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A rapid appraisal of the Yemeni end-market for Somali livestock exporters

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A rapid appraisal of the Yemeni end-market for Somali livestock exporters

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Disclaimer

Acronyms

CBPP	Contagious bovine pleuropneumonia
FAO	Food and Agriculture Organization of the United Nations
FMD	Foot and mouth disease
GDP	Gross domestic product
KSA	Kingdom of Saudi Arabia
LMIS	Livestock market information system
MERS	Middle East respiratory syndrome
SLCCIA	Somaliland Chamber of Commerce Industry and Agriculture
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
USAID	United States Agency for International Development

Abstract

Livestock is the backbone of Somaliland economy. It accounts for about 60% of the country's gross domestic product, 70% of employment opportunities and 85% of export earnings. There exists a distinct indigenous grading system for export quality livestock traded in Somaliland markets. Export quality cattle, sheep and goats are categorized in three grades: I, II and III, while camels are categorized into two grades: I and II. Animals thus categorized are exported to various countries in the gulf, including the Kingdom of Saudi Arabia (KSA), Yemen, Oman, Egypt and the United Arab Emirates.

Despite ample documentation on the grading and pricing of export quality livestock in Somaliland, there exists a limited of knowledge on how the animals are graded and priced within importing country markets. In addition, there is limited knowledge on how the grading applied in source markets interfaces with that practiced in importing country markets.

To address this knowledge gap, a rapid appraisal of quality characteristics required by importers was carried out in Yemen, the second most important destination for Somaliland livestock. Its focus was on providing preliminary information on market actors, delineating the contractual arrangement between these actors and Somaliland exporters, and identifying livestock requirements in terms of age, conformation and body condition of animals in commercial grades, and the pricing and use of these grades. The study also identifies suitable areas for further research. This discussion paper presents results of this assessment.

1. Introduction

Yemen is located on the southwest coast of the Arabian Peninsula. It is a relatively low income country (GDP per capita=USD 1408 according to data from the World Bank) with oil accounting for 10% of the GDP, while agriculture (both crop and livestock production) accounts for about 20%. Historically, Yemen has produced, traded, imported and exported livestock over hundreds of years (Fleming 2008). Livestock is the primary source of income for farmers, accounting for over 50% of their income (Fleming 2008). Ownership of animals, and also most of the day-to-day management of the livestock is primarily undertaken by women; this includes cutting fodder and hand-feeding the livestock. Tables 1 and 2 respectively show trends in numbers of livestock in the country, as well as imports and exports.

Table 1: Trends in livestock population by species in Yemen

Species	Species (heads)			
	2010	2011	2012	2013
Cattle	1,605,000	1,654,000	1,684,000	1,700,000
Sheep	9,206,000	9,358,000	9,419,000	9,450,000
Goats	9,016,000	9,106,000	9,159,000	9,160,000
Camels	403,000	436,000	440,000	445,000

Source: FAOSTAT 2016

Table 2: Trends in number of livestock imported and exported from Yemen

Trade direction	Species	Number of heads					
		2008	2009	2010	2011	2012	2013
Imports	Cattle	135,277	123,847	120,000	148,731	182,357	381,702
	Sheep	354,277	653,493	700,000	415,841	599,821	375,986
	Goats	873,132	241,959	300,000	200,000	180,000	255,841
	Camels	0	0	0	0	0	0
Exports	Cattle	0	0	0	0	0	0
	Sheep	0	0	0	0	0	0
	Goats	2658	0	0	0	0	0
	Camels	0	0	0	0	31	0

Source: FAOSTAT 2016

The majority of livestock imported into Yemen originates from the Somali ports of Berbera and Bossaso (see Figure 1 for location), with the greatest number (78%) entering Yemen through the port of Al Mukha (or Mocha)[1]. The port of Al Mukalla is the second-most-used port (15%), while the port of Aden is third (about 7%) (Fleming 2008). A small number of livestock originate from the ports of Djibouti, Eritrea and Ethiopia and is imported through the facilities at Al Mukha[2].

Overall, Yemen wields great strategic advantage over the other Middle East countries when trading with Somalia due to its geographical close proximity. Besides, Yemen was a crucial, albeit relatively less profitable, as the sole outlet

1. Al Mukha District is a district of the Taiz Governorate, Yemen. Its capital lies at Mocha (see https://en.wikipedia.org/wiki/Al_Mukha_District)

2. Besides Al Mukha, Aden and Al Mukalla, some animals also enter through Al Hudaydah and Salif. However, Somali livestock are shipped into Yemen mainly through Al Mukalla and Al Mukha. Somali animals shipped from Bossaso get in from Al Mukalla, whereas those from Berbera go through Al Mukha due to geographical proximity.

channel for Somali livestock during the Saudi livestock dual export bans of 1997 and 2001–2009. It is important to note that Yemen is a meat deficit country due to the environmental limitations on livestock production and the large and growing population that currently stands at over 25 million (FAOSTAT 2016). The country depends on Somali livestock for a significant proportion of its red meat needs (La Grange III 2008).

Figure 1: Position of Yemen relative to ports of Somalia

Source: Majid (2010)

On arrival at the ports of entry in Yemen, livestock are quarantined for 2–10 days, depending on the time of the year and the number of animals being imported (Fleming 2008). The owners have to pay for any treatment of the livestock as well as provide watchmen to keep the sick animals away from the healthy ones. Sick animals are released when they have begun to eat normally[3].

Livestock (sheep, goats and cattle) that enter through Al Mukha are transported to Sana'a, Taiz and Hodeidah and, to some extent, to Ibb (Figure 2). The majority of camels are sent to Hodeidah followed by Harad and, to a small extent, to Ibb. On the other hand, livestock quarantined at Al Mukalla (mainly sheep and goats) are transported to the markets of Shahr, Mukalla and the Hadrarmawt Valley. Cattle from Al Mukalla are transported to the Hadrarmawt Valley and to the markets of Shahr and Sharj. The majority of camels (50%) are sent to the Maharah governorate, the Hadrarmawt Valley and to the market at Shahr and the Sharj. Livestock imported through the port of Aden are sold as slaughter stock in local markets (Fleming 2008).

