



# Analysis of the sheep value chain in Sinana district of Oromia Region, Ethiopia

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The three projects are led by the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa) and the International Livestock Research Institute (in the Ethiopian Highlands). The International Food Policy Research Institute leads an associated project on monitoring, evaluation and impact assessment.



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# Background

Small ruminant population of Ethiopia, including expert estimates of the pastoral areas, is about 66 million heads of which about 35 million is sheep (Negassa et al., 2011). However, the livestock sub-sector's contribution to the economy and foreign currency earnings in particular, is very low. Some of the major factors contributing to the poor performance of the livestock sub-sector include widely scattered and non-market oriented livestock production systems, lack of an efficient and effective livestock marketing system, poor market infrastructure, lack of proper transport services, and limited capacity to meet international standards by producers and marketers.

Livestock systems represent a potential pathway out of poverty for many smallholders in the developing world. The majority of the world's rural poor, and a significant proportion of the urban poor, keep livestock and use them in a variety of ways that extend far beyond income generation. In many cases, livestock are a central component of smallholder risk management strategies. The economic contribution of the livestock sub-sector in Ethiopia is also about 12% of the total and 33% of agricultural Gross Domestic Product (GDP) and provides livelihood for 65% of the population.

The Bale highlands are known for their high potential of livestock-crop mixed farming system. Small ruminants among the livestock system play important role in boosting the economy of smallholder farmers in the zone. This study was conducted in Sinana district of Bale zone by Sinana Agricultural Research Center in collaboration with ILRI and ICARDA.

The study objectives were:

- To identify the natural, technical, financial, legal and institutional opportunities and barriers that influence sheep value chain
- To evaluate whether improvements can be made by improving systems from production through to the final consumer
- To document important elements and modalities of market strategies to develop sheep value chain.
- To suggest key intervention areas for development practitioners and policy action.

## Materials and Methods

Besides primary data collection from producers and consumers, general information about the production potential, marketing channels, marketing functions and constraints were assessed through the intensive focused group discussions (FGD) and key informant interviews (KII) using a detailed checklist prepared for this purpose. FGD and KII were made with groups and key informants (knowledgeable people) on the subject in the study areas.

Two FGD were conducted with two groups of farmers (14-17 each) in two peasant associations Selka and Sambitu. A total of 31 participants which includes 26 men and 5 women were included in the FGD. Farmers included in FGD were mainly selected on based on their engagement in sheep production activities. The key informants identified for this interview were experts of livestock development agency, livestock marketing, livestock extension, animal health, different size traders, export abattoirs, feed traders, owners of private vet drug shops, butchers and hotel owners. Data collected through FGD and KII were analyzed using thematic analysis approach. Quantitative data were analyzed using descriptive statistical techniques.

## The study area

This study was conducted in two kebeles, Sambitu and Salka, of Sinana district, Bale administrative zone. Salka is 2457 meters above sea level and 40 km East of Robe town. Sambitu is located at 2454 meters above sea level and some 12 kms North of Robe. Selka is 12 km from Sinana Research Center and is more accessible for research and outreach activities than Sambitu.

Bale zone is characterized by a wide variety of geomorphic landscapes and agro ecological zones. Sinana district is one of 18 districts found in Bale zone. Its land area is approximately 163,854ha. It is known for its high production potential for crops such as wheat, barley, faba beans, emmer wheat, field pea and livestock such as cattle, sheep, goats, horses and donkeys. Sinana is characterized by bimodal rain fall characteristics. The two seasons are locally called *Bona* and *Ganna*. *Bona* season extends from July to late December and *Ganna* season from mid-March to August. This bimodal rainfall helps farmers (crop producers) to produce twice a year and livestock producers to get feed twice a year. The agro-ecology of the district is suitable both for livestock and crop production. Highland agro-ecology in the district favors production of sheep rather than goats. The capital city of Bale zone is also located in this district allowing farmers to get better opportunity to sell their product than in other districts. The livestock population in the district is 340,702 of which sheep is 25,850. Table 1 shows the livestock population of the district.

**Table 1: Livestock population in Sinana district**

Type	Number
Cattle	210,445
Sheep	25,850
Goat	15,780
Donkey	20,943
Horse	5,788
Mule	3,001
Poultry	50,320
Bee hives-modern	88
Bee hive-transitional	148
Bee hive traditional	8,339

Source: District livestock development and health agency

## Conceptual framework

The value chain is a concept which can be simply described as the entire range of activities required to bring a product from the initial input-supply stage, through various phases of production, to its final market destination. The production stages entail a combination of physical transformation and the participation of various producers and services, and the chain includes the product's disposal after use. As opposed to the traditional exclusive focus on production, the concept stresses the importance of value addition at each stage, thereby threatening production just as one of the several value-adding components of the chain (Gereffi and Kaplinsky, 2001 as cited by Legese and Hordofa, 2011; Legese and Hordofa, 2011).

Value chain analysis is the process of breaking a chain into its constituent parts in order to better understand its structure and functioning. The analysis consists of identifying chain actors at each stage and discerning their functions and relationships; determining the chain governance, or leadership, to facilitate chain formation and strengthening; and identifying value adding activities in the chain and assigning costs and added value to each of those activities. The flows of goods, information and finance through the various stages of the chain are evaluated in order to detect problems or identify opportunities to improve the contribution of specific actors and the overall performance of the chain.

Emphasis should be placed on the analysis of current and future situations that either constrain or drive the achievement of the chain goals. One of the most important aspects of such analysis is consumer perceptions and preferences. Identification of consumer perceptions and preferences with regard to chain goals allows marketplace reality to be embedded within them. Furthermore, it helps to achieve market alignment and to focus on what is valued by consumers. Obviously, by having a high level of competency in anticipating and satisfying consumer wants, chain members can gain advantage over their competitors. Besides, it is more efficient to tailor chain goals to existing consumer wants, thereby taking advantage of market segments that already exist, than it is to attempt to create new ones. As a result, chain members need to gauge how their chain goals relate to consumer perceptions and preferences and where there is a significant mismatch; chain members should consider realigning their chain goals (Chaffee, 1985; Hollebeek, et al., 2007).

The livestock value chain can be defined as the full range of activities required to bring a product (e.g. live animals, meat, milk, eggs, leather, fiber, manure) to final consumers passing through the different phases of production, processing and delivery. It can also be defined as a market-focused collaboration among different stakeholders who produce and market value-added products.

Value chain analysis is essential to an understanding of markets, their relationships, the participation of different actors, and the critical constraints that limit the growth of livestock production and consequently the competitiveness of smallholder farmers. These farmers currently receive only a small fraction of the ultimate value of their output, even if, in theory, risk and rewards should be shared down the chain. Sheep market value chain in Sinana district starts from smallholder farmers and reaches consumers through different marketing systems.

# Results of value chain analysis

## Core functions of the sheep value chain

Mapping a value chain functions facilitates a clear understanding of the sequence of activities and the key actors and relationships involved in the value chain. The core functions in sheep value chain include input supply, production, marketing, processing and export or local consumption.

