to chain or external to chain.

As a part of the value chain analysis for the Milk sub-sector in Somalia, the chain governance was looked into;

	Exercised by parties internal to chain	Exercised by parties external to chain	Implications
Legislative governance	• Quality standards of the milk from the primary collectors in the rural areas are governed by the retailers who purchase from them. **Weak** • Quality standards of the milk from the retailers in the urban market are governed by the consumers who purchase from them. **Medium** • The price fixations of the milk in the markets are determined based on demand – supply situation in the market on the day of transaction. **Strong**	• Local Authorities/ Check points fixes the taxes & commissions to be collected for the transactions taking place and goods movement. **Medium** • Local authorities'/ Livestock Ministry have formulated rules / quality norms for retail traders of milk. **Weak** •	• Primary milk collectors/ secondary milk collectors have to be particular about the quality of the produce taken to the market. • The price of milk to be received by the Livestock Farmers/ primary collectors/secondary collector's/retail traders depends not only on the quality but also on the demand and supply situation which is beyond the stakeholders control.

	Exercised by parties internal to chain	Exercised by parties external to chain	Implications
Executive governance	• Commission and taxes fixed by the market authority / Check points are collected by the commission agents/ brokers from the traders **Medium** • The agreed price of the milk is paid by the buyers to the producer/ trader directly. **Strong** •	• The local agriculture/ veterinary department/ NGOs/ humanitarian agencies are making vaccines/ medicines available to the livestock farmers at subsidized rates or free. **Medium** • Market committee providing facilities for sellers of milk. **Weak**	• The trade transactions are clearly defined by the market forces and the possibility of the livestock farmer's/ milk collectors getting cheated is minimal. • The benefits designed to support livestock farmers are received but the outreach of the support needs to be analysed.
Judicial governance	• The quality conformation of milk is checked by the collectors/traders while procuring them. **Weak**	• The local authorities/ veterinary department monitors the conformation of milk quality sold in the market. **Weak**	• Lax governance on quality adherence of milk sold exposes the consumers to possible infections.

5.11 Inter-firm cooperation

Inter firm cooperation is defined as joint activities undertaken by the various stake-holders in the value chain. Cooperation can be subdivided in *horizontal linkages*, i.e. cooperation among similar types of enterprises, for example primary milk collectors, and *vertical linkages*, cooperation between enterprises at different positions in the value chains, for example the primary milk collectors and secondary milk collectors.

Horizontal linkages refer thus in particular to the regular contacts and relationships between peer enterprises within a specified area, more specifically, it refers to joint activities of such firms, i.e. joint purchases, joint usage of equipment, joint contracts and joint learning

On the one hand, vertical linkages refer thus to contracting and subcontracting relationships between enterprises of different types in terms of scale.

5.11.1 Horizontal linkages

Horizontal linkages, or the cooperation among similar types of stake-holders are present in some extent amongst the primary milk collectors. Most of them are women and work in informal group to tide over occasional working capital crunch through internal arrangements of cash contribution. Secondly, the group of collectors negotiate with transporters for transporting the milk to secondary milk collectors in the urban areas.

At the traders' level, horizontal linkages are not apparent. The secondary collectors and retailers buying from the primary collectors do not have any established inter-firm cooperation.

5.11.2 Vertical linkages

Interesting vertical linkages can be observed between the secondary milk collectors and the primary milk collectors. The secondary milk collectors ensure that the transport going back to the rural areas carries other commodities for the primary collectors as trading avenues between them. In some cases, the primary collector provides credit to the secondary milk collectors.

5.12 Structure of labour market

The labour requirement in the milk sub-sector is limited, with most of the work is done by the value chain actors themselves, whatever is required is mostly un-regulated whose work includes loading and unloading of milk cans. There are standard rates for these functions, which needs to be paid by the user of the service. Few dairy units are being established which is absorbing labour force in more organized manner.

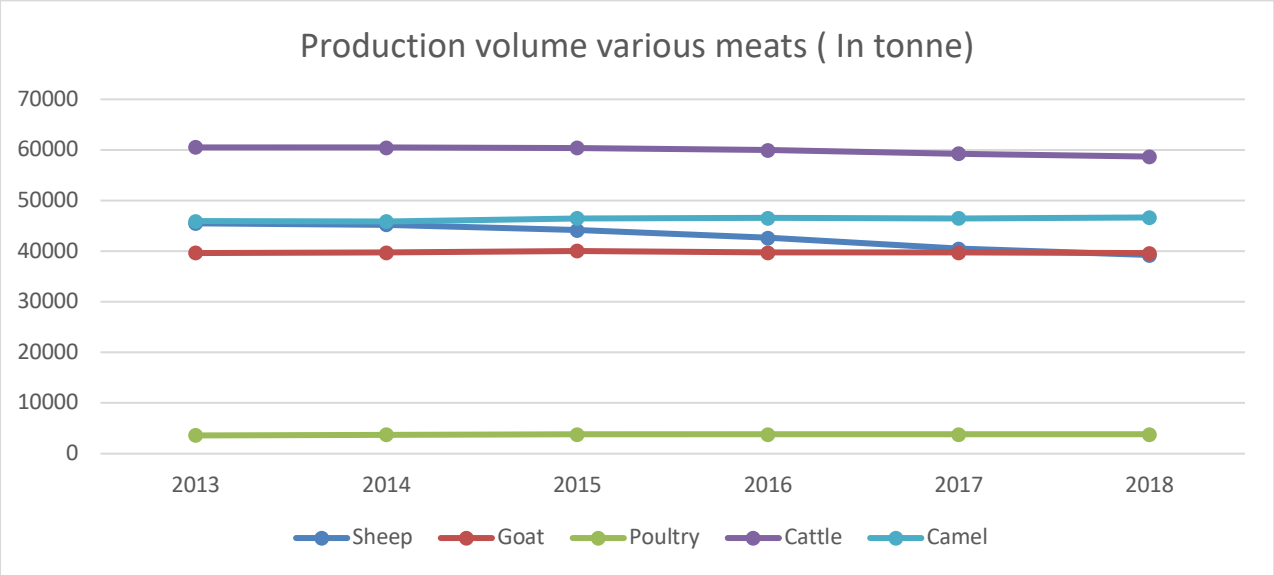
6. Meat Sub-sector and its associated value chains

6.1 Introduction

Being an agro-pastoral society, traditionally meat and milk has been the major source of nutrient for the population. Based on the animals reared in the area, the preference for meat of that animal has been observed. Domestic meat production is geared towards local market need, which prefers fresh meat not chilled or frozen. The export meat demand is catered through exports of live animals, which will be discussed separately. The domestic meat production is through small slaughterhouses either operated by private players or local authorities and are mostly un-hygienic.