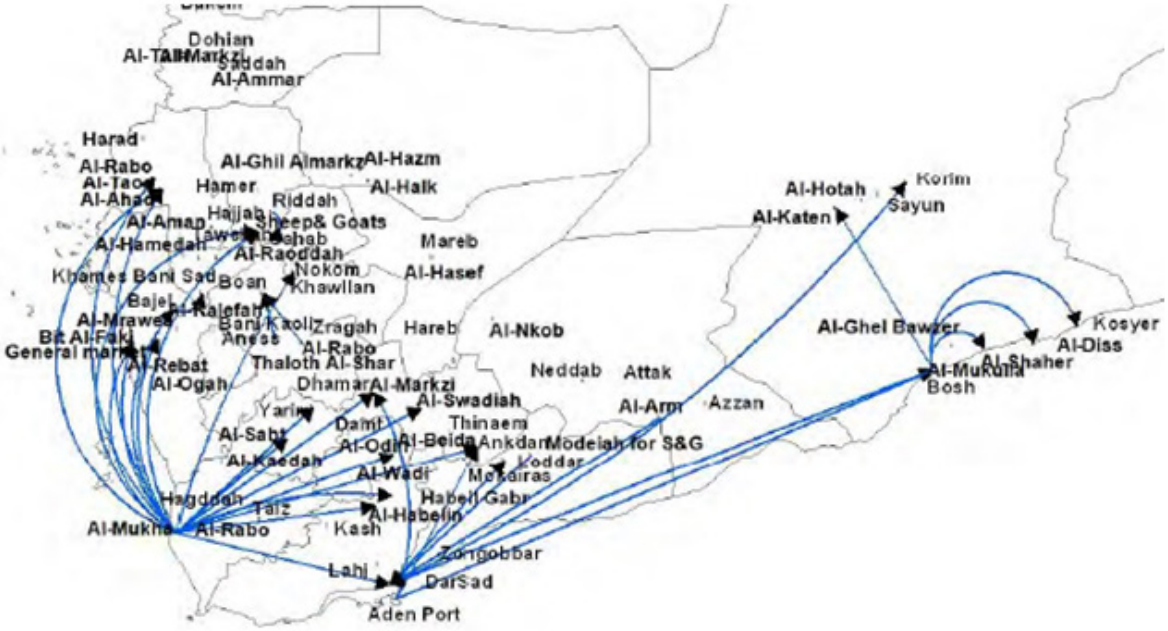
It is apparent that an appreciable amount of information exists on the market network and health requirements for export livestock from Somalia traded in Yemen (Fleming 2008; La Grange III)[4]. Not much is known, however, about the grading system used, prices for different grades, market actors and contractual arrangements practiced between the actors in this trade. This study aims to fill this gap.

3. The main diseases seen at the quarantine facilities are pneumonia, diarrhea, peste des petits ruminants and sheep pox

4. Based on this information, the distribution channels for Somali animals seem to be very distinct since Al Mukha supplies markets in the west of the country especially Sanaa, the capital city, Ta'izz, Ibb, Dhamar, whereas Al Mukalla supply the coastal and eastern regions of the country including the port city of Aden and partly (especially for cattle and goats and to a limited extent sheep) the capital Sanaa.

The approach in this study takes the form of a case study of the Berbera–Al Mukha livestock export channel interphase. This channel handles the largest proportion of livestock entering Yemen from Somalia. The case study was based on semi-structured interviews and focus group discussions with key informants from relevant stakeholders such as Somali agents, Yemeni distributors and wholesalers, retailers, butchers, and veterinary services personnel. Key informants were interviewed in Sanaa, Taiz and Al Mukha. A total of 20 people were interviewed. The study was undertaken in June 2008.

Figure 2: Destination markets for livestock held at ports of entry, Yemen



Source: La Grange 2008

2. Justification

Between 2008 and 2015, Yemen has continued to be an important destination for Somali livestock despite the internal conflict which started in 2011[5], the civil war in 2015[6] (Amnesty International 2012) and the outbreak of the Middle East respiratory syndrome (MERS) in camels (Weber 2014). Table 3 shows trends in export volumes from the port harbour of Berbera to Yemen.

Despite the importance of this market, there is limited knowledge about the end market regarding: grading and pricing of livestock, market actors involved in the value chain, as well as the contractual arrangements between these actors. This information is key in developing strategies in the up-stream market so as to expand the share of Somali livestock in the Yemen end market. Realizing that no additional study has been undertaken in the recent past, we think it is prudent to publish outcomes of the survey undertaken in 2008.

Table 3: Numbers of livestock exported from Berbera to Yemen from 2008 to 2015

Species	Number of heads							
	2008	2009	2010	2011	2012	2013	2014	2015
Cattle	39,373	76,260	105,513	93,356	107,851	101,078	121,263	62,355
Sheep and goats	373,887	561,992	398,029	336,040	363,050	426,334	552,821	272,352
Camels	2311	1857	3545	251	0	849	3377	901
Total	415,571	640,109	507,087	429,647	470,901	528,261	677,461	335,608

Source: SLCCIA 2008–2015

5. https://en.wikipedia.org/wiki/Yemeni_Crisis_%282011%E2%80%93present%29

6. https://en.wikipedia.org/wiki/Yemeni_Civil_War_%282015%E2%80%93present%29

3. Objectives of the study

The study aims at assessing the main features of the Somali–Yemeni livestock trade using the Berbera–Al Mukha channel and covers the following:

- Market actors along the marketing chain
- Contractual arrangements among the market actors
- Grading system in use for cattle, sheep and goats
- Pricing for the different grades of cattle, sheep and goats

Camels were not included in the study because they comprise an insignificant volume of live animals exported from Somaliland to Yemen (see Table 3). A detailed analysis of the upstream segment of this value chain (within Somaliland) was not the focus of this appraisal as it has been covered in Negassa (2008).