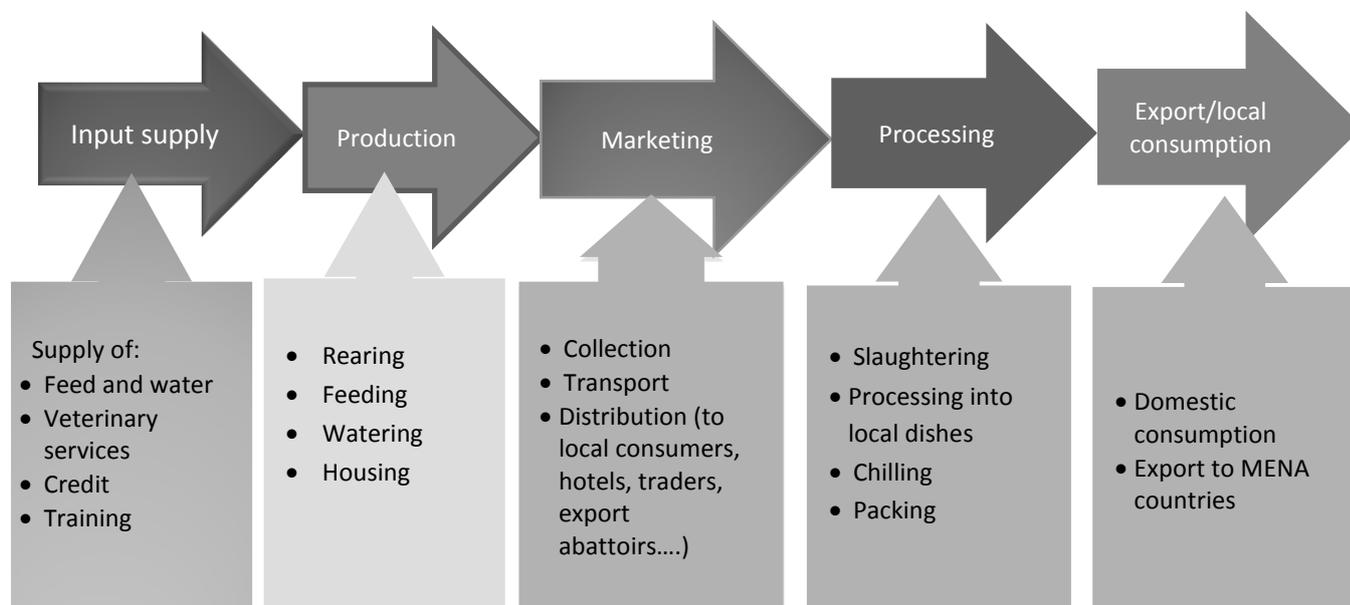


Figure 1: Core functions of the sheep value chain in Sinana district

### *Input supply*

Input supply for sheep production in the study area includes supply of feed, veterinary services, credit and training given to farmers.

### *Feed and water supply*

Feed and water supplies are important inputs. The current condition of feed availability for small ruminants is under risk in Sinana district because the area of land allocated to grazing is progressively declining due to the expansion of crop cultivation. There is seasonal variation in availability of feed depending on the availability of rainfall. The bimodal nature of rainfall in the area helps farmers to produce crops twice a year. Hence, crop residues are the major feed resource used for livestock. The residue from pulses and cereals are stored near the homestead to be used mainly at the time of critical feed shortage. These feeds are mostly fed to oxen and lactating cows. Sheep get the left overs around the feed trough. This shows the lesser focus given to sheep. Some farmers in the study areas allocate a little land for forage planting which they use as green feed for their livestock. This is mainly for large ruminants, especially oxen and lactating cows.

On the other hand, those farmers trained by Hunde Grass Roots Development Association are trying to follow recommended feeding practices for sheep. They feed both crop residues and purchased feed such as wheat bran and linseed cake. They usually fatten sheep in a period of three months. However, the majority of sheep producers (especially better-off farmers) do not follow these practices. They do not provide any supplementary feed to their animals. Water is also one of the important inputs for sheep production. Farmers provide water for their animals from the nearby water sources such as rivers and springs.

### *Animal health services*

Animal health service is one of a very important inputs required to improve sheep production in the study areas. The important diseases and parasites of sheep in the study area are pasteurolosis, liver fluke, ecto-parasites, palafugia and nematodes. One health post is built to support livestock production in three peasant associations. Only one animal health assistant is assigned to this health post. This person is expected to do all the professional animal health work, the accounting and other clerical jobs. Moreover, farmers want this person to provide mobile services in cases when their animals are suffering from fatal cases that will not allow them to reach the health post. Thus, farmers complain that it has become impossible to get the required animal health services through this expert. So, farmers are obliged to go for private animal health clinics which usually charge higher prices due to their flexibility.

### *Credit services and training*

Access to credit is also one of the important inputs for sheep production. Currently, only resource poor smallholder farmers in Selka peasant association have access to credit. The credit source for these farmers was Hunde Grass Root Development Association. In addition Oromia Credit and Saving Institution provide credit to farmers. However, the credit provision is based on group collateral but farmers are not much interested in this approach in order not to pay for defaulters in their group.

Some smallholder farmers in Selka peasant association were fattening sheep. These farmers were trained on sheep fattening by Hunde Grass Root Development Association. The association gave credit to its trainees and let them to procure feeder animals to demonstrate the improved fattening practices. Those who were interested in breeding also bought ewes using the credit money. Farmers who got credit and trained by Hunde acquire better knowledge on sheep fattening than others and are highly benefited.

### *Production*

Bale highland is characterized by crop livestock mixed farming system. Sheep production is one part of livestock system that is integrated with crop production in Sinana district. Respondents indicated that sheep are the immediate source of income whenever farmers come across problems. It is also indicated that farmers slaughter sheep at home during religious holidays such as Ethiopian New Year, Christmas, Easter, Eidul Arefa and Eidul Fitri. However this depends on the wealth status of the household. The purposes of selling sheep are to meet household cash needs in order to: buy farm inputs, repay credit, buy household consumables, and pay school fees and buy schooling materials for children.

Arsi-Bale breed is the local breed of sheep produced by smallholder farmers in the area. No rams of improved breeds were available for genetic improvement of indigenous sheep in the study area. Moreover, farmers in the area are not selecting breeding rams from their own flock. No one cares for inbreeding and multiplication of unwanted characters as a result of use of rams of unwanted characteristics such as color, body conformation and prolificacy. Thus, the sheep flocks in the area have very irregular characteristics.

The average sheep holding per household in Selka area is ten with the minimum of one and the maximum of one hundred fifty. On the other hand, in Sambitu area, where crop production is more dominant, the average sheep holding is seven per household with the minimum of five and maximum of fifteen sheep. Most farmers in the area use open barns as a housing for sheep.

### *Marketing*

It should be emphasized that existence of demand for a product (or commodity) is a *sine qua non* condition in selecting and prioritizing a value chain. Sheep marketing involves collection,

transportation and distribution to the end users. Sheep are collected from primary and secondary markets and transported to tertiary markets. The number of animals marketed by different actors depends on the capacity of the actors and demand of their buyers. *Robe* is the largest sheep market in the study area. Market actors trek their animal to this town from different primary markets.

Sheep sourced from the study area are transported to Export Abattoirs in Modjo and Addis Ababa market. Export Abattoirs demands young growing male sheep. Accordingly traders who sell to this destination buy young growing male sheep of over 20 kg live weight from the area and transport to Export Abattoirs. Live sheep is also transported to Addis Ababa and sold to retailers and consumers. The animals sold in Addis are mostly composed of fattened male sheep sterile ewes.