The total meat production of the country is reflected below:

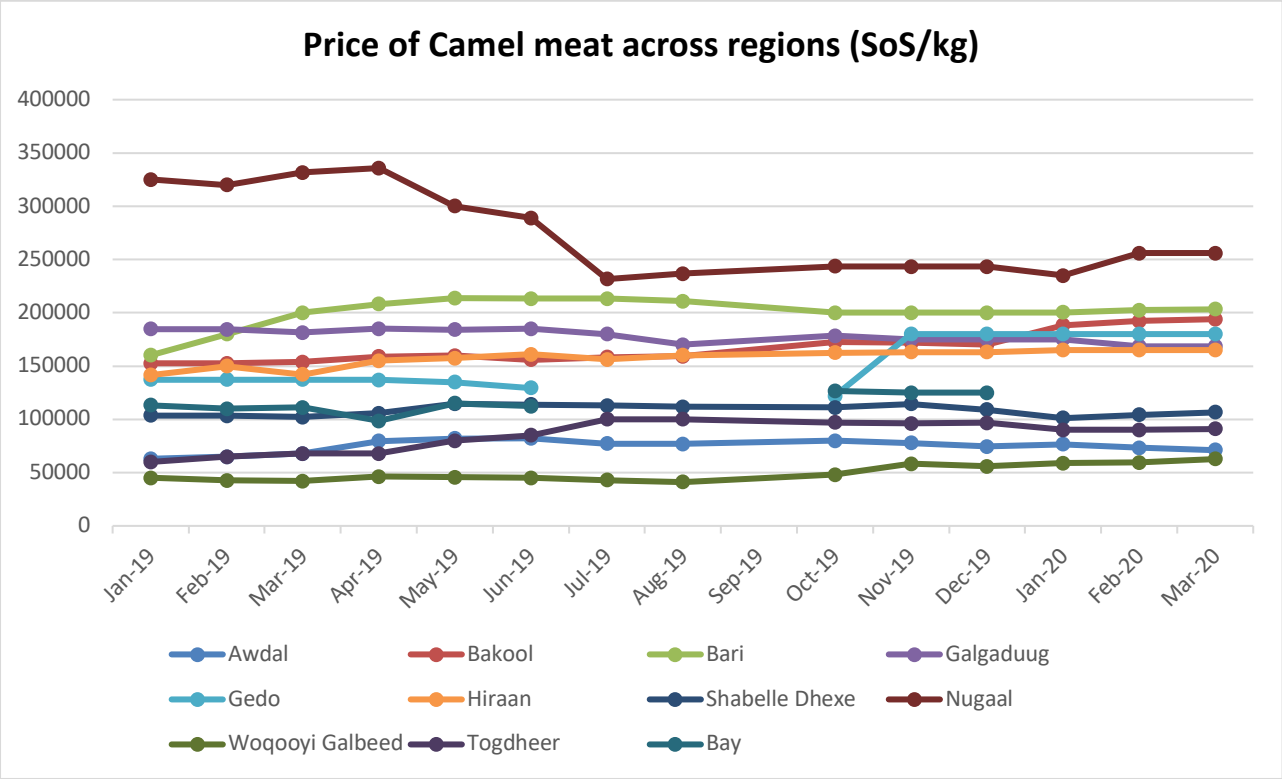
Figure 27: Annual meat production



Source: FAOSTAT

According to the above figure, the maximum meat production comes from Cattle or beef followed by Camel. Though combination of Goat and Sheep or Shoat meat will be highest. It was reported that consumer preference for beef and camel is higher than Shoat which is also reflected in their prices. There is a gradual increase in chicken meat consumption due to large scale imports. According to OEC. world, in the year 2018, 7.37 million US$ of poultry meat was imported to Somalia. As a consequence, commercial poultry farming is on the rise, particularly in urban areas.

Figure 28: Price of Camel meat



Source: https://data.humdata.org/dataset/wfp-food-prices-for-somalia

It can be seen from the above figure that the price of Camel meat varies from region to region as well as for seasons. This can be attributed to the fact that inter-region transportation of live animals or chilled meat is significantly low. The regions having higher population of camels will have lower price and similarly in the dry season, the price falls because many of the herders will sell animals since rearing them due to low fodder availability increases the cost.

6.2 Estimate of domestic meat demand and supply

An analysis has been done to understand the demand and supply gap of meat in the domestic market in the coming years to devise measures to reduce the gap.

Table 2: Estimated forecast for demand- supply gap in meat-domestic

Year	Population	Annual average meat consumption / capita (in kg)	Estimated meat demand (in million tonnes)	Annual meat production (in Million Tonnes)	Estimated gap in the demand and supply (in Million Tonne)
2020	15893222	26.09	0.415	0.202	0.213
2021	16357304	26.90	0.440	0.208	0.232
2022	16834937	27.67	0.466	0.214	0.252
2023	17326518	28.50	0.494	0.220	0.274

Assumptions:

- As per a study on 2015 -IGAD Centre for Pastoral Areas and Livestock Development, the meat consumption averaged 21.21 kg per person in 2013. Taking an estimated annual growth of 3%, the estimated meat demand has been calculated.
- As per FAOSTAT, the annual meat production in 2018 was 188036 Tonnes. Taking an estimated annual growth of 3%, the estimated meat supply has been calculated.
- The population growth of Somalia has been taken as 2.92%, which was for the year 2019.

It can be seen from the above figure that there is a substantial gap in the demand and supply, which probably is due to the reason that large volume of live animals is exported. In order to reduce the gap, productivity of animals can be increased, more of stall feeding farms encouraged. In addition, if steps for improving the infrastructure of supply chain and slaughter-house is made, a considerable shift towards chilled frozen meat and value added items made from instead of live animal export. This will allow more animals in the country for domestic meat demand while the foreign currency in-flow is compensated from higher margins of meat exports.