4. The Al Mukha marketing chain for imported livestock

4.1 Key features

Al Mukha is a small town located on the west coast of the country. Its economy revolves around the small port that is mostly used as a livestock entry point. The port appears to have the same capacity as Berbera (Somaliland) in terms of wharf length with five linear berths. A good road network links Al Mukha with other major towns of the western provinces such as: Ta'izz, Ibb, Dhamar and Sanaa, allowing animals to be quickly trucked to their final destinations either for direct slaughter or for finishing on farm.

Upon arrival, livestock are inspected on-board by officials of the veterinary services to check the general condition of the consignment before allowing the animals to be off-loaded from the carrier. After the veterinary inspection the custom office carry out the document check and proceed to count the whole consignment when on the ground. The process can take up to six hours depending on the number of heads since the counting is done manually. Once animals are cleared the immigration office finally check crew and passengers status before allowing them out of the port. In cases vessels dock at night, all these operations are carried out the following morning when public offices open.

Once these formalities are completed animals are trekked to the nearby quarantine station, a 40-minute walk from the port. The animals are kept in the quarantine station to undergo the routine sanitary screening before being certified as fit.

Animals cleared from the quarantine station are transported to the market and sold by Somaliland agents to Yemeni distributors/wholesalers in Al Mukha. These distributors, in turn, move the animals to the final markets or to the farms for finishing in case of young bulls.

4.2 A description of the market actors

4.2.1. Somaliland agents based in Al Mukha

There were around 25–30 agents of Somaliland exporters based in Al Mukha, with some of them having been in the country for more than 10 years. They operated only within Al Mukha town, transacting animals on behalf of Somaliland-based export traders. The agents' role and operations were restricted to transacting imported livestock at the point of entry. Usually one agent represented more than one Somaliland exporter.

Contractual arrangements with distributors: More often than not, the distributors/wholesalers paid for livestock in kind (75%) and in cash (25%). Exchange goods were those from Yemeni industry, such as cooking oil, soft drinks, soap, biscuits and clothes. These goods were in turn transported back to Somaliland by the export traders and sold to raise capital for livestock purchase. The Yemeni rial was the most used currency when trade was transacted

in cash. The dominant use of the Yemeni currency in this international cross-border trade, whereas it is not in an international currency[7], perhaps explains why barter trade was more frequently preferred to cash.

Time to pay for the animal imports depended on season, peak[8] or low. In peak season, consignments were paid for within a few days of delivery, whereas during the low season this period extended to about one month for small ruminants and two months for cattle and camels. During the low season, however, agents reported that around 10% of the consignment was more likely not to be paid for by distributors.

One of the reasons used to justify delayed payments during low season was cash- and/or goods-flow problems faced by the distributors due to low turnover. However, some agents opined that this was merely a strategy used by distributors to force agents to remain within their trade network. Considering that shipments were made by Somaliland exporters at a 30–40 day interval, there was a tendency for the distributors to pay for the previous shipment (or balance thereof) when the following shipment was delivered. Agents of Somaliland traders observed that this trading arrangement was an impediment to Somaliland exporters, and constantly exposed them to many risks, including non-payment, cash flow problems and losses arising from currency fluctuations and indirect subsidies conferred to Yemeni distributors and butchers who apparently received good prices for Berberi sheep.

When disputes over payments became serious and involved considerable amounts of money, the parties had the option of resorting to litigation in court. However, the legal process was noted to be very lengthy and expensive. More often than not, thus, the cases were resolved through negotiation between the sponsor of the agent (the Somaliland export trader and Yemeni distributors/wholesalers).

Costs incurred in transactions: Agents met all the import costs incurred (on behalf of the Somaliland exporter) from the import harbour to the quarantine station. A summary of these costs is given in Table 4[9].

Table 4: Post-shipment costs incurred by Somaliland export traders to Yemen in 2008

Costs per head (USD)	Small ruminants	Cattle	Camels
Customs charges	5.00	50.00	60.00
Vessel charges	2.50	28.00[1]/25.00[2]	35.00[1]/31.00[2]
Labour, feeding and watering	7.50	11.75	19.75
Quarantine charges	0.10	0.25	0.25
Agent commission	2.00	10	10
Total/head	17.10	100[1]/97[2]	125[1]/121[2]

1 Mature animals

2 Immature animals[10]

4.2.2 Yemeni wholesale distributors

The Yemeni wholesale distributors took title of imported livestock from Somaliland agents in Al Mukha and supplied them to different markets, including the capital city of Sanaa. There were approximately 50 wholesalers dealing in cattle and 150 in small ruminants. The small ruminant traders were categorized as either small or large scale, while those dealing in cattle were small, medium and large (Table 5).

7. Blinder (1996) offers a good definition of international currency, blending four characteristics which encompass the three classical functions of money (a medium of exchange, a unit of account and store of value): an international currency accounting for a preponderant share of the official reserves of central banks; a currency used "hand-to-hand" in foreign countries; a currency in which a disproportionate share of international trade is denominated; and a dominant currency in international financial markets.

8. The peak of demand was reported around the Ramadan and Haj (Pilgrimage), and during the summer between May and September when most of wedding take place due to the school holidays.

9. Agents also reported on average USD 30/head of cattle as the total costs incurred in Somaliland for transport from Tog Wajaale to Berbera port, labour, feeding and watering and development tax.

10. Immature small ruminants aged about one year are occasionally imported in few numbers and serve a niche premium market. They are often transported free. One of the traders observed that originally this category was used by the shipping crew as food during shipment, where later, some traders developed interest and started making orders.