In the study area, livestock are generally traded by 'eye-ball' estimation. In some towns selling sheep by using live weight is also started. Live weight based shooat transaction is practiced in Selka and Ali markets. In eye ball based transaction, price is usually fixed by individual bargaining. Prices depend mainly on supply and demand, which is heavily influenced by the season of the year and the occurrence of religious and cultural festivals. During the time this study was conducted, the average price of sheep sold by eye ball estimation ranges from 500-650 birr for rams aged one and half year while the price of a kg live weight of sheep was 22 birr in Selka market.



Figure 1: Sheep transaction on live weight basis at Selka town / Figure 2: Small ruminant market at Robe

### *Processing*

Sheep from the study areas is mainly processed by hotels and restaurants and to some extent by export abattoirs. Hotels and restaurants process sheep meat into different traditional dishes such as roasted meat, boiled meat (*kikil*) different stews (*key wot*) and *Dulet* (a chopped and spices mixture of offals and meat). Hotels and restaurants usually buy sheep either from producers, brokers, small traders in the market or they have suppliers (small traders) that supply them 6-10 animals a week. The major processing work at export abattoirs is de-hiding, chilling the whole carcass, wrapping the carcass with white cotton fabric and transporting to the cargo plane. They buy sheep from small and big traders that supply a minimum of 100 sheep at a time. Highland sheep meat slaughtered at export abattoirs is exported to Bahrain market.

### *Consumption*

Sheep could be consumed by domestic or foreign consumers. Domestic consumers could buy either processed meat from supermarkets and butchers or consume different dishes made up of sheep meat at hotels. They also buy live sheep and slaughter at home. There are also farmers that buy sheep for rearing and fattening. Export market need both live animal and sheep carcasses of different sizes.

## Value chain actors

### *Export abattoirs*

The export abattoirs found in Mojo collect sheep from traders that come from different parts of the country. They buy at the factory gate from traders who transport sheep to their factory gate and slaughter about 1500 sheep a day on average based up on the availability of animals. Export abattoirs buy sheep on live weight basis. The price of one kg live weight was 31 birr in July 2012 at Export Abattoirs of Mojo and Bishoftu. Export abattoirs mostly buy young male sheep above 14-25kg. They discourage supply of very young skinny animals and mostly encourage supply of fattened animals. They have got new market for highland sheep carcass in Bahrain. For this market demand, they encourage supply of fattened sheep. They can accept up to 27kg live weight of fattened sheep for this market. This is really important and encouraging news for sheep producer farmers in highlands of Bale like Sinana district. Export Abattoirs buy sheep from small and big traders which supply at least a truck load of (about 100 animals) at a time. They are facing supply shortage of slaughter animals to meet their supply contracts in the export markets. The demand of small ruminant meat in foreign markets is increasing from time to time. However, export abattoirs in Ethiopia are not reliable (consistent) suppliers because of supply shortage.

### *Hotels and restaurants*

Hotels and restaurants are important actors participating in sheep marketing. Hotel owners have suppliers (collectors and small traders) who supply them with sheep from local markets. However, they prefer buying from farmers because of price differences. They can save up to 40 ETB/animal if they buy from producers. Hotels mostly prefer young male sheep. They also also buy sterile female sheep but sellers of sterile sheep sell pregnant female in the name of sterile sheep. So they do not trust to buy sterile sheep. The buying price of hotels ranges from 500 – 700 ETB for young male and sterile female sheep. Price varies based up on body size or meat content of the animal. The quality considered during buying by hotels is price, body size or the meat content of sheep.

### *Large traders*

Big traders in this context are those traders that buy at least one truck load (a minimum of 100 heads) of sheep a week. They usually buy sheep from small traders and collectors. These traders supply at least 100 animals either to export abattoirs or other markets such as Addis Ababa. In Addis, traders from Bale usually sell to retailers in bulk. However, there is no much trust between these big traders and retailers. Thus, these traders sell to any retailer that pays them better price whenever they come to Addis market. Since they have permanent suppliers (collectors and small traders), big traders buying sheep from the study areas do not go to primary markets to buy animals. Sometime Big traders collect animals on credit basis from small traders and pay them after sell. They can also provide them with money in advance for buying activity. The average margin obtained per animal is about 80 ETB by big traders.

### *Small traders*

Small traders are one of the actors involved in sheep marketing. They buy sheep from producers or collectors and transfer to big traders and hotels. They use their own money or big trader's money to buy sheep. Small traders mostly buy animal moving from markets to market from collectors and producers. They can buy up to 50 sheep and hand over to big traders. They earn about 40 ETB per sheep when selling to big traders. Small traders sometimes organize themselves (to hire a truck) and supply sheep to export abattoirs and to local consumers in Addis Ababa market. The same to big traders, they can earn about 80 ETB on average per animal when selling to export abattoirs and Addis market.

### *Collectors*

Collectors are those marketing agents that buy up to 20 sheep per market day from producers and hand over to small traders or big traders and hotels. Collectors have limited capital. Thus they rely on small and big traders as sources of capital and get commission based up on the quality of animal they supply. Collectors buy the animal using dental inspection, by lifting animal and eyeball estimation. They have good knowledge of the preference of small and big traders and characteristics of the animals they are buying. They come to the market earlier and observe the type of animal they want to buy and give price to seller. Since collectors in the market know each other, they do not compete on the same animal. Thus, a collector who gives earlier price to a seller will buy the animal. Collectors can get 20-30 birr per sheep. Collectors also supply to hotels. As explained above they know the character of animal hotels prefer. They can get up to 30 birr per animal from hotel owners.

### *Farmers buying animals for breeding and fattening purposes*

Farmers buy sheep for breeding, household consumption or fattening. They buy young female sheep for breeding and young male for fattening. Some NGOs such as Hunde Grass Roots Development Initiative are supporting resource poor farmers to get credit for sheep breeding and fattening. Some of the participants of the FGD were beneficiaries of this initiative. These farmers fatten sheep for a maximum of three months and have also improved the housing and other management practices. Some of them have got a margin of up to 250% per head of fattened sheep. In addition to fattening, farmers who bought female sheep for breeding as foundation stock were highly benefited.

### *Retailers*

Retailers are important actors in Addis Ababa Market. Retailers in Addis Ababa market buy sheep from Bale traders in bulk and sell live sheep to different consumers. Since they have direct contact with end users of the product, the retailer can attempt and buy the type of animal that meets the needs and preference of consumers. So, they select type of animal mostly preferred by consumers and buy from traders for immediate sell. They can get a margin of 50 ETB per sheep.

### *Producers*

Producers are smallholder sheep rearing farmers. The average herd size of sheep for these farmers varies from 5-15 sheep per household. This depends on the existence of grazing land and feed availability whereby farmers in areas of open grazing land own big herd size and vice-versa for areas with limited grazing area. There is no commercial shoat production in the study area.

Farmers sell their animal during times of cash shortage. They mostly sell the animal during threshing and harvesting time to buy farm inputs and pay combine harvester's costs. Farmers also sell sheep whenever they come across cash shortage because small ruminants are their immediate sources of cash. The market demand for sheep is governed by their body size, color, time and place of sell. Taking the above factors in to consideration, producers negotiate price for their product. For example, black sheep is mostly demanded in May. Due to this reason, farmers wait to sell black colored sheep in May because of its high price in this season.