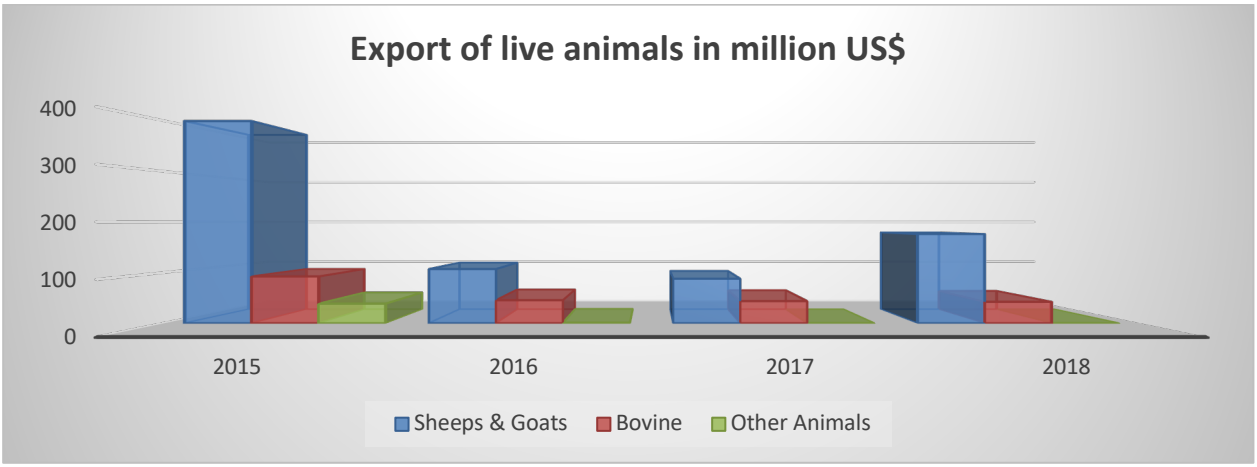
6.3 Export market

Somalia's livestock exports have been mainly live animals. In-fact, in the 60's and 70's, it comprised almost 70% of total Saudi Arabia's import (*Samatar et al. 1987*). The main export destinations are mostly Middle East countries including Saudi Arabaia, Yemen, UAE, Oman, Qatar etc. Exports are also reported both through cross-border illegal trade or through legitimate channels to East African countries.

This large volume of live animals' export is due to the fact that there is dearth of export standard slaughter-houses that can adhere to quality standards. Coupled with lack of supply chain infra-structure, the easiest way of export is the live animal mode.

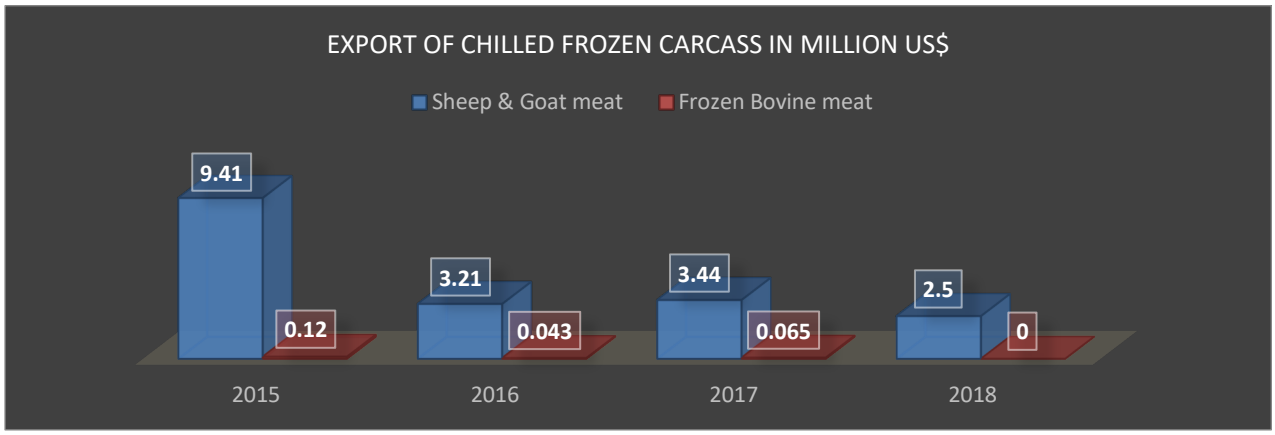
In the last decade, a few export standard slaughter-houses have been established in some parts of Somalia. Tied up with exporters, these slaughter-house has been able to export chilled meat in carcass form. The figures below provide snapshot of the export scenario of livestock in Somalia.

Figure 29: Export of live animals



Source: www.oec.world.com

Figure 30: Export figures of chilled frozen carcass



Source: www.oec.world.com

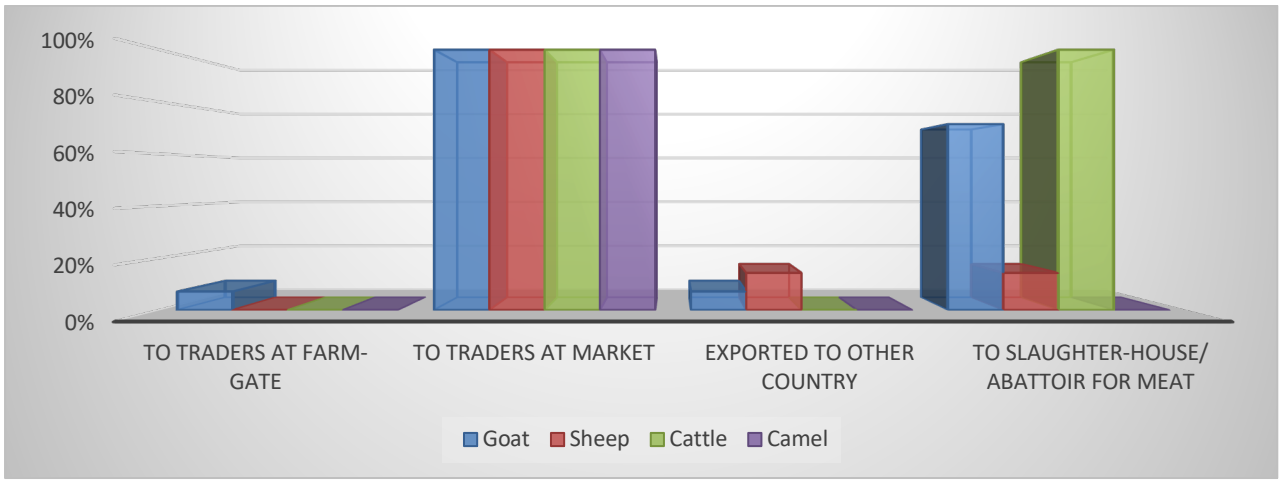
It can be inferred from the above figures that prominently it is the sheep and goats, followed by cattle are exported in form of live animals or frozen carcass.

