

Analysis of sheep and goat value chains in Shinelle district, Somali Region, Ethiopia

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Acronyms

AHP	Animal health post
AI	Artificial Insemination
CAHW	Community Animal Health Worker
CSA	Central Statistics Authority
DA	Development Agent
EMDTI	Ethiopian Meat and Dairy Technology Institute
ETB	Ethiopian birr
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
FMD	Foot and mouth disease
FTC	Farmers' Training Center
GDP	Gross Domestic Product
HCS	Hararghe Catholic Secretariat
ICARDA	International Center for Agricultural Research in Dry Areas
ILRI	International Livestock Research Institute
MFI	Microfinance Institution
MIS	Market Information System
MoARD	Ministry of Agriculture and Rural Development
PTC	Pastoralists' Training Center
PRIME	Pastoralist Areas Resilience Improvement and Market Expansion
SCUK	Save the Children UK
SoRPARI	Ethiopian Somali Regional Pastoral and Agro-Pastoral Research Institute
SRS	Somali Regional State
USAID	United States Agency for International Development

Foreword and acknowledgements

In mid-2012, stakeholder discussions and planning for the Livestock and Fish small ruminant value chain development project were initiated by the International Center for Agricultural Research in the Dry Areas (ICARDA), the International Livestock Research Institute (ILRI) and national partners.

After selecting eight research sites meeting various criteria, the first step was to conduct rapid value chain assessments in each site. In November 2012, national teams were formed and trained to carry out these assessments (including for the associated 'safe food fair food' project). Field implementation of the rapid value chain analysis took place in December 2012 and January 2013 with mixed teams comprising staff from CGIAR and national organizations. The teams used a toolkit developed through the Program and undertook focus group discussions with farmers using checklists and participatory methods as well as key informant interviews with local experts, traders, butchers, livestock researchers, transporters, veterinarians and NGOs.

The preliminary reports from these assessments were reviewed at three multi-stakeholder workshops held in March and April 2013. In these workshops, participants from research and development partners validated the value chain analysis and formulated initial 'best bet' intervention plans for each of the sites.

These activities are documented at <http://livestockfish.cgiar.org/category/countries/ethiopia/>

The following people contributed to this process:

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Introduction

The sheep and goat 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). They provide an estimated 46% of national meat consumption and 58% of the value of hide and skin production (Awgichew et al. 1991).

Sheep and goats have many advantages over large ruminants for most smallholder farmers: lower feed costs, quicker turnover, easy management and appropriate size at slaughter (Abegaz 2002; Donkin 2005). They also tolerate less favourable conditions and withstand drought better than large ruminants (Galal 1983). In addition, subsistence farmers prefer sheep and goats as the risk of losing large ruminants is too great (Sölkner et al. 1998).

Apart from subsistence, livestock also play economic and cultural roles. Sheep and goats have a very important role in contributing to food security as well as in mitigating environmental risks, through their unique adaptability in arid and semi-arid areas. Sheep and goats are primarily used for milk and meat production for home consumption. They are the major sources of income for farmers and pastoralists. With the increased drought cycle and environmental degradation because of the effects of climate change, the pastoral community is expanding sheep and goat production as an adaptation strategy. The increase in international demand for meat in general and the high demand for sheep and goat meat in the Middle East are another incentive for sheep and goat production in Ethiopia.

Nevertheless, the productivity of Ethiopian sheep and goats is affected by high kid mortality caused by inadequate animal health services. Current economic trends are significantly impacting on the genetic resource base through early disposal of better animals for market and negative selection. So there is an urgent need to increase the productivity of sheep and goats to improve household income and nutrition, and meet the demands of a growing population and foreign markets.

Efficient input delivery, knowledge-based animal husbandry (including feeding, breeding, housing and health care), cost-effective marketing and coordinated supply chains are all needed, and this means understanding the input delivery, production, processing and consumption systems. It also needs understanding market performance, conduct, function, business linkages as well as constraints and opportunities along the value chain, and forward and backward linkages with the target areas.