The major buyers of sheep from producers are farmers that buy for breeding, individual consumers, collectors, small traders and hotel owners. Sheep are sold on farm, on road to market and at markets. Producers prefer to sell their animals at market to farm gate because of price difference. They also prefer selling to farmers who buy for breeding because they give them a better price.

### *Marketing routes*

Supply of livestock to the primary and secondary markets is mostly done through trekking. Small Traders, collectors and producers use traditional stock routes to trek their animals to the markets in

the study area. Small ruminants are trekked and supplied to Robe town from different surrounding towns in the district and other districts in Bale zone. The major suppliers of sheep to Robe town are Selka, Ali, Agarfa, Alemgana, Dinsho, Gasara, Jara and Goba. Smallholder farmers around Robe sell their animals at Robe. However, collectors and small traders buy sheep from farmers and trek the animal to Robe town. Collectors hand over their animal to big traders at Robe or either sell to different stakeholders at Robe. Sheep sourced from Robe is trucked to Adaba, Dodola, Shashamane, Mojo Export Abattoir and Addis Ababa live animal market.

## End markets for sheep

Legese and Hordofa (2011) who cited (Campell, 2008) indicated that end markets determine the characteristics - including price, quality, quantity and timing - of a product or service. End market buyers have a powerful voice and incentive for change. They are important sources of demand information, can transmit learning and in some cases are willing to invest in firms further down the chain. End markets for sheep could be domestic and export markets.

### *Domestic markets*

The domestic market actors could be categorized as individual consumers, hotels and restaurants. Individual consumers buy live animal from the market and slaughter at their home for household consumption. They mostly buy sheep at festival time. There is a high domestic demand for small ruminants particularly during religious festivals. These actors prefer fattened sheep to consume.

Hotel owners are important sheep marketing chain actors. They slaughter male sheep which have large body size and sometime sterile female sheep. The price of sheep meat (140 ETB/kg), was greater than that of beef (110 ETB/kg) in Robe town.

### *Export markets*

Ethiopia has 9 export abattoirs owned by 7 firms that are currently exporting meat to Middle East and North African (MENA) countries. However, except the two recently opened abattoirs, Abergele and Ashraf, the 7 existing abattoirs are exporting only chilled shooat carcass. This is because they do not have the capacity for deboning and exporting frozen beef. The recently established abattoirs are built with this capacity and they have started to export frozen beef to different countries though they face throughputs constraints. There are also a number of bigger slaughter house projects expected to be implemented in the years to come. Considering this, the Ethiopian Government in its Growth and Transformation Plan (GTP), has planned to export 111,000 metric tons of meat in 2015 valued at 400 million USD (Table 2).

Table 2: Meat and live animal export plan (2011-2015) as compared to total agricultural export

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

Source: Agricultural GTP, September 2010, MOFED

Regarding the meat and live animal export performance, it has increased from 2.9 million USD in 2003/04 to over 278.9 million USD in 2011/12. The volume and value of exported meat over the period 2002/03 – 2011/12 has shown increment on average by 56% per annum. Accordingly, the volume of exported meat increased from 1,700 ton in 2002/03 to 18,035 ton in 2011/12. The volume of exported meat increased during this period except in 2007/08 and 2006/07. Similarly, value of exported meat which was 2.4 USD in 2002/03 increased to 71.9 million USD in 2011/12. The value of exported meat increased during this period except in 2007/08 (Table 3). The decline of volume and value of exported meat is mainly attributable to meat import ban imposed by UAE for 9 months from January to September in 2007. The UAE imposed import ban during this period in association to occurrence of Rift Valley Fever in some parts of the East African countries, without any ground for its occurrence in Ethiopia.

Table 3: Meat and live animals export performance over 2002/03-2011/12

Year	Meat		Live animal		Total value (000 USD)
	Volume (ton)	Value (000 USD)	Number	Value (000 USD)	
2002/03	1,700	2,400	10,372	480	2,880
2003/04	3,317	6,335	41,966	2,377	8,712
2004/05	7,754	15,598	103,905	13,081	28,679
2005/06	7,917	18,448	163,375	27,259	45,707
2006/07	5,875	15,471	233,925	36,507	51,978
2007/08	6,486	20,887	297,644	40,865	61,752
2008/09	7,468	26,581	214,683	52,691	79,272
2009/10	10,183	34,002	333,752	90,708	124,710
2010/11	16,877	63,226	472,041	147,877	211,103
2011/12	18,035	71,852	783,888	207,050	278,902

Source: Analyzed from ERCA data

Similar to meat export, number of live animal exported and foreign currency earned over the period 2002/03 to 2011/12 has been analyzed (Table 2). The analysis shows that the number of exported live animals increased from 10,372 in 2002/03 to 783,888 in 2011/12. Value of exported live animal increased from USD 0.5 million in 2002/03 to USD 207.1 million in 2011/12. The export performance is increasing over time, except, decrease of number of exported live animal in 2008/09. The decline of number of exported live animal in 2008/09 is attributable to suspension of live animal export based on consignment mode of trade to Yemen as a result of the failure of many Yemeni importers to honor agreements and effect payments on time. The other reason was depressed demand of live animal in major buying countries such as KSA and UAE as a result of global financial crises in 2008/09.

The limited export of meat was often sold to very few countries in the Middle East and North African countries, mainly Saudi Arabia, United Arab Emirates, Bahrain, Egypt, Yemen, and Congo. The same

situation is also observed on exports of live animals where the vast majority of this produce is destined for Egypt, Saudi Arabia, Djibouti, Sudan, Somaliland, Jordan, UAE and Yemen.

According to information obtained from Luna export abattoir, shoat meat is mainly exported to Kingdom of Saudi Arabia (KSA) and the United Arab Emirates (UAE). These markets have their specific requirements especially in terms of the carcass weight. The UAE market needs shoat carcass of 5-10kg. This needs slaughtering animals of 14-27 kg live weight. On the other hand, the KSA market needs larger sheep carcass which ranges from 8-12kg. This in turn needs slaughtering sheep of 20-30kg live weight. The new market that has opened an opportunity for highland sheep is the Bahrain market. This market accepts sheep carcass of 9-12kg. In general, although quality requirements vary, the shoat export market generally requires animals having the following characteristics: male, young (1-2 years) and with a live weight of 12-30 kg. The export market prefers non-castrated shoat with lower proportions of fat, whereas the domestic prefers castrated males or female animals (Getachew et al 2008). Offal and organ meat is exported to Turkey. The price of one Kg was 17 and 14 USD for offal and organ (penis and testicle) respectively.

## **Marketing channels**

The market channel is a conceptual and practical tool that helps us identify market participants, market condition, constraints and policy issues that may be hindering or enhancing the functioning of the chain and also the institutions and organizations providing the services (e.g. market information, quality standards) that the different chain actors need in order to make better informed decisions. The marketing of sheep in the study area starts from smallholder producers moving the products on to terminal markets. Animals pass through long successive value chains to reach to end-user.