Table 5: Categories of Yemeni wholesale distributors

Species traded	Scale of operation	Approximate number of heads handled per transaction
Small ruminants	Large	200
	Small	70–80
Cattle	Large	2000
	Medium	500
	Small	150

The wholesale distributors sold the animals mainly to: (i) wholesale butchers; (ii) large tourist hotels; and (iii) restaurants. They also sold to individual customers, particularly during periods of religious ceremonies, weddings and conflict resolution gatherings, being events involving extended families and communities where livestock were purchased in bulk[11].

The distributors transacted in both local and imported livestock. In cattle, imports animals (locally called *beledi*) constituted a large proportion (70%) of the turn-over, whereas in small ruminants, it comprised approximately 40%.

Besides supplying the main markets within Yemen, there was also some cross-border trade with Saudi Arabia, particularly for sheep. However, it was noted that this trade significantly decreased after 2006 when the quarantine station in Djibouti became operational. There was no reported cross-border cattle trade with Saudi Arabia, ostensibly due to the harsh environment of the northeastern region of the country that constrained the movement of these animals.

Wholesale butchers

There were two classes of wholesale butchers, large and small. Large wholesalers were those that transacted an average of 5–6 carcasses of cattle and 20 of small ruminants per day; while the small wholesalers handled 1–2 carcasses of cattle and 5–6 of small ruminants. Butchers sold the meat to retailer butchers, supermarkets, restaurants and bars.

Retailer butchers were generally small, handling on average half a carcass of cattle and 1–2 of small ruminants per day (see Figure 3). They dealt almost exclusively with the general public. Cool chain use was very limited since demand was almost exclusively for fresh recently slaughtered meat. Most of the butchers visited in Sanaa were not equipped with cooling/freezing facilities since all the meat was sold fresh every day within 3–4 hours of slaughter. Butchers visited at 11:00 am did not have any meat left on the counter.

Figure 3: Regular retail butcher in Al-Sayah market, Sanaa

11. Supplies to institutional buyers, such as schools, hospitals and the army was to a large extent handled by public/ governmental agencies. For example, the Military Economic Corporation was noted to be one of the strongest parastatal agencies supplying the army. They sourced their livestock locally.

Consumers were reported to be extremely sensitive on freshness of meat, and usually only purchased meat from animals slaughtered on the same day. Some retail outlets had licences to slaughter lambs and kids (*Jiqiiq*) within their premises, and kept a number of lambs and kids within the premise for direct slaughter at the request of consumers (Figure 4).

Figure 4: Retail butcher licensed to slaughter lambs and kids in Al-Jaman market, Sanaa

4.3 Service providers within the chain

Veterinary services

The veterinary services were mandated to certify the health of incoming livestock to avoid the introduction and spread of transboundary diseases into the country and to assure the safety of animal products for human consumption. They operated a quarantine station to ensure that sanitary operation for clearance of livestock imported by sea was undertaken in enclosed premises[12]. Imported livestock were required to be accompanied by a valid health certificate issued by the competent veterinary administration in the exporting country, as well as the appropriate shipping documentation (manifest, etc.). For some exporting countries, vaccination certificates were also required. For example, from Ethiopia vaccination certificate for foot and mouth disease (FMD), contagious bovine pleuropneumonia (CBPP), anthrax and black-quarter were required; whereas for those from Somaliland, an FMD vaccination certification was demanded.

The first inspection was undertaken on board the livestock carrier after docking. Animals were clinically screened for symptoms such as nasal discharge, diarrhoea, cough, among others, and thereafter, a report from the captain was sought on the number of losses during the trip. In case of serious clinical conditions, the consignment was to be rejected with order of immediate departure for the vessel to its original port.

Once in the quarantine station, serological screening was performed on randomly sampled animals and the samples sent to the central diagnostic laboratory in Sanaa. Testing was reportedly done for various diseases but the list could not be obtained from the station manager. The official quarantine period was set at 21 days, but if there was no disease notification, livestock were usually released after no more than 10 days for cattle and 6 days for camels and small ruminants. In case of clinical signs, affected animals were immediately separated into a specific section of the station. If a transboundary disease was unequivocally confirmed clinically and/or serologically, the entire batch was returned to the exporting country.

12. The station was quite old and in need of some repair; however, it was reported that a regional program managed by the Food and Agriculture Organization of the United Nations (FAO) would support the refurbishment of the infrastructure.

Charges for the quarantined animals were USD 0.25/head for cattle and camels for the whole period and USD 0.1/ head for small ruminants. Feeding expenses were met by the agents.

4.4 Livestock quality standards and grading system

The quality standards applied in the Yemeni market for live animals were investigated with the Somaliland agents, the Yemeni wholesale distributors and butchers. Information on the quality standards used in Somaliland was also counterchecked with the resident agents working for Somaliland export traders.

Once cleared from the quarantine facility, the animals were transferred to the nearby holding grounds managed by Somaliland agents. For every consignment, the agents and distributors segregated the animals based on grades. The parameters that were used in grading were:

1. Age
2. Body condition
3. Conformation
4. Breed

Age: For all species, animals were divided into mature and immature. Maturity was determined through dentition and visual appraisal of body size. In cattle, the number of horn rings was also considered.

Body condition: The term body condition refers to the fleshiness of an animal and is one way of assuring quality of meat. Several body condition scoring approaches exist, depending on the production system in question (Hutchison et al. 2004). Two categories of body condition scores were identified, namely, excellent and good. The body score was assigned through visual appraisal of specific body parts. The extent to which specific skeletal body parts [like hips, hooks and pins, rump, shoulders, back (spinous processes of the thoracic vertebrae), ribs, etc.] were either hidden or smoothed (by flesh/fat), the higher the score assigned to the animal.

Conformation: Just like body condition, conformation was scored as either excellent or good. This was arrived at by visual appraisal from several positions of the frame or skeletal size, muscling and muscle structure and soundness of feet and legs. In terms of frame, the vast majority of traders indicated height as a crucial trait, where higher quality animals were those that were tall and large framed.