This study

This study contributes to the Ethiopian small ruminant value chain development project of the CGIAR Research Program (CRP) on Livestock and Fish. It is being implemented in eight target districts throughout the country. For each site a team was formed to conduct a rapid value chain analysis (VCA) using a toolkit developed by an ICARDA-ILRI team and researchers from the partner centers (<http://livestock-fish.wikispaces.com/VCD+Ethiopia>). In addition to the site reports, the national team prepared a synthesis report incorporating the findings from all eight sites (<http://livestockfish.cgiar.org/focus/ethiopia/>). The synthesis report also includes the conceptual framework and describes the general methodology applied for the rapid value chain analysis.

Objectives

The major objective of the study was to characterize the goat value chain to identify best-bet intervention areas for the development of sheep and goat value chain in the area. Specific objectives were:

- To identify the natural, technical, financial, legal and institutional opportunities and barriers that influence development of sheep and goat value chain.
- To identify best-bet research, development and policy options for the development of sheep and goat value chain in the study area.
- To document important elements and modalities of market strategies to develop the sheep and goat value chain.

Study area

Shinelle is one of the nine administrative zones of the Somali Region. Lying at the northernmost edge of the region, it borders with Djibouti in the north, Somalia (Somaliland) to the northeast, Jijiga zone to the South East, Dire Dawa and Oromia Regions in the south, and the Afar Region in the West. People depend on livestock. There is also a significant amount of trade and a small amount of crop production in the southern part.



Figure 1. The study area

The altitude of the zone varies between 950 and 1350 metres above sea level. There are two rainy seasons – gu and karan. The gu falls between late March and late May, while the karan season is between late July and late September. In recent years, the karan has been more reliable. Annual rainfall is 500–700 millimetres (mm). In far north and northwest, rainfall is well below this range. Rainfall is higher in the southern foothills and much lower in the northern plains.

Data collection and analysis

The assessment team reviewed secondary information from similar assessment reports, regional agriculture strategies and documents, research findings and other relevant reports on small ruminant value chains. The study methodology, data collection procedures and

interview questionnaires were developed and a workshop was conducted to review the tools developed and achieve a common understanding on the methodological framework.

The assessment team visited Shinelle and discussed sheep and goat production in two kebeles (Dhegah-jabis and Gaad) with the district administration and agricultural office. The two kebeles were selected for highest sheep and goat population, potential for impact, access and market opportunity. The study team then visited the two kebeles to collect information on small ruminant value chain. Focus group discussions and key informant interviews were carried out.

Focus group discussions were conducted at Dhegah-jabis and Gaad with groups of up to 12 men and women in each, all sheep and goat producers.

The key informants identified for this study were experts in livestock extension, livestock marketing and cooperatives, as well as traders, butchers, livestock researchers, transporters, veterinarians and NGO workers. Together with district-level project staff the team interviewed the main actors in sheep and goat value chains in the study area. Similarly, Shinelle and Dire Dawa markets which are believed to be the major sheep and goat markets in the study area were visited. The practices of marketing in these market places were observed, to substantiate information obtained during interviews.

The assessment focused on qualitative data rather than quantitative studies due to time and resource constraints, and the study's objective of providing practical recommendations for the project, especially, for next six to eight years. Data was analyzed using a thematic approach. Quantitative data were analyzed using the descriptive statistical analysis techniques to calculate the distribution of costs and margins along sheep and goat value chain.

Results: Core functions in the sheep and goat value chain

The core functions in sheep and goat value chain are input supply, production, trade (marketing), processing and consumption are shown in Figure 2.