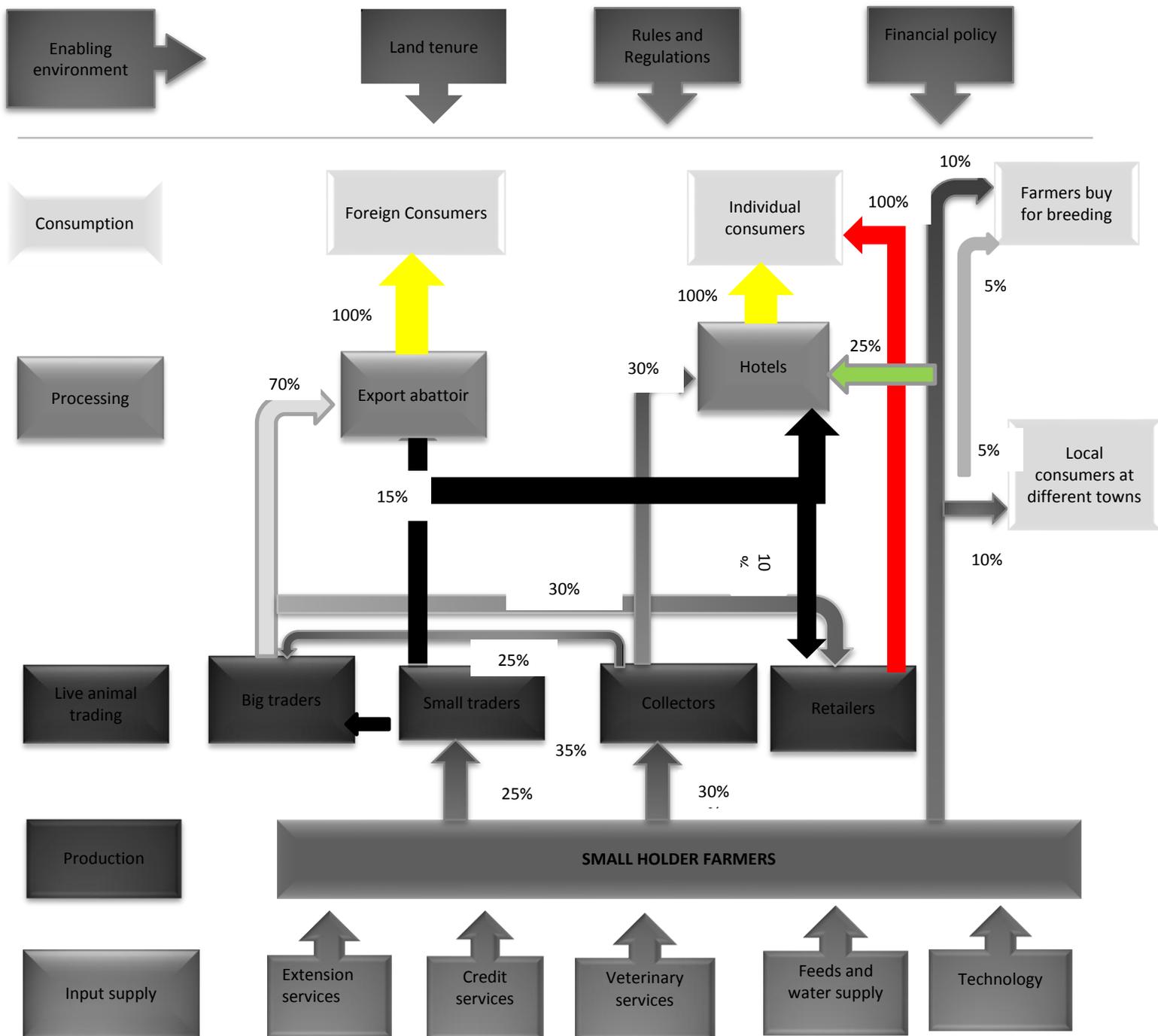


Figure 4: Map of highland sheep value chain in Bale Zone

In order to estimate marketing margins and costs involved in sheep marketing, four major sheep marketing channels are selected. Selected channels cover the full range of sheep marketing from production to end-user terminal point.

### Channel 1 - sheep slaughtered at export abattoirs

According to the information obtained from export abattoirs, demand for meat is increasing in MENA countries. This coupled with the proximity of Ethiopia to these countries; there is huge opportunity in export of shoaat meat to these countries. Currently, nine export abattoirs are exporting shoaat meat to MENA. The amount of shoaat meat exported to these countries is increasing over time (Table 4). Despite the ever increasing demand in these countries and huge livestock resources of Ethiopia, the existing export abattoirs are operating at below 50% of their installed capacities and could not satisfy this demand. Moreover, seasonality in supply of animals makes Ethiopian exporters inconsistent suppliers in the export market.

Though demand in the MENA countries is peak during Ramadan fasting season, there is always high demand for Ethiopian shoaat meat. There is also high demand for live sheep in the Middle East (especially KSA) during Arafa holiday since the followers of Islam need them for sacrifice.

Table 4: Meat exported from Ethiopia to different countries in metric tons (2005/06 -2009/10)

Partner	2005/06	2006/07	2007/08	2008/09	2009/10
KSA	3308.2	2,835.70	3,210.50	2,612	4045
Gabon				0.2	
UAE	3,357.80	2643	3,214.60	4,565	5105
Sudan		1	1		
Yemen	105.4	48.3	37.30	43	34
Djibouti		0.1	1.55		58
Egypt	936.2	245.1			162
Congos	63	39.1	4.5	4	
Oman			5.3	2	5
Bahrain	6.5	6.9		3	13
Angola	3.1				
Turkey					475
Others	136.7	30.8	11.8	240	285
<b>Total</b>	<b>7,917</b>	<b>5,850</b>	<b>6,487</b>	<b>7,468</b>	<b>10183</b>

Among the shoaat meat exported, about 90% is goat meat and the rest is lamb. Export abattoirs source slaughter animals from different parts of the country. The major suppliers are pastoral low lands. Highlands used to supply only 10% of the total animals slaughtered at export abattoirs. This was mainly because of the belief that meat from highland sheep gets darkened within few days. However, this problem was solved and export abattoirs are using highland sheep including those from highland parts of Arsi and Bale.

### Channel 2: Sheep transported to Addis Ababa and consumed by individual consumers, hotels and restaurants

Small traders from different parts of the country transport castrated male and fattened sterile female to Addis Ababa. The number of animals flowing to this channel increases during religious festivals such as Easter, Christmas, New Year and Ramadan. As indicated above, small and large traders collect sheep from the study areas and transport them to Addis Ababa. They usually sell in bulk to retailers. Retailers in turn sell these animals to individual consumers that slaughter them for household consumption. Though we could not estimate the proportion, retailers sell old ewes to hotels and restaurants. Hotels and restaurants prefer ewes because of their lower prices and the perception that ewes have more meat as compared to the yearlings. They do not buy large fattened sheep since the price is too expensive and they cannot be profitable by slaughtering such animals.

### **Channel 3: Sheep purchased by farmers for breeding purposes**

Farmers buy sheep for replacement stock or to start new sheep production (foundation stock) in the study area. The time of buying sheep is linked with crop harvesting since farmers get high income by this time. The availability of aftermaths/stubbles and open grazing during these times also encourage farmers to buy sheep. Farmers buying sheep for breeding mostly prefer buying the animal whose origin is known. If they do not know the owner of the animal they selected in the market, they ask other farmer who know him/her and gather information about it. If its origin is good, they will buy the animal and do not hesitate to pay better price for such animals relative to others. Thus, producers usually prefer selling to such buyers since they pay better prices.