This categorization of conformation seems to agree with arguments presented by Barham et al. (2006) who observed that conformation entails the visual features used in the selection of an animal, for specific uses. He further noted that the indicators of conformation include the frame size, muscle and body structure, predisposition to waste, feet and leg structure, and adherence to breed character. Regarding body structure, the animal should have a fairly long and strong back, a long loin, a long rump, and long and strong legs that are set under the four corners of the body frame. These features provide a frame that supports more muscle (i.e. more meat cuts) and low fat. Short-bodied and short-legged cattle are often associated with excessive fat and low quality Besides, animals that exhibit signs of being post-legged (i.e. a condition in which the joints in an animal are not set correctly), knock-kneed, splay-footed, sickle hocked, bucked-kneed or with short straight pasterns are considered to have poor conformation traits.

This list of traits is not entirely new as a number of them have been mentioned in several past studies. For example, Scarpa et al. (2003) reported sex, age, body condition, estimated weight and breed as some of the key traits influencing purchase of livestock in local markets in the Kajiado district of Kenya. Akinleye et al. (2005) detailed the importance of age and estimated weight as important traits in the marketing of sheep and goats in Nigeria.

Considerations for sex and breed[13]: Although livestock of both sexes were traded in Yemen, only males were imported from Somalia due to regulatory restrictions imposed by the Somali government to protect local breeding stock. Regarding breed, inquiries were made on the influence of breed in grading, especially considering that there were both local Yemeni and imported breeds for the different species of livestock. There was concurrence that local breeds were more in demand and commanded higher prices for cattle, sheep and goats. For instance, the *Beledi* sheep and goats from Yemen were purchased by distributors at higher prices than sheep and goats from Berbera and Bossaso even at parity of grade. The same price pattern was observed in the Saudi Arabia livestock market, where local sheep and goats breeds fetch higher prices compared to the imported breeds (Mugunieri et al. 2016).

Small ruminants

(a) Grading in source markets (Somaliland):

The Somali agents were requested to provide information on the grading of small ruminants in Somaliland. The results are summarized in Table 6.

The most common age bracket for the imported sheep and goats was 3–4 and 4–5 years, respectively. Occasionally lambs aged one year and below (also called *Jiqiiq*) were also imported because of Yemen's proximity to Berbera where such stocks are able to withstand pre- and shipment stresses. Age estimation was undertaken through four methods:

1. Visual appraisal of the body size (for both sheep and goats)
2. Dental examination (dentition) (for both species)
3. Visual appraisal of the wool in sheep
4. Counting of horn rings in goats.

Table 6: Grading of export quality small ruminants in Somaliland

Category	Grade	Species	Age (years)	Body condition	Conformation
Mature	I	Sheep	3–4	Fat	Excellent
		Goats	4–5	Fat	Excellent
	II	Sheep	2	Fat	Good
		Sheep	3	Normal	Good
		Goats	3	Fat	Good
		Goats	4	Normal	Good
	III	Sheep	2	Normal	Fair
		Goats	3	Normal	Fair
Immature	I	Sheep/Goats	0.8–1 year	Fat	Excellent

Appraisal of body size was reported as the most widely used approach. However, dentition was inspected in cases of doubt, and finally wool in sheep and horn rings in goats were used in circumstances where the other two methods could not lead to conclusive estimates. For example, it was observed that Somali Black head sheep shed wool coat at around two years of age. Over time the wool fibres become progressively thinner and at five years of age one can easily feel the skin underneath when the animal is touched.

In the case of the short-eared Somali goats, it was reported that horns sprout at the age of 6 months, and thereafter develop two rings per year. However, from the age of three years apical rings start wearing out and are no longer conspicuous. Over time horns also become thicker. Routine use of horn-rings was reported to be constrained by castration, where a key informant observed that castration affected horn growth, that is, castrates' horns grew much more slowly, so those using horn rings could underestimate ages of castrates. However, it should be recalled that the males are generally castrated when they are about three years old, thus horn ringing would be less affected by castration.

13. The issue of breed character is critical in conformation in the Somali system because selection for breeding is multifaceted partly because cattle perform multiple socio-econimic and livelihood functions in their system (Marshall et al. 2016). This leads to a scenario of high variability, not only between breeds, but also within breeds.

(b) Grading in the end market of Al Mukha, Yemen

Livestock grading in the Yemeni market was investigated with wholesale distributors and wholesale and retail butchers. Unlike the source markets where three grades were identified for mature animals, only two grades (I and II) were delineated. For the immature, there was one grade like in Somaliland (Table 7). It would then appear that the grade III mature small ruminants traded in Somaliland were not imported into Yemen.

It was observed that most of the demand was for animals from 2–3 years old that were purchased by private consumers, whereas the bigger 4-year old animals were commonly demanded by hotels, restaurants and institutional buyers.

Triangulation between Somaliland agents and Yemeni distributors was used to clarify the different terminology between the two grading systems. It was noted that 'fat' and 'normal' body condition classes used in Somaliland corresponded to 'excellent' and 'good' in Yemen.

Table 7: Grading of small ruminants in Yemen

Category	Grade	Species	Age (years)	Body condition	Conformation	Destination
Mature	I	Sheep	2–4	Excellent	Excellent	Purchased by retailer butchers
		Goats	2–4	Excellent	Excellent	Purchased by retailer butchers and institutional buyers(schools, Army)
	II	Sheep	2–4	Good	Good	Purchased by retailer butchers, restaurants and hotels
		Goats	2–4	Good	Good	Purchased by retailer butchers, restaurants and hotels
Immature[14]	I	Sheep/Goats	0.8–1 year	Excellent	Excellent	Purchased by hotels and restaurants in the coastal areas where due to the hot climate fat meat is avoided

(c) Grade and price correlation

Tables 8 and 9 gives the indicative prices for different species that were offered by the agents of Somaliland exporters and by wholesale distributors in Al Mukha, respectively.