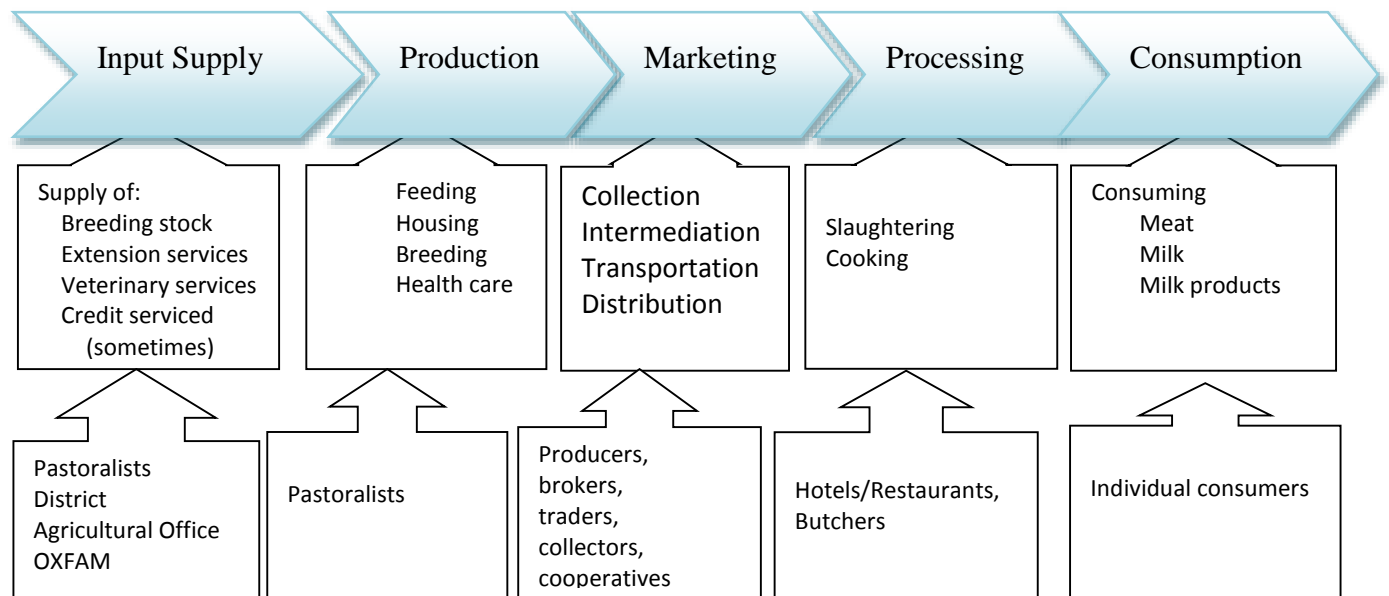


Figure 2. Core functions in sheep value chain, activities and actors

Input supply

Input supply for sheep and goat production in Shinelle district of Somali region is generally very weak and it mainly consists of the supply of extension services, animal health services and informal credit service.

Supply of breeding stock

The sheep and goat breeds of pastoralists in the study area are local. Pastoralists consider body weight, height, ramp and milk production as selection criteria when buying foundation or replacement stock. The major source of breeding stock in the area is from the pastoralist's own flock. No improved breeds have been supplied.

Animal health services

Only four of 16 health posts in the district function properly. One animal health technician is allocated to each of these four. Vaccination is the major service provided, and it does not cover all animals in the district due to a shortage of vaccines. Only half the community's animal health workers operate normally because of a shortage of drugs, equipment and transport. NGOs like Oxfam and Hararghe Catholic Secretariat help district agricultural experts with logistics during treatment and vaccination campaigns.

Credit services

Credit is an important input for the production of sheep and goats. But we learnt from focus groups that there is no credit service from micro-finance institutions except for Oxfam, which provides credit to female pastoralists to buy sheep and goats.

Feed Supply

Sheep and goat production in the study area relies on natural grazing. Harvesting natural pasture is common, but feed (both concentrates and roughage) is not sold in markets. There is a feed market in Dire Dawa, where there are commercial dairy farms and feedlots.

Production

Pastoralists rear sheep and goats for their milk and meat. When households get into difficulties and need cash, the first thing they do is sell sheep and goats. Sheep and goat fattening in the study area takes a year or two and is traditionally done after castrating male sheep and goats. The average flock size is eight sheep and goats per household. Pastoralists indicated that this falls occasionally because of drought and associated feed shortages.

Feeds and feeding

Feed is the most important factor affecting livestock production. But feed in the study area is native pasture which is only available for a short period of time (a maximum of six months). But the production of feed (especially forages crops) has not been practised. The number of sheep and goats per household is decreasing because of a shortage of grazing land and feed.