### **Channel 4: Sheep purchased buy hotels and individual consumers in the study area**

Hotels in Robe town and individual consumers from different places buy sheep from the study areas. Hotels buy intact male and sterile female sheep. Hotels usually buy from collectors and small traders. The peculiar nature of sheep value chain in the study areas is hotels work both as sheep butchers and restaurants. They sale raw meat for take away and also process it into fried meat, *kikil*, *dulet* and *keywot*.

Individual consumers mostly buy sheep during festival time such as Easter, Eid, New Year, Arefa and Christmas. They mostly prefer fattened male sheep due to its large meat content and it is also a prestige to slaughter large fattened sheep during holidays. Sterile ewe is preferred by hotels but they fear to buy because farmers sell pregnant sheep in the name of sterile ewe.

## **Distribution costs and margins**

### *Costs of production*

These are total costs for production of a yearling sheep. A farmer may use different inputs to rear sheep. For example inputs needed to grow yearling sheep may include labor, feed, housing and medication. As can be seen from Table 5 below, the highest cost for growing yearling sheep is feed cost followed by labor cost. Feed cost accounts for 72% of total costs of sheep production.

Table 5: Production cost of yearling sheep

<b>Inputs</b>	<b>Unit costs</b>
Feed cost	210
Labor cost	60.5
Management cost ( housing, rope et)	3.5
Health cost (veterinary services and drugs )	15
Total cost	289

Source: Own survey data

### *Marketing costs*

In a competitive and efficient market, marketing costs determine the size of returns to farmers and all marketing actors in a value chain. Marketing costs are those variable costs involved in product marketing by every actor. These costs are transportation cost, tax payments etc. incurred during product marketing (Table 5).

The marketing costs involved in sheep marketing are explained in Table 4 below. This analysis was based up on the data gathered during PRA discussion and individual interview of different participants in sheep market chain.

Table 6: Marketing costs incurred by different actors involved in sheep marketing

Cost items	Channel to hotels & consumers			Channel to export abattoirs		
	collectors	small trader	hotels	small traders	big traders	export abattoirs
	Costs in birr	Costs in birr	Costs in birr	Costs in birr	Costs in birr	Costs in birr
feed cost	3	0.5	1	0.5	0.56	
veterinary cost	0.1	0.1	0.02	0.1		
labor cost	2	0.2	20	0.3	0.25	
search cost	0.2	0.1	3	0.1	0.45	
loading/unloading cost	0	0.5	0	0.5	0.5	0.5
transportation cost	0	5	5	33	33	
tax payment	5	5		5	5	
combiner cost	0	3		3	3	
costs of processing, packaging and labeling	0	0				92
Cost of processing (spices, fire wood, oil, pepper and other inputs)			65			
barn cost/rent			1		1	
other costs	2	3	55	12	4.5	
<b>Total cost</b>	<b>12.3</b>	<b>17.4</b>	<b>150.02</b>	<b>55.16</b>	<b>48.92</b>	<b>92</b>

Source: Own survey result

As indicated in Table 4, the highest marketing cost was incurred by hotels followed by export abattoirs. The major cost item for hotels is cost of processing (spices, fire wood, oil, pepper, injera and others) whereas cost of processing, packing and packaging are for export abattoirs. Hotels sell either roasted meat for consumption at their premises or raw meat that could be in the take-away form or consumption on the spot.

### *Margins and value additions*

Marketing margin for a particular commodity is the difference between what the consumer pays for the final product and the amount the producer receives (Amobi, 1996; Arene, 2003). At each intermediary level, it is the difference between price received on resale and the purchase price (Gabre-Madhin, 2001).

Gross margin analysis is a convenient way of finding out how successful an enterprise is, because it includes all production factors.

The term gross marketing margin generally refers to the difference between the selling price and the purchase price of a product. Net marketing margin of a product is difference between gross marketing margin and marketing costs. That is

**Gross Marketing Margin = Selling price – buying price**

**Net marketing margin= gross marketing margin – marketing cost**

To calculate marketing margins and net margins two important sheep marketing channels are selected. The first important channel is to export abattoirs. In this channel, the largest margin is gained by export abattoirs. The share of final price that reach producers in this channel is lower (40%) relative to the channel for hotels/butchers (Table 6). This implies that this channel is less efficient among the two selected channels. Though the export abattoirs do not enter into further

processing apart from slaughtering, removing the skin, chilling, wrapping the chilled carcass with white cotton fabric and transportation of the carcass to the airport, the proportion of value added is highest (50%) for export abattoir as compared to other actors in the channel.

Table 7: Costs and margins of actors involved in selling sheep to export abattoirs

	producer	collector	small trader	large trader	export abattoir
Production cost	289				
Selling price	500	575	655	750	1237
Marketing cost	0	12	17.4	48	92
Marketing margin		75	80	95	487
Net margin		63	63	47	395
Producers share of final price		87	76	67	40
Value added	211	63	76	47	395
Proportion of value added (%)	27	8	10	6	50

Source: own survey result

The other selected channel for comparison of costs and margins is the channel to hotels/butchers. In this channel the highest net margin goes to hotels. This is mainly because they enter into further processing of the meat into different dishes and add value to the product. Thus, the proportion of value addition is highest for hotels/restaurants as compared to other value chain actors in this channel. Hotels in Robe town sell one Kg of the bone-in sheep meat for 140 birr for take away and one Tibs for 40 birr. One kg of sheep meat is used to prepare four Tibs and this could be sold for 160 birr. However, there are processing costs as indicated in Table 5 above. In this channel, Producers' share of final price is only 38% which is even lower than that of export abattoirs.

Table 8: costs and margins of sheep market actors involved in sheep market channels hotels/butchers

	Producers	Collectors	Small traders	Hotels/butchers
Production cost	289			
Selling price	600	660	700	1560
Marketing cost		12	17	84
Marketing margin		60	40	860
Net margin		48	23	776
Producers share of final Price		91	86	38
Value added	311	48	23	776
Proportion of value added (%)	27	4	2	67

# Constraints in the sheep value chain

## Input supply and production constraints

**Lack of breed improvement to enhance the productivity of local breeds:** Livestock productivity is influenced by a complex interaction of the genetic potential of the livestock breed kept, the production system and the production environment. Sheep breeds reared in Bale highland are almost exclusively indigenous breeds. The Arsi-Bale breed indigenous sheep breed is reared by smallholder farmers in the study area. Sheep producers in the area do not have selected rams to improve the productivity of their flock. There is high incidence of inbreeding and rams of unwanted characteristics are multiplied until they are sold or slaughtered. Farmers reported a lack of sheep breed improvement.

**Shortage of feed in quantity and quality:** Feed shortage is one of the main factors contributing to the low productivity of animals in the study area. The expansion of crop cultivation is the major reason for the scarcity of grazing lands. Moreover, the limited grazing land resources are overgrazed and their productivity is very poor.

**Lack of know-how on improved sheep husbandry practices:** Farmers in the study area rear sheep using traditional practices. Mostly the feeding system is grazing. They do not use supplementary feeds. This is due to lack of knowledge towards feeding and breeding systems. Respondents revealed that they do not give due care for sheep rearing. For example, sheep is supplemented with feed leftovers from dairy cattle or oxen. Sheep are not intentionally supplemented due to lack of knowledge in improved animal feeding systems.