6.4 Various actors/ stake-holders

The various actors in the sub-sector has some sort of role in value addition. Though it has to be taken into consideration that the value chain involved in the meat sub-sector is a combination of domestic meat requirements and export of animal carcass and live animals.

The producers of the animals are **rural pastoralist** or **farms** that are rearing livestock. These producers are selling mostly to small traders at market.

Figure 31: Sales channel of animals by producers (inputs from livestock rearer sample)



These **small scale traders** are the primary collector of animals in the trading channel. These traders are supplier of animals to the local butcher. The **local butcher** is primarily the source of meat supply in the urban market. Interestingly a segment of vendors, mostly women, source meat from the local butcher and vend in the market as **street vendors**.

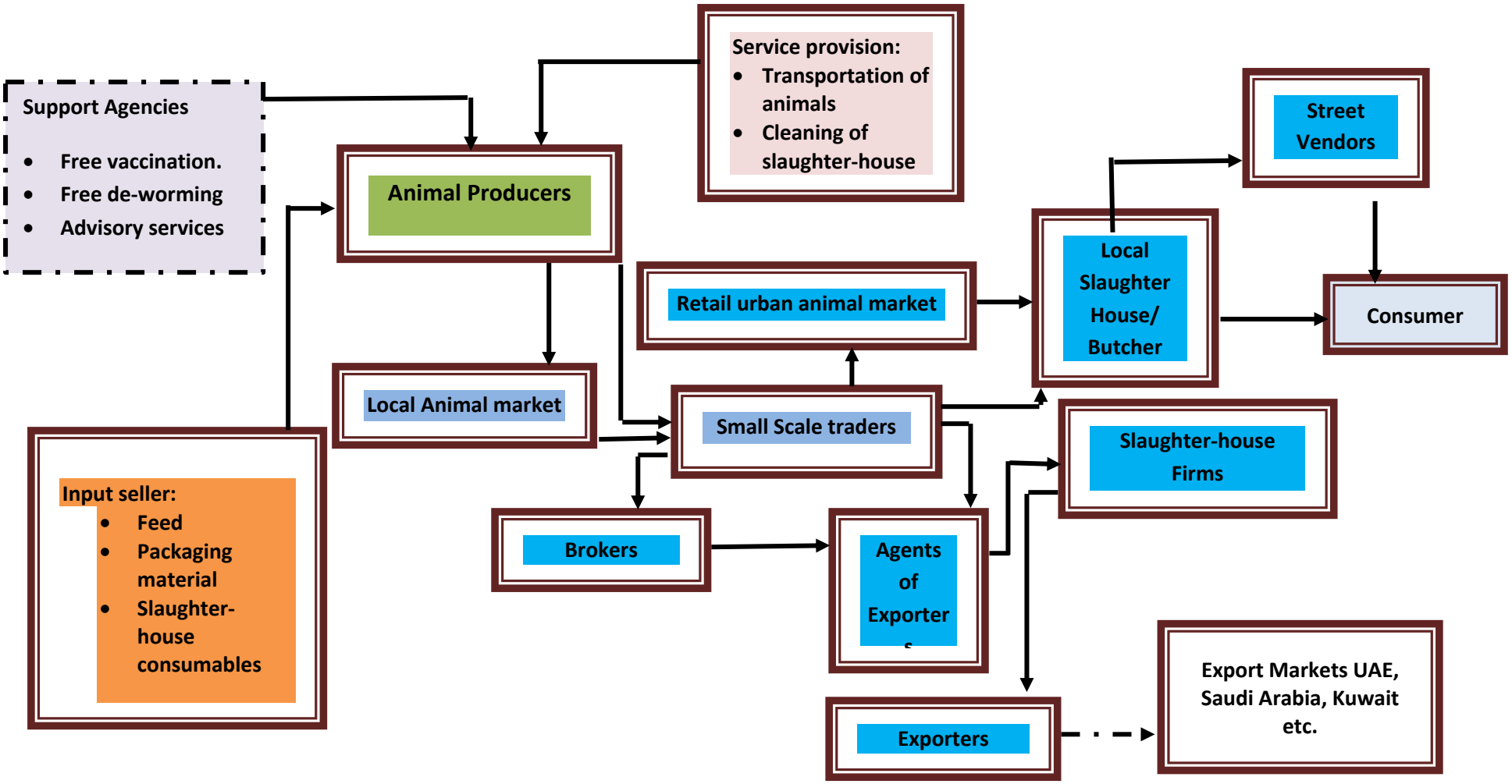
The major value chain in the meat sub-sector is the export market – mostly of live animals and a small segment of chilled meat export. The main player in this chain are **Exporter's**. These exporter's act as the final link between the Somali livestock rearers and the importing countries. To procure animals, some exporters operate through a dedicated network of **agents of exporters** who are usually from the same clan as the exporter. They employ 3–4 full-time agents on average, as well as other part-time intermediaries. In the export of chilled carcass, the exporters get the stock slaughtered in few designated slaughter-house and then deliver chilled meat to importers in the Middle East.

In the whole sub-sector, an interesting player is present who plays the role of middlemen to the transactions. Called as the **brokers or *Daalal***. Brokers are market player and facilitate exchange between traders or between traders. Brokers are not engaged in the physical handling and management of livestock, nor do they assume ownership of animals. These brokers are found in all the markets and usually they live in the same area, and belong to the same clan, as the producer–sellers and has societal recognition.