The only coping strategy is internal migration. Thus the production of sheep and goats in Shinelle depends on natural grazing. Animals are not provided with any supplementary feeds. Pastoralists move their animals seasonally depending on the availability of natural grasses and browses.

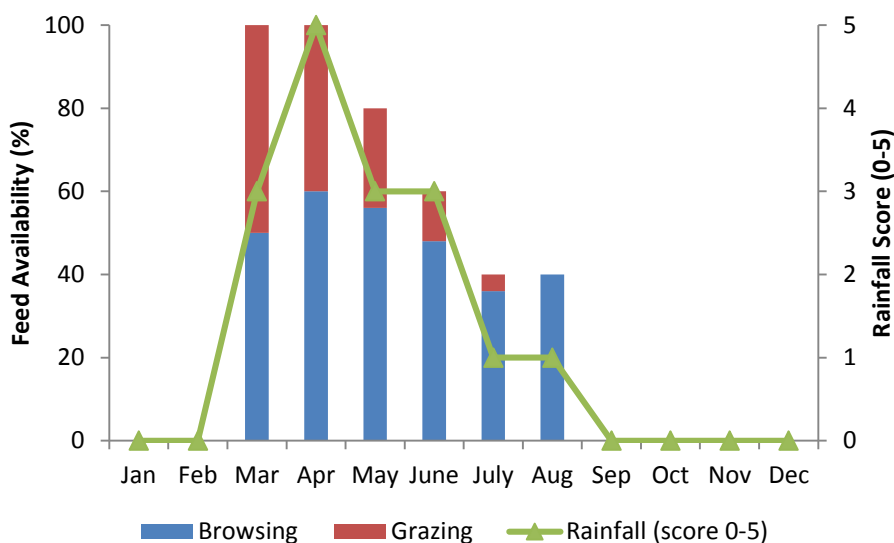


Figure 3. Seasonal distribution of feed resources relative to the rainfall

As it can be clearly seen in Figure 3, feed availability is directly affected by rainfall. The rainfall scores on the right-hand vertical axis shows pastoralists ranking of months of the year depending on the availability of rains (five representing the most abundant rainfall). Grazing pasture and browses are available only during the months of high rainfall (March–July).

Breeding

The sheep and goat breeds available in the study area are indigenous Somali black head sheep and long-eared goats. No improved exotic breeds are available. The pastoralists do not practice controlled mating for goats since bucks always stay with the flock. For sheep, controlled mating is practiced by the pastoralists in dry seasons when feed is scarce. Goats are hardy browsers and can survive in relatively large numbers, even when there is little to graze on. Knowledge about inbreeding is limited among the pastoralists.

Animal health care

The most common sheep and goat diseases are cholera, peste des petits ruminants, copper deficiency, and parasites such as fasciola, ecto-parasites, sheep and goat poxes and bovine brucellosis.

Animal health service delivery is very weak. Whenever animals get sick, pastoralists in the area have two alternatives: the first is to go to pharmacies and purchase drugs like oxytetracyclin, albendazole and diazinone and treat their animals themselves, or they can use traditional treatment methods using fire, which they realize is less efficient.

Housing

Pastoralists fence in their animals using material from the bush and do not make roofs for the barns. They house mature does and ewes together but separate kids, lambs, bucks and rams to prevent unwanted reproduction.

Milk and milk products production

Milk is produced from both sheep and goats but only goat milk is consumed and marketed. Sheep milk is churned and converted to butter for sale. Milk production and productivity of sheep and goats in the study area is affected by the availability of rain and during rainy season they obtain average milk of 0.25 kg per head of animals. On the other hand, the production is significantly reduced during the dry seasons.

Milking and milk marketing is undertaken mainly by women. The majority of sheep and goat milk is mainly consumed at home mainly by children because pastoralists believe that goat milk has a very good nutritional value for the children.

Marketing

Sheep and goat marketing involves the collection, transportation and distribution of animals to end-users. The flow of Shinelle sheep and goats from production to consumption comprises seven main actors: producers, brokers, collectors, traders, cooperatives, hotels and individual consumers (Figure 4). Brokers, collectors, cooperative and producers are from the pastoral community. This means the dominant actors in the Shinelle market are the pastoralists. Individual consumers, hotels and traders together comprise about a third of the total.