## Institutional constraints for input supply and production

**Inadequate veterinary services:** Livestock diseases and parasitic infections are the bottlenecks for production and productivity. The problem is very high especially during the start of rainy seasons and feed shortage periods. Veterinary service delivery is inadequate in the study areas mainly due to shortage of veterinary medicines, health technicians and price of drugs. Only one health technician is allocated per animal health post serving three kebeles. This person serves as an animal health worker, a clerk and accountant for the health post. This slows down the rate of service provision and farmers have wait in long queues to get services. Moreover, farmers cannot get services for animals that are not able to reach the clinic since the technician already cannot cope with animals brought to the health post.

## Economic constraints

**Limited access to credit:** All farmers covered by the discussions revealed that they have limited access to credit. Thus, they have to sell their animals (especially small ruminants) in order to meet their immediate cash demands. This is usually during June to September when households need cash to procure inputs such as fertilizer and improved seed, to cover school fees for their children, etc. Even though some credit institutions operate in the area, they are based on group collateral and their terms and conditions are not clear. As a result, few farmers in the study area are using these services. FGD discussions indicated that most farmers abstain from these micro finance institutions because they do not want to pay for the defaulters in their group. Limited access to credit also affects traders. Small traders indicated that shortage of capital and lack of access to credit limited them to participate in large scale trading.

## Marketing constraints

**Lack of sufficient marketing information:** Lack of market information is a common problem in small ruminant marketing and there is no formal market information system accessible to smallholder farmers in the area. Farmers get information from neighbors that have sold animals or went to the market recently. They also try to observe how the market is operating before selling their animals.

**Low bargaining power of producers:** FGD discussions indicate that prices are determined based on negotiations between seller and buyer at the market place, however prices are mainly decided by traders based on eye ball estimation. In fact, producers trek back their animals if prices are perceived to be too low. Low price problem occurs at threshing and harvesting time. This is because most farmers sell their animals during this time to pay for farming activities and buy farm inputs.

**Seasonality of supply and demand:** Sheep supply in the study areas is higher during the months of August, April and June. In these months households need cash to harvest crops and procure seed and other farm inputs. In addition, farmers sell sheep during the rainy seasons when the land is covered with crops, when the family runs out of food reserves and when children are sent to school. The demand for sheep in the domestic market increases following major holidays like New Year, Easter, Meskel, Arefa and EidulFitri. High demand in export markets is tied with the Ramadan fasting season and Arafa. Export abattoirs complain they do not get enough supply of small ruminants during these seasons. This is mainly because Ramadan usually overlaps with the dry season in the pastoral areas and it is very hard to get good quality animals then.

Since highland areas are not usually targeting the export market, they do not supply animals of the required quality for this market. Export abattoirs complain of the emaciated body condition of sheep sourced from most of the highland areas. To discourage supply of such animals to the market, they cut down the price per kg of live weight for such animals relative to well-conditioned animals.

**Multiple taxation:** Animals which enter marketing yards are taxed per head whether they are sold or not. Sheep marketing participant who did not sell his/her animals is obliged to pay market taxes since there is no mechanism to identify buyers and sellers. Multiple taxations at checkpoints especially when animals are trekked or trucked through towns are considered a major problem. Thus, an animal is taxed three to four times until it reaches the terminal market.

**Lack of livestock market extension:** There is poor access to knowledge on how to improve production and delivery service as to where and when to sell sheep and feed products.

**Weak linkages:** Vertical linkages at different levels of the value chain support the upgrading capacity of the chain. Rapid response to changing market conditions requires communication and cooperation up and down the chain. Sheep producers in the study areas sell their animals to different market actors. There is no vertical relationship between producers and buyers participating in sheep marketing. Producers and buyers in the market do not trust each other and do not exchange knowledge and information in the study area. However the relationship between big traders and export abattoirs, big traders and small traders is better than others.

Horizontal relationships can promote efficiencies, reduce costs, open markets and spur beneficial competition. While there is a vertical linkage among traders in the sheep value chain, only limited level of horizontal linkages are found among the export abattoirs and small traders. An important horizontal linkage in the study area was among farmers from the same village who share common interests and resources. Apart from this, sheep producers in the study area do not have any marketing groups or cooperatives to boost their bargaining power in selling animals or procuring inputs.

The Ethiopian Meat Producer-Exporters Association is a common platform for the export abattoirs that protects their interest. They fix floor export prices, lobby for better services at the airport and policy changes and communicate with the government through their associations. The export abattoirs also share air cargo spaces which could have been damn expensive if they individually use the chartered cargo planes. On the other hand, export abattoirs are competing with each other on supply of slaughter animals and buyers.

Small traders hire trucks together since a single small trader might not have the capacity to buy one truck load of sheep at a time and transport them to terminal markets. This improves their bargaining power, promotes collective marketing, enables risk sharing, supply large quantities demanded by export abattoirs and reduces transaction cost.

## **Processing constraints**

**Shortage of supply of slaughter animals and poor quality of animals supplied:** The peak periods of high demand for sheep in the export market is during Ramadan and Arefa. Export abattoirs do not get sufficient supply of sheep to fulfill the demand of foreign market at this period. This is because producers do not have any information about the high demand of small ruminants at export market during this period. In addition, most of the animals supplied to export abattoirs do not meet the quality standard required by foreign markets. Farmers are not aware of the type of animals required in foreign markets. So, their production is not market oriented.

## **Consumption constraints**

**Seasonality of consumption in domestic and foreign markets:** Live animals and meat are exported to Middle East countries. The highest demand for live animals and carcasses in these countries are during the Hajj pilgrimage and Ramadan. The Hajj period (which occurs around November or December) therefore corresponds to a dramatic spike in demand each year. Ramadan is a month-long daytime fasting period observed by Muslims. So, Eid Alfatir, the holiday at the end of Ramadan marks the highest demand for meat in the Middle East.

In the domestic market also, consumption of meat and other animal product is affected by fasting and feasting seasons, both for Muslims and Orthodox Christians. During Orthodox fasting seasons, followers of the religion do not consume meat and other animal products. Hotels/butchers which sell meat and other animal products to the followers of this religion are closed until the end of fasting. This highly affects the demand of animal in domestic markets. The local market is also affected in Muslim fasting and feasting seasons such as Ramadan, Eid Al Fatir and Eidul Arefa.

## Opportunities

**Suitability of the area for sheep production:** Sinana district is endowed with plain topography, fertile soil, bimodal rainfall that enhances feed availability and farmers having better land holding than the average Ethiopian farmer and that are ready to accept new technologies. These offer the best opportunities for intensification of crops and livestock production.

**The use of sheep as an important cash source by farmers in the area:** Bale highland is known for its high wheat and barley production. However, the productivity and the price of crops have been highly variable. So farmers face income shortage during times of crop failure. The integration of sheep and crop production activities is important as sheep production serves as an intermediate cash source during crop failures. Moreover, their high turnover rate, easy to be managed by children and women are advantages to be integrated with crop production.

**Increased demand for sheep meat in local and foreign markets:** The demand for Ethiopian sheep meat has dramatically increased as reported by export abattoirs. This has created an opportunity for sheep producers to sell more animals at better prices. High demand for small ruminants in local markets as a result of population increase, urbanization, and increase in income can also be considered as an opportunity for small ruminant producers.

**Improved road infrastructure connecting zone to different districts and zones:** Roads are a very important infrastructure in the livestock marketing system. The type of road connecting an area determines the type of buyers that can get access to its market. It also affects the profitability of most participants in the livestock market. Previously the roads connecting Bale to other Zones were not suitable for transportation. But currently an asphalt road connects Bale zone to terminal markets. This enables traders to easily transport animals to quarantines or abattoirs at relatively lower cost of transportation and very minimum level of weight loss and mortality rates relative to inaccessible areas. The improvement of this infrastructure will also increase the number of traders that participate in sheep marketing in local markets in the zone.

**Establishment of Livestock Development and Health Agency (OLDHA):** Oromia region has established OLDHA under the bureau of agriculture to provide all necessary support to the development of the sector. Previously more emphasis was given to crop production by the office of agriculture due to crop dominance in the area. With this separate office of livestock development and health, sheep producers can benefit from the government support.

# Conclusions and recommendations

## Conclusions

Bale highlands are known for their high potential for livestock-crop mixed farming systems. Small ruminants play an important role in boosting the economy of smallholder farmers in the zone. Discussions held with farmers and export abattoirs revealed that shortage of slaughter animals compels export abattoirs to operate under 56% of their installed capacity while farmers are complaining of low demand for their sheep, except during the religious holidays such as New Year, Easter, Christmas, Id Alfahir and Arefa.

This is mainly related to the quality of animals and the information gap among farmers. Since farmers are not targeting any known buyer, they sell very young emaciated animals to the market. However, export abattoirs need male, un-castrated, fattened young sheep for special markets they have developed in the Middle East (especially Bahrain) for sheep meat. Such could be produced with two months of feeding once farmers are trained and persuaded about this potential niche market. Such animals are also highly in demand in domestic markets. Thus, sheep fattening is a feasible business for farmers to sell their animals either to the export abattoirs or to domestic consumers.

The main value chain actors identified by the study were producers, collectors, traders, butchers, local consumers and export abattoirs. Four important marketing channels of sheep marketing were identified. Marketing margins and costs were calculated for selected channels using data collected during the surveys. The production costs to rear yearlings was also identified.

The following recommendations are suggested to overcome identified constraints and capitalize on opportunities.

## Recommendations

**Support farmers move towards sheep fattening through credit availability, breed improvement and training:** Since there is very high demand for male, un-castrated, fattened young sheep both in the domestic and export markets, it is important to support farmers and capacitate them in sheep fattening. This needs training to build their technical capacity and provision of credit services. Training is important to change traditional approaches to fattening whereby farmers castrate and feed a single sheep for up to two years. Experiences with some NGOs and research centers show that it is possible to fatten sheep within two months.

### *Support the development of veterinary services*

It is important to increase the capacity of animal health experts at district and peasant association level through short term training to build their capacity. Increasing the number of animal health posts and employing sufficient number of health experts will improve the health problem in the district.

### *Provide practical training to farmers on sheep feeding*

Farmers in the area are not providing supplementary feed to sheep. Thus, sheep production is based solely on grazing. This is mainly because of lack of knowledge about sheep feeding systems. Thus, it is important to train sheep producers in the area of improved sheep feeding practices.

### *Establish saving and credit schemes (cooperatives) in the area*

The other important constraint to the development of sheep production and marketing in the area is lack of a flexible credit system. To encourage market oriented sheep production in the area, there is

a need to establish credit and saving schemes that can provide credit that could be used to procure feeder animals, feed and other necessary inputs. Such schemes should also be able to provide consumption credit to sheep farmers so they will repay it when they sell their fattened animals. This protects farmers from selling their animals when the price is depressed. To achieve these targets, the credit and saving cooperatives need to be supported in terms of management capacity building and provision of seed money.

#### *Disseminate seasonal market information system*

Market information dissemination is an important issue for producers to help them decide on marketing their products. So it is important to disseminate market information to all the sheep value chain actors throughout the year. In addition to print and electronic media, zonal and district livestock marketing agencies could extend this information in collaboration with agricultural extension agents.

#### *Strengthen export promotion, international market intelligence, and branding*

To create sustainably increasing demand for Ethiopian sheep meat, it is important to develop and execute strong promotional activities in export markets. This could be done through different advertisements using posters, leaflets, promotional films and brochures at different forums, involving Ethiopian Embassies in different countries. Existing efforts to promote Ethiopian livestock and meat at the annual Dubai Gulf Food Fair could be replicated elsewhere.

#### *Enforce law and order and fair competition in the market*

This should be done by understanding the nature of small ruminant trade in the local towns and enforcing rules and regulations to the actors in the market.

Table 9: Major constraints along the value chains, suggested interventions and implementing bodies

Stages of Value Chain	Challenges	Suggested intervention	implementer
Input supply	Shortage of veterinary personnel in health posts	Employ sufficient animal health experts	Zonal and district Human resource office
	Shortage of finance/credit service	Establish saving and credit cooperatives and providing them with seed money and management training	District cooperative bureau and development partners
	Poor sheep feeding and other husbandry conditions	Train farmers on feeding and husbandry of sheep	Sinana Research center and district livestock development and health agency Development partners
	Shortage of feed	Introduce improved forage varieties  Advise farmers to use part of his land for forage planting  Awareness creation on proper use of existing feed resources especially crop residues	Sinana Research center District livestock development and health agency NGOs and other development partners
	Shortage of animal health posts in rural areas	Build animal health posts, equipping them with necessary facilities and human resources	District livestock development and health agency
Production	Lack of breed improvement activities	Provide improved breeds and promotion of community based breeding programs (ram and ewes selection and management)	District agriculture office Sinana Research center ILRI, ICARDA
	No habit of providing supplementary feed to sheep	Train farmers and extension agents in improved feeding system and promotion of supplementary feeding for small ruminants	Sinana Research center District livestock development and health agency ILRI, ICARDA
	High prevalence of diseases and parasites	Capacitate livestock clinics and health posts in terms of drug supply and important office and laboratory equipment.  Train farmers in animal health care focusing on prevention and control of major diseases and parasites in the area	Oromia bureau of livestock development and health agency Sinana Research center ILRI, ICARDA
	Lack of knowledge in sheep production and management practices	Train farmers, development agents and district livestock experts	Research center and SMS from different stakeholders

		in sheep breeding, management and feeding systems	
	Weak market information to producers	Disseminate livestock market information on time to every actors through electronic and printed media, development agents, and through farmers cooperatives	Zonal and district market development agency Zonal and district trade and industry
	Multiple taxation of sheep as it crosses different towns	Charge tax once at primary buying place.	National custom and revenue office
	Weak vertical and horizontal linkages	Create regular sheep value chain stakeholders forum as a mechanism to create linkage between different actors.  Establish/strengthen farmers sheep production and marketing cooperatives	Research center District cooperative office District agriculture market development agency NGOs
Marketing	Poor market infrastructure	Improve infrastructures like toilet, water, shade etc for market places	Zonal and district trade and industry offices NGOs
	Problem of market promotion and advertising of small ruminants in foreign countries	Advertise Ethiopian small ruminants at foreign markets	Ministries of Agriculture and Foreign Affairs
Processing	Shortage of supply of export quality animals to export abattoirs	Increase production of small ruminants at farmer level developing contract marketing culture	District bureau of livestock development and health agency Sinana Research center ILRI/ICARDA Export abattoirs
Consumption	Seasonality of demand for sheep	Awareness creation for producers to save their animal during low demand time and supply at best market demand period	District bureau of livestock development and health agency Sinana Research center ILRI/ICARDA

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