Table 8: Prices for different grades offered by Somaliland agents in Al Mukha, June 2008

Category	Grade	Characteristics (age, body condition, conformation)	Low season price (USD[1]/head)
Mature	I	4–5 years, fat, excellent (goats)	65
		3–4 years, fat, excellent (sheep)	
	II	3 years, fat, good (goats)	55
		2 years, fat, good and 3 years, normal, good (sheep)	
		4y, normal, good (goats)	
Immature	I	0.8–1 year, fat, excellent	35–40

[1] June 2008 exchange rate: USD 1=199 Yemeni rial.

Tables 8 and 9 reveal that margins were higher for superior grade animals, indicatively at about 23%, 9% and 12.5% for grade I mature, grade II mature and grade I immature respectively. It is apparent that these benefits do trickle back down the value chain, as recent studies have shown that producers in Somaliland were aware of the higher returns obtained from better quality small ruminants, and most make deliberate efforts to increase the proportion of superior grades in their farm-gate offtake (Wanyoike et al. 2015).

14. Also called *Jiqiiq* (lambs and kids). The name comes from the word 'crew' in Arabic. Somali livestock carrier crews have always brought a limited number of kids or/and lambs for self-consumption during their stay in Yemen. Originally no duty was charged on these animals because they were too small. Over time, appreciation of the tender meat from these young animals developed and a niche market created. In Arabic they are also called *Al Bahari*.

Table 9: Prices for different grades offered by Yemeni wholesale distributors in Al Mukha, June 2008

Category	Grade	Characteristics (age, body condition, conformation)	Low season price (USD1/head)
Mature	I	2–4 years, excellent, excellent	75–80
	II	2–4 years, good, good	58–60
Immature	I	0.8–1 year, excellent, excellent	42–45

[1] June 2008 exchange rate: USD 1=199 Yemeni rial.

Cattle

(a) Grading in source markets (Somaliland) and the end market (Yemen)

Tables 10 and 11 give respectively a summary of the grading system for cattle in Somaliland markets for export quality animals based on the feedback received from agents of Somaliland exporters and the corresponding grading system in Al Mukha based on views of wholesalers distributors and wholesale and retail butchers.

Table 10: Grading of export quality cattle in Somaliland

Grade	Species	Age (years)	Body condition	Conformation
I	Mature cattle	6–8	Excellent	Excellent
II	Mature cattle	5–8	Good	Good
III	Mature cattle	5–7	Fair	Fair
I	Immature cattle	3–4	Excellent	Excellent
II	Immature cattle	3–4	Good	Good

Table 11: Grading of export quality cattle in Al Mukha

Grade	Species	Age (years)	Body condition	Conformation	Destination
I	Mature cattle	6–8	Excellent	Excellent	Purchased by retailer butchers and institutional buyers (schools, army and hospitals).
II	Mature cattle	6–8	Good	Good	Purchased by retailer butchers, hotels and restaurants.
I	Immature cattle	3–4	Excellent	Excellent	Purchased mostly for wedding parties and religious festivals.
II	Immature cattle	3–4	Good	Good	Purchased mostly for wedding parties and religious festivals.

Like in the case of small ruminants, body condition and conformation for cattle was done through visual appraisal. For cattle, age was estimated through three approaches, ranked in order of importance as: (i) body size; (ii) horn rings; and (iii) dentition[15]. Two distinct categories were identified, the mature and immature. The mature bulls (collectively called *Waaweyn*, meaning big in Somali) ranged from 5–10 years. On the other hand, the immature (referred to as the *Cujuul* in Somali) were aged under five years (but often more than three years). The 3–10 year age category was not exclusive, since in certain exceptional circumstances, younger bulls (about 2.5 years) were at times exported.

As in the case of small ruminants, the grade III mature cattle traded in Somaliland were not imported into Yemen. Furthermore, unlike in small ruminants where immature small ruminants had developed a niche market as slaughter stock, it was reported that the immature male cattle imports were finished up in coastal farms for about three months on a diet based on agricultural by-products. This practice did not, however, apply to immature male cattle imported from neighbouring Ethiopia as they were finished in feed lots before export.

15. Since traded livestock usually lack records, examination of body weight (proxied by body size) and the teeth serves as the best and most practical method of age determination (Wythes and Shorthose 1991). In such circumstances, producers, veterinarians and traders have relied on dentition to make general age determinations. The application of dentition requires experience as it will vary from herd-to-herd and animal-to-animal, because of the animals' genetics, their diet, and the varied geographical locations in which they are raised. This practice has been applied even in developed economies like the United States of America (USDA, http://www.fsis.usda.gov/OFO/TSC/bse_information.htm), the State of Queensland (Department of Primary Industries and Fisheries, http://www2.dpi.qld.gov.au/beef/3483.html), among others.

The importance of body condition was emphasized by the Yemeni distributors supplying the capital Sanaa. They observed that cattle coming from Berbera, though poorer than those from Ethiopia, had better body condition when compared to those coming from Bossaso. They confirmed their awareness of the different features of the two marketing chains, highlighting the longer transport distance in the case of Bossaso chain leading to more stress on the animals. It was also noted that the finishing period for immature males coming from Bossaso was much longer than the three months for animals arriving from Berbera[16].

(b) Pricing of different grades of cattle

The selling prices of different grades of cattle offered by Somaliland agents and Yemeni wholesale distributors are given in Table 12.

Table 12: Selling price of different grades of cattle by market actors in Al Mukha, June 2008

Grade	Category	Characteristics (age, body condition, conformation)	Somaliland agents (USD)[1]	Yemeni distributors (USD)[1]
I	Mature	6– 8 years, excellent, excellent	650–700	750–800
II	Mature	6–8 years, good, good	530–580	600–650
I	Immature	3–4years, excellent, excellent	340–350	400–410
II	Immature	3–4 years, good, good	300–310	350–360

[1] June 2008 exchange rate: USD 1=199 Yemeni rial.