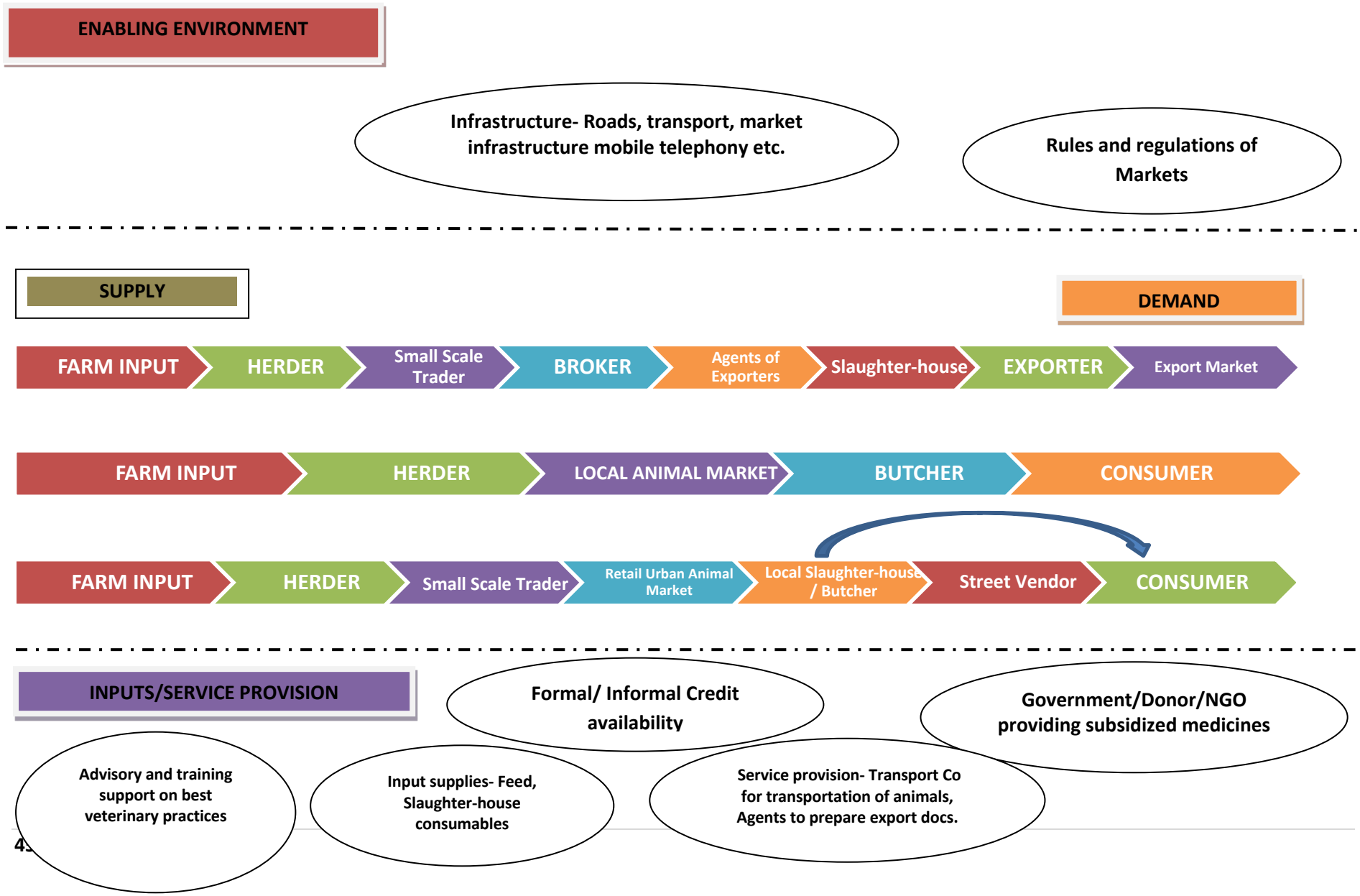
In addition to connecting buyers with sellers and acting as payment guarantors, they provide information on volumes, quality and price of livestock: both the available supplies and the demand expressed by buyers. Brokers also provide market security, in that they are active in enforcing purchase and sale agreements and property rights, and resolution of conflicts. They charge a fee, generally a flat rate per animal (varying by species), which is usually shared equally between buyer and seller.

The final main player in the sub-sector are **the shipment or transportation agencies**. Most of the live animals are exported through ports of Berbera, Bosaso, Mogadishu and Kisimayo. While live animals are exported through ships, the chilled meat carcass are send through air-freight. Around three air-freight operators, all Somali owned , with registered offices in Somalia are the main players.

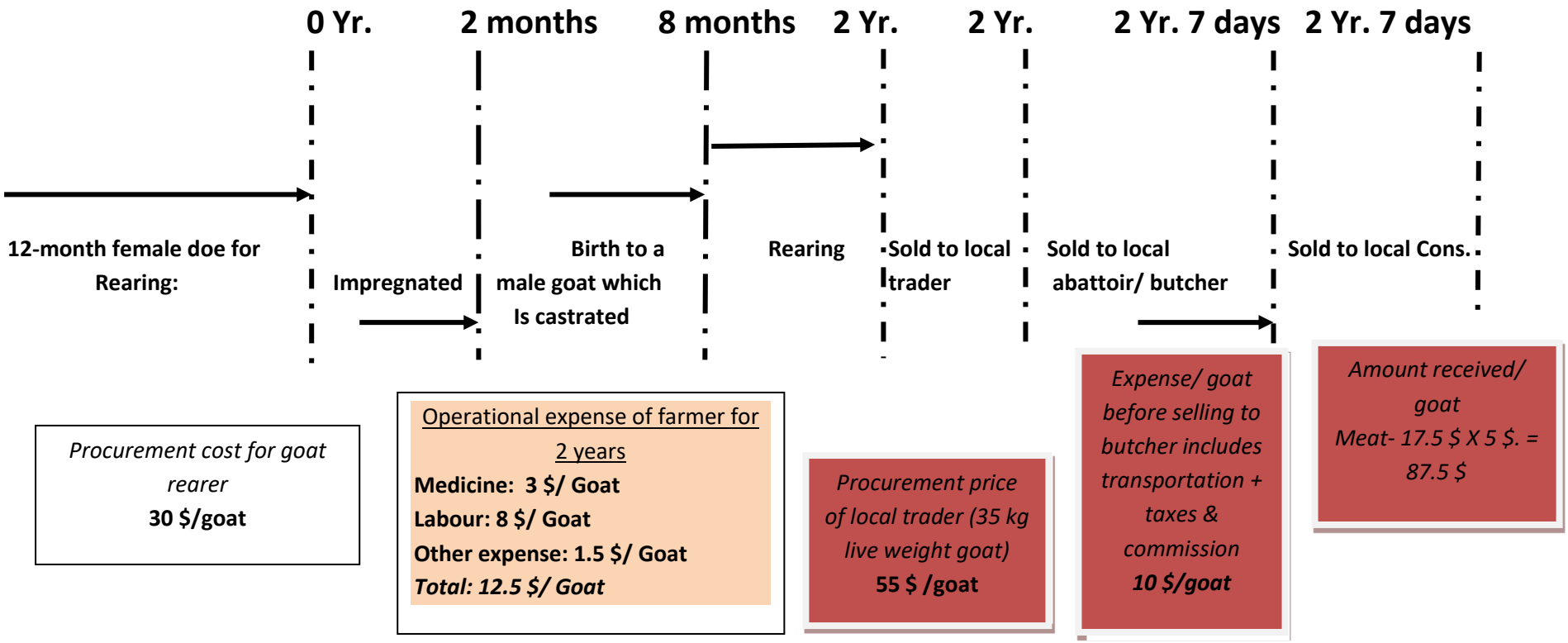
6.5 Sub-sector map



6.6 VALUE CHAIN FRAMEWORK FOR MEAT SUB-SECTOR



6.7 Value addition in Goat meat value chain



Cost of Sales

- Transportation cost including loading & un-loading city limits = 200 $/Ton. – 6.7 $ / goat, assuming 1 Ton carriage will accommodate 30 animals
- Cost of goat for the butcher from retail trader: Assumed 20% margin more from the rearer price + cost of transportation per goat
- Other taxes and commissions- Assumed 5% of the cost of goat = 0.05 X 66 $ = 3.3 $ per goat

Livestock farmer			Local trader			Butcher/ Abattoir		
Procure → Grow → Sale			Procure → Transport → Sale			Procure → Slaughter → Sale		
The livestock rearer procures goat –female for production of goats.	It is assumed that the female will be impregnated in 2 months and have a pregnancy period of 6 months. The cost will be incurred by the rearer on feed (most cases these are grazed free), medicine, vaccination etc.	The rearer sells male castrated goat to local traders . The average weight of the goat will be 35 kg.	The trader buys the full grown male goat from rearer .	The trader transports the goat to the urban centre .	The trader where it will undertake sale to local abattoir or butcher.	The abattoir or the local butcher buys the goat.	The goat is slaughtered for meat. The average meat coming from a live goat is 50%. Hence, 35 kg goat will give 17.5 kg of meat.	The abattoir or butcher sells directly or does sub-retailing of the meat. The retail price per kg will be 5 $.
Gross value received on sales		55 $	Gross value received on sales		76 $	Gross value received on sales		5 X 17.5 = 87.5 $
Cost of the production		30 $ + 12.5 $ = 42.5 $	Cost of Procurement		55 + 6.7 $= 61.7 $	Cost of Procurement		76 $
Cost of Sales		-	Cost of Sales		3.3 $	Cost of Sales		- $
Value added		12.5 $	Value added		11 $	Value added		11.5 $
Time period		2 year	Time period		1 to 7 day	Time period		1 to 7 day

6.8 Meat processing

Meat processing in Somalia primarily can be attributed to slaughtering of animals by the local butcher and catering to the urban and peri-urban market. These abattoirs are very crude and unhygienic with little regulations followed. Traditionally, the Somalian society prefers fresh meat to frozen, hence, the local market is predominantly supplied by the local abattoirs or butchers. Interestingly, there are street vendors mostly women, who procures from the local butcher and sells in the street markets.

Traditionally, Somalia's livestock exports have mainly been in the form of live animals. These exports mostly to Middle-east and East Africa are done by exporters. Information that was made available to the study team is that there are around six such exporters. These exporters are also export chilled animal carcass. The live animals are slaughtered in few operational abattoirs, which have international standards followed. Prominent among them are – Mogadishu Slaughter-house and Mubarak Slaughterhouse owned by Somali Meat Company, a consortium of exporters. Other slaughter-house reported during the study include Maandeeq slaughterhouse in Hargeissa and H Foods export slaughterhouse in Burao. Although Somalia currently exports chilled meat in carcass form, there is likely to be potential for further value addition.

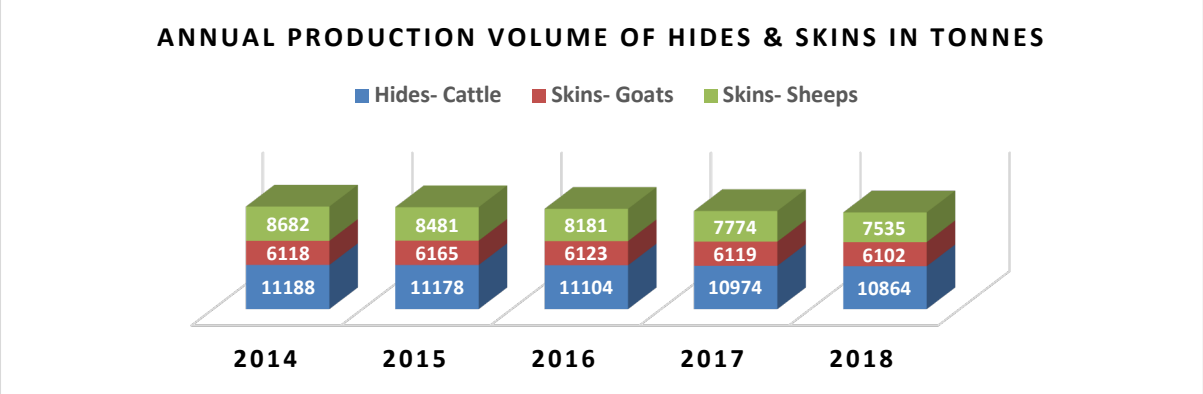
The meat exported from Somalia adheres to the following conditions- As for exporters, all small-scale traders, brokers and only chilled carcasses of male animals are exported and that a certification for Halal slaughter is mandatory. In addition, Somalia itself has a long-standing prohibition on export of female animals.

Figure 32: Street vendors selling meat

Somali households produce traditional home-cured (or sun-dried) meat products, such as *mugmud* and *otka.*

The Hides and Skins collected from slaughtering of animals are an important by-product in meat processing. Currently, the figure below presents the production volume of hides and skins in the country.