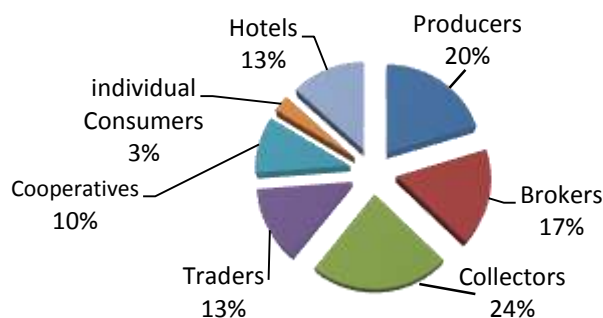


Figure 4. Actors in Shinelle sheep and goat market

The majority (64%) of pastoralists in Shinelle sell their animals at markets while 25% sell in the village. The rest sell by the roadside. Most of the sheep and goats sold in the village and on the road are sold to collectors.

The highest proportion of animals (30%) is sold to collectors, while cooperatives and traders each buy 20% (Figure 5). Collectors move around the pastoral villages and buy large numbers of sheep and goats. Though cooperatives are located within pastoral communities and can collect large numbers of animals from their members and non-members alike, their lack of flexibility gives the upper hand to collectors. Cooperatives purchase animals through purchase committees, which cannot decide prices as collectors and other traders do. Their lack of skill also means they are outclassed by traders and collectors in the market.

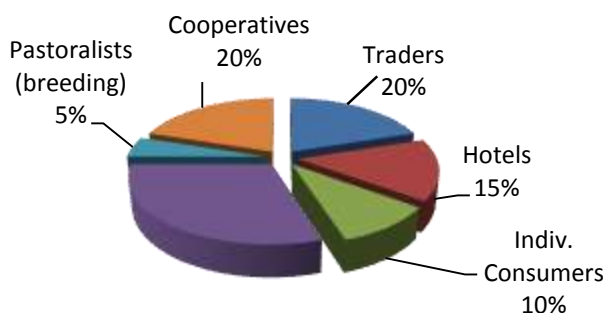


Figure 5. Proportion of actors to whom pastoralists in the study area sell sheep and goats

Unlike other areas, the highest proportion of animals that pastoralist sell in the study area are matured females followed by yearlings. Pastoralists in Shinelle rarely sell young female sheep and goats since they retain them for breeding purposes.

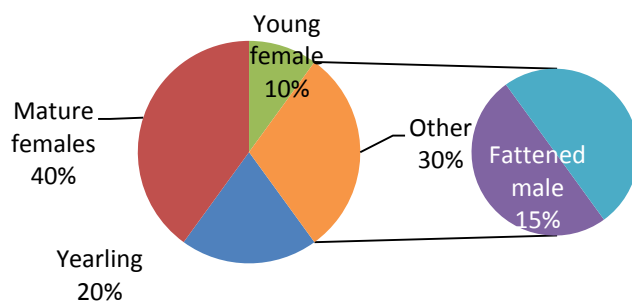


Figure 6. Proportion of different sheep and goat types supplied to the market.

Processing

Processing is one of the core functions of the sheep and goat value chain. There is no export abattoir in the district or Dire Dawa. Sheep and goat meat processing is carried out by hotels, butchers and cooperatives. There is a special meat market in Dire Dawa city in a place called Magala Jebdu. The area is dominated by butchers who slaughter and sell to low-income consumers by weight at a discount. Better-off buyers go to special butchers with attractive premises and better quality products at higher prices. Unlike most of the butchers in Megala Jebdu, these butchers serve roasted and raw meat on their premises. There is a difference of about 50 birr per kilogram (kg) of meat between the two. Hotels in Shinelle and Dire Dawa also buy sheep and goats from Shinelle area.

Consumption

Sheep and goats from the Shinelle district are consumed in both domestic and foreign markets. Domestic consumers can buy either processed meat from butchers or live sheep and goat and slaughter at home. There are also farmers that