Even though superior grade animals realized slightly higher margins in each age category, the margins from mature animals was generally higher than that obtained from immature stock for each grade classification, ostensibly because immature cattle had to undergo additional finishing.

16. Negassa et al. (2008) have given a detailed description of the two value chains for live animals (sheep, goats, camels and cattle) in Somalia.

5. Analysis of market strategies employed by Somaliland livestock export traders

The Somaliland export traders ship livestock to Yemen through their agents who reside in Yemen in order to circumvent the requirement for a letter of credit[17] that is a standard requirement in formal international trade. The lack of formal banking system in Somaliland constrained the use of letters of credit in export trade. Besides, the reliance on the Yemeni rial as the currency of trade between the two countries despite it not being an international currency most likely contributed to the preference for barter exchange by the majority of export traders.

The agents of Somaliland exporters (and by extension the Somaliland exporters themselves) portrayed a detailed knowledge of the quality requirements for the different species exported into Yemen. Besides, the Somaliland Chamber of Commerce, Industry and Agriculture had a resident representative in Yemen to safeguard the interests of the Somaliland trading community.

It is important to point out that whereas three grades/classes of differentially priced livestock were shipped from the Somaliland port of Berbera en route to Yemen (i.e. grade I, II, III), only two grades of livestock were identifiable in Yemen markets (i.e. I and II), for all species. It was apparent that the grade category III in Somaliland markets was upgraded to grade II on landing in Yemen. Since grade III was purchased at a discount in Somaliland, and yet sold as grade II in Yemen, then intuitively, it offered a window for exporters to upscale the margins realizable from an export consignment.

The proportion of grade III in any consignment was judiciously determined in order to minimise the chances of consignment rejection on quality basis, while at the same time aiming to maximise margins. Furthermore, the optimal blend within consignments was not constant throughout the year but changed according to the seasonal pattern of demand in Yemen. When demand was high, there was a tendency to increase the proportion of grade III, perhaps due to the constrained supply particularly during the three months between *Ramadan* and *Hajj*. The information from the group discussion revealed that the volume of animals absorbed in the market during that short period was in fact more than the three times the monthly volume imported during the remaining part of the year.

Whereas the peak demand season favoured increasing proportion of grade III, the converse was true during the off-peak demand season. The traders estimated that more often than not, during the off-peak demand season, grades I, II and III animals were blended in the proportion of 40%, 40%, 20% or 50%, 40% and 10% respectively. This however changed drastically during the peak season to 30%, 20% and 50% respectively. The traders observed that the producers had difficulties responding to the peak season demand since it is based on the lunar calendar and switches forward by around 11 days/year, making it difficult to adapt it to the annual productive cycle of livestock.

Although livestock exports from Yemen to Saudi Arabia were not reported, this could not be ruled out, and more importantly during the peak demand (*Ramadan* and *Hajj*) season. In the presence of the re-export of livestock from Yemen to Saudi[18], the relaxation of grading in Yemen during the peak season would be in response to circumstances in Saudi Arabia.

17. A letter of credit is a document, typically from a bank (issuing bank), assuring that a seller (beneficiary) will receive payment up to the amount of the letter of credit, as long as certain documentary delivery conditions have been met.

18. The existence of livestock re-export from Yemen to Saudi Arabia has been reported by a number of studies (USAID 2013)

During the peak season, the Saudi market is dominated by demand for animals for sacrificial slaughter (i.e. the sacrificial animal value chain). The grading of livestock for sacrificial slaughter is done differently from those transacted in commercial markets (Mugunieri et al. 2016). The grading of sacrificial animals in Saudi Arabia follows religious practices stated in the *Sunnah*[19] that specifies the type of animals that can be sacrificially slaughtered. These are:

- Goat, either male or female, of at least one year of age.
- Sheep, either male or female, of at least six months of age.
- Cow, ox or buffalo of at least two years of age.
- Camel, male or female, of at least five years of age.

Defective animals not acceptable in *Qurbani*[20] include those that are:

- Blind, one eyed or lame.
- Emaciated such that it cannot walk to its slaughtering place.
- Deformed with one-third of the ear or the nose or the tail missing.
- Missing all or most of its teeth.
- Born without ears.

The following animals are acceptable in Qurbani:

- A castrated male goat.
- An animal that has no horns, or whose horns are broken. However, if the horns of an animal are uprooted totally so as to create a defect in the brain, its *Qurbani* is not lawful.
- An animal which is missing less than one third of ear, nose or tail.
- A sick or injured animal, unless it has some above mentioned defects rendering its *Qurbani* unlawful.

Based on the above, one may conclude that the high demand for livestock in Saudi Arabia by the *Hajj* pilgrims[21], coupled with the more amenable grading of sacrificial animals in Saudi (as per the requirements prescribed in *Sunna)*, could be one of the factors contributing to the relaxation of the grading system in the Yemeni markets in response to this cross-border demand.

19. Sunnah is the way of life prescribed as normative for Muslims on the basis of the teachings and practices of the Islamic prophet Muhammad and interpretations of the Quran. According to Muslim belief, this practice is to be adhered to in fulfilling the divine injunctions, carrying out religious rites, and molding life in accord with the will of God. Instituting these practices was, as the Quran states, a part of Muhammad's responsibility as a Messenger of Allah. (Quran 3:164, 33:21). The Sunnah of Muhammad includes his specific words, habits, practices and silent approvals; it is significant because it addresses ways of life dealing with friends, family and government. Recording the Sunnah was an Arabian tradition and, once people converted to Islam, they brought this custom to their religion. The Sunnah is a source of Islamic law, second only to the Quran. The term 'Sunni' denotes those who claim to practice these usages, as part of the Ummah. Book 7 is dedicated to the Hajj and its rites (Kitab Al-Haji) and book 22 to the sacrifices (Kitab Al−Adahi). The practices of sacrifice or Qurbani are here described in terms of philosophy, rules, sacrificial animals, rules of defective animals, and the distribution of the meat.