Figure 33: Annual production volume of hides and skins

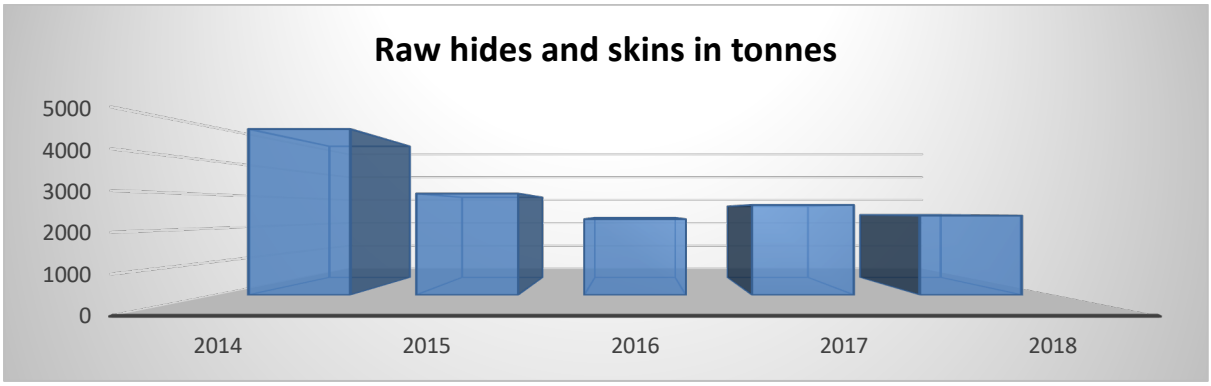


Hides and Skins are either produced by pastoralists in villages where animals are slaughtered for home consumption or at designated slaughter facilities and butchers. The hides and skins are collected by small traders and then sold to wholesale traders who either export or sell them to few tanning units. The study provided information on few tanneries across Somalia, which includes Berbera Tannery and Jeronimo group tannery in Daar Budug, Bosaso Tannery, Burao Tannery, Phiss Tannery in Hargeisa.

Figure 34: Picture of Tannery and Abattoir in Somalia

The export volume of raw hides and skins are presented below:

Figure 35: Export quantities of raw hides and skins from Somalia



Source: https://www.selinawamucii.com/insights/market/somalia/raw-hides-skins/

It is being reported that many of the export consignments are rejected due to quality issues and vermin infestations. There is hardly any processing beyond sun-drying in these tanneries for the low quality.

6.9 Governance

Value chains involve regular interactions between the various actors implying repetitiveness in their relationships. Governance ensures that interactions between firms along a value chain exhibit some reflection of order rather than being simply random. Value chains are governed when parameters requiring product, process, and logistic qualification are set which have consequences up or down the value chain encircling package of activities, actors, roles, and functions.

Governance can be categorised into the following types; **legislature** (making the rules), the **executive** (implementing the rules) and the **judiciary** (monitoring the conformance to rules). This governance can be exercised by parties internal to chain or external to chain.

As a part of the value chain analysis for the Meat sub-sector in Somalia, the chain governance was looked into;

	Exercised by parties internal to chain	Exercised by parties external to chain	Implications
Legislative governance	• Quality standards of the meat of the slaughtered animals from the abattoirs are governed by the traders who purchase from them. **Strong** • The price fixations of the meat in the markets are determined based on demand – supply situation in the market on the day of transaction. **Strong**	• Brokers/ Check points fixes the taxes & commissions to be collected for the transactions taking place and goods movement. **Strong** • Local authorities'/ Livestock Ministry have formulated rules for retail suppliers of meat under the Meat Act. **Medium** • Livestock Ministry has formulated rules for exports- **Strong**	• Livestock Farmers/ butchers/abattoirs have to be particular about the quality of the produce taken to the market. • The price of the produce to be received by the Livestock Farmers/ butchers/abattoirs depends not only on the quality but also on the demand and supply situation which is beyond the stakeholders control.
Executive governance	• Commission and taxes fixed by the market authority / Check points are collected by the commission agents/ brokers from the traders and the rearers. **Strong** • The agreed price of the livestock is paid by the buyers to the producer/ trader directly. **Strong** • The agreed price of the slaughtered meat is paid by the buyers to the abattoir/ butcher directly. **Strong**	• The local agriculture/ veterinary department/ NGOs/ humanitarian agencies are making vaccines/ medicines available to the livestock farmers at subsidized rates or free. **Medium** • Market committee providing facilities for sellers of meat. **Weak**	• The trade transactions are clearly defined by the market forces and the possibility of the livestock farmer getting cheated is minimal. • The benefits designed to support livestock farmers are received but the outreach of the support needs to be analysed.
Judicial governance	• The quality/ health status conformation is checked by the traders/abattoirs while	• Livestock Ministry monitors the conformation of export criteria of live animals/ chilled	• Lax governance on quality adherence of meat sold exposes the consumers to

	Exercised by parties internal to chain	Exercised by parties external to chain	Implications
	procuring them from farmers/ local traders. **Strong**	meat by the exporters. **Medium** • The local authorities/ veterinary department enforce the restriction of animal slaughtering, quality of meat sold. **Medium**	possible infections. ineffective

6.10 Inter-firm cooperation

Inter firm cooperation is defined as joint activities undertaken by the various stake-holders in the value chain. Cooperation can be subdivided in *horizontal linkages*, i.e. cooperation among similar types of enterprises, for example Livestock rearers, retailers/brokers, abattoirs/butchers, and *vertical linkages*, cooperation between enterprises at different positions in the value chains, for example the local trader and livestock rearers.

Horizontal linkages refer thus in particular to the regular contacts and relationships between peer enterprises within a specified area, more specifically, it refers to joint activities of such firms, i.e. joint purchases, joint usage of equipment, joint contracts and joint learning

On the one hand, vertical linkages refer thus to contracting and subcontracting relationships between enterprises of different types in terms of scale.

6.10.1 Horizontal linkages

Horizontal linkages, or the cooperation among similar types of stake-holders, are weak. In case of livestock rearers recognized horizontal linkages are very minimal almost to the point of nil. Some cases of inter-firm cooperation amongst them are observed in terms of sharing transport mode to carry the produce to the market.

At the traders' level too, horizontal linkages are not apparent. The retailers or wholesalers buying from the farmers in the market do not have any established inter-firm cooperation.

It has been reported that some associations at the regional level for producers and traders have been formed. Concrete steps of cooperation was not reported during the study.

6.10.2 Vertical linkages

In general terms, stake-holders in the value chain have rather weak vertical linkages. The major reason behind it is the state of the sub-sector as such. It is much localised and mostly un-organized. The need and advantage of building vertical linkages are still evolving and is in the dormant stage.

6.11 Structure of labour market

The markets have un-regulated established labour force, whose work includes loading and unloading of animals, weighing of the animals, slaughtering of animals, cleaning of slaughtering premises etc. There are standard rates for these functions, which needs to be paid by the user of the service. The availability of this labour force is from areas near to the markets. This labour force is mostly independent.

7. FINDINGS & KEY ISSUES

Livestock production has been the backbone of the Somali economy for many centuries. It is the most important source of food and income for the predominantly rural population, accounting 55.03 % of the total population as of 2018 according to World Bank Report. Agricultural exports are prominent component in the overall country's total export and is valued to be $634 million, which is more than five times the value before the civil war, thanks to livestock exports, which rose by a factor of almost 10 since the late 1980s.

The goat and sheep population has more or less uniform presence across the country but has significant presence in the North Eastern and North Central Region. The camel population has uniform presence across the country. While the cattle population is mostly concentrated in the river valleys- Juba River valley, Inter-riverine regions and the Shabelle River valley. The main livestock production system observed in Somalia can be categorised into three main groups- **nomadic pastoralists**, **agro-pastoralism** and **urban stall feeding**.

Livestock sub-sector in Somalia are primarily dominated by two value chains- Meat processing and Milk. Both these major value chains have subsidiary value chains. The meat processing value chain can be divided into subsidiary value chains. One catering to the domestic market while another is chilled frozen carcass for exports. Livestock exports is a chain which effectively caters to the export meat market. Similarly, the milk value chain has subsidiaries –one plain milk sells and while the others are for traditional dairy products like *Ghee* or newly established dairy processing firms.

The Federal govt. Of Somalia revamped Veterinary code which existed since War period in 2016 and was approved by the parliament. Similarly, Somaliland adopted a revised national veterinary code in 2008. Both codes include advances in veterinary legislation and reflect the guidelines of the World Organization for Animal Health (OIE). The import rules include no animals or animal products shall be imported without a license issued in writing by the Chief Veterinary Officer. Imported animals and animal products shall be accompanied by a valid international veterinary certificate provided by the Veterinary Authority of the exporting country. It is prohibited the exportation of productive female animals, embryo, ova, and semen, hatching eggs or wild animals specific for Somalia's ecosystem or in danger of extinction.

While analysing the primary data, it reflects interesting combination of animals reared by a farmer. Livestock farmers rearing camel tend to also do Shoat while Cattle rearers except few exceptions of goat rearing tend to rear cattle as the sole animal. Most of the livestock rearers are practicing nomadic pastoralism with improvised methods of stall feeding without any construction of assets. Though limited numbers (14%) of the rearers did practice stall feeding or reared animals at a fixed location. It can be seen from the primary data, most of the respondents have indicated that smaller animals like Goat and Sheep are reared and sold as whole animal, while the primary reason for rearing Cattle and Camel is selling milk.

Somalia is primarily a milk producing nation or have substantial large milk sub-sector but if one talks about the dairy sub-sector, it has a very poor dairy sub-sector. In-fact, it is a net importer of dairy products with concentrated milk constitutes 4.7% of the total imports valuing 157 million US$ in 2018 (Source*: OEC World).* Considerable amount of other dairy products like Butter and

Cheese are also imported. The reason that can be attributed to this trend is lack of processing facilities of milk and very weak cold chain and transportation network that leads to huge spoilages. It can be inferred that there is milk price rise in the dry season across the regions which is definitely due to lower supply but interestingly the jump in price is not very significant owing to the fact that households tend to prioritise selling milk rather than consuming it during the dry season – Jilal – when production is low and prices are high. This is due to the fact that rearing of livestock is the major source of livelihood for agro-pastoralist.

Another important finding from the above figure shows that the demand and supply of milk is contained within region. There is probably no major transportation of milk between regions. It can be seen that the price of milk in Jubaland is significantly less than Banadir region. The capital region of Somalia- Mogadishu falls under Banadir region which is pre-dominantly an urban area with limited livestock rearers to supply milk. This shows that due to lack of chilling lines and refrigerated transportation in the milk sub-sector, supply of milk is still limited to a closer radius from the source of production.

Traditionally, Somalia has small scale milk processing where Clarified butter (Ghee) and Yoghurt are locally produced. Many local producers buy milk from herders and collectors which are surplus due to non-availability of refrigerated storage and transportation. Interestingly, as seen in the figure below, Somalia used to export Ghee (Clarified Butter) in significant volume but has gradually come down.

Normally, the transfer of milk from the primary collector to the retailer is through plastic cans. Use of Stainless steel containers are hardly noticed. The transportation from the collection centre to the urban centres are by pick-up vans without any refrigeration facility. Similarly, the milk for retail sales is done in containers like used plastic cans, jugs, mugs etc. Another major drawback in the milk value chain is lack of proper retail out-lets for milk sales. Even in the urban centres, it does not have proper shelters to sell milk by the retailers. The conditions around the milk market are harsh which also affect the quality of milk due to strong afternoon heat and unhygienic conditions including dust.

According to the above figure, the maximum meat production comes from Cattle or beef followed by Camel. Though combination of Goat and Sheep or Shoat meat will be highest. It was reported that consumer preference for beef and camel is higher than Shoat which is also reflected in their prices.

Somalia's livestock exports have been mainly live animals. In-fact, in the 60's and 70's, it comprised almost 70% of total Saudi Arabia's import (*Samatar et al. 1987*). The main export destinations are mostly Middle East countries including Saudi Arabaia, Yemen, UAE, Oman, Qatar etc. Exports are also reported both through cross-border illegal trade or through legitimate channels to East African countries. In the last decade, a few export standard slaughter-houses have been established in some parts of Somalia. Tied up with exporters, these slaughter-house has been able to export chilled meat in carcass form.

8. RECOMMENDATION ON AREAS for SKILL SET UPGRADATION

A) MILK PROCESSING

Milk collection & Handling	
Areas of Skilling	***Remarks***
Hygiene to maintain while collecting milk and handling of milk.	These training modules will be targeted at the primary and secondary milk collectors and will be short duration course.
How to use Lactometer to understand quality parameters of milk.	
Process of cleaning milk containers	
Storage of milk- steps to be followed	
Milk processing including chilling and pasteurisation	
Areas of Skilling	***Remarks***
Hygiene to maintain while collecting milk and handling of milk.	These training modules will be designed for creating skilled workers in the field of milk processing.
Technique and knowledge on the process of chilling milk.	
Technique and knowledge on pasteurization of milk.	
Technique and knowledge on cleaning milk storage tanks, chilling units, pasteurization unit, bottling/packaging unit.	

B) MEAT PROCESSING

Operation of slaughter-house	
Areas of Skilling	***Remarks***
Process and procedure for receiving animals into, and their movement around, the lairage facility. Regulatory and official documentation	These training modules will be designed for creating skilled workers in the field of operating a slaughter-house.
Process and function in the slaughter process of penning/restraint: stunning, shackling, hoisting, bleeding and safe use of relevant equipment/machinery	
Requirements for safe, efficient and hygienic practices in the bleeding of animals, religious slaughter as practised by halal	
Proper disposal of waste .	