20. As referred to in Islamic Law, this is the sacrifice of a livestock animal during Eid al-Adha.

21. It is forecasted that by 2020 the number of pilgrims will reach more than 4.3 million—twice the 2008 figures (Ascoura 2013). One head of goat or sheep is prescribed for one person's sacrificial slaughter (Qurbani). For larger ruminants like cow, buffalo or camel, one head is sufficient for seven offerings and allows seven people to offer Qurbani jointly in one such animal.

6. Conclusion and suggestions for further research

This study was conducted with the main intention of providing preliminary information on the market actors in the Yemen end-market for livestock originating from Somaliland. The study also aimed at shedding light on the contractual arrangements between these actors with Somaliland exporters, as well as the grading and pricing of livestock imported from Somaliland. Specifically, it was expected that information generated would be valuable in designing more elaborate studies to better understand the Yemeni end market and, thereafter, support the formulation of policies designed to deepen the participation of Somali traders in this market.

Overall, the study found that livestock export trade between Somaliland (port of Berbera) and Yemen (through Al Mukha port) is an informal undertaking fretted with risks. The informal nature of this trade is similar to the cross-border trade that takes place between Djibouti, Somalia and Ethiopia (Majid 2010), with the exception that whereas the latter takes place over sea, the former occurs across land borders. Livestock are shipped across borders without letters of credit or pre-arranged sale contracts, with the trade being managed through cross-border clan relationships that face high transaction costs, including significant risks of confiscation, theft and disease as they transport and trade in animals (UNOCHA 2007; Wassie 2015).

Somaliland exporters rely on their agents based in Yemen, through whom they not only sell their livestock, but also obtain market information. This implies that just like the clan system that exists in the Horn of Africa cross-border trade (Majid 2010), Somaliland exporters to Yemen face very limited choice of traders with whom to transact. They, therefore, face monopolistic end markets, asymmetric information system and additional risks of rejection of their consignments due to disease. Besides, traders are not paid in cash, but compelled to accept credit instead, and when payment is made, it is dominated either by the unstable local currency (Yemeni rial) or barter exchange. This implies that the Yemeni end market is dominated by a credit system that flows from Somaliland exporters to Yemeni importers, perhaps attributed to their excessive power in the market, and seen to result in an unfair subsidy that constrains the growth of the Yemeni export market[22].

Despite these shortcomings, Somaliland export traders showed a deep understanding of the market in Yemen, the types of animals demanded, as well as the quality attributes used to grade the different species. The grading systems in use in both Somaliland and Yemen corresponded to some degree, and the livestock supplied generally met the quality requirements. However, the quality requirements varied between lean and peak seasons. This variation provided an incentive for Somaliland traders to include grade III animals in their shipments so as to increase returns, which provided an outlet for grade III animals in Somaliland. However, Somaliland producers did not benefit much from the export of grade III animals as the prices were much lower.

22. Livestock producers in Somalia also extend a similar credit facility to export traders in Somalia when they provide their animals for sale (see Negassa et al. 2008). More often than not, food import traders (who are also livestock exporters) offer a credit facility to livestock producers when they obtain goods (food and household goods) (Majid 2010), and this partly explains why households in pastoral areas of the Horn of Africa face higher prices for basic households goods and food products, as the mark-up finances this credit system.

It is important to note that quality standards were applied more stringently during the lean season, but were significantly relaxed during the three month between the holy month of *Ramadan* and the *Haji* (peak season), due to increased demand. The peak demand season opened a short but lucrative window for export traders, and some reported that they were able to more than double their profits. However, many traders did not effectively utilize this window due to limited shipping capacity and a lack of sufficient volumes due to competition faced from traders supplying directly to the Saudi Arabia market. Besides, the Somaliland production seasonal operation appeared not to be sufficiently oriented to take best advantage of this surge in demand through co-ordination of mating and feeding that would enhance offtake.

Lastly, there was a great deal of personal involvement by Somaliland exporters in cultivating commercial relationships with their Yemeni counterparts, which formed a key building block of this informal trade. Most of the traders travelled from Somaliland to Yemen several times a year to cultivate these relationships, which perhaps explains the resilience of this cross-border trade.

Realizing that these findings emanate from a single rapid appraisal study, it may not be judicious to make policy recommendations at this time, but rather offer recommendations on additional research that could be undertaken to provide information that would enable interventions to be made to increase competitiveness of Somali traders in Yemen.

At the onset, there is need to understand the structure of the Somaliland-Yemeni livestock export trade in terms of the number of traders and the competition between these traders for the share of the export market. As a comparison, according to Mugunieri et al. (2016), there are 18 exporters operating on the Somaliland-Saudi Arabia export channel, with two of these traders contributing to more than 90% of the export volumes. Furthermore, each Somali exporter is paired with a Saudi importer who takes ownership of the livestock when they enter a Saudi port. This trading arrangement has somewhat reduced the risk exposure for Somali exporters leading to continual growth in trade volumes. On the contrary, although the structure of the Somaliland–Yemeni trade channel is not known, there is anecdotal evidence of high incidences of entry and exit into this trade (unlike the case for Saudi Arabia). This could perhaps be due to high risks involved. First, Somaliland traders transact on credit for up to three months which increases their costs. It would be prudent to investigate the cost of this credit and reflect on how prices could be adjusted to cover such costs. Second, despite trading on credit, there are incidences of payment default by Yemeni buyers. The extent of this practice and its impact on trade needs to be investigated further. Third, transactions are undertaken either in local currency or through barter trade. This is not a common practice in international trade and its effect on the competitiveness of Somaliland traders needs to be investigated further. It is envisaged that information obtained from these studies would be useful in formulating strategies to strengthen the competitiveness of Somali exporters in the Yemeni market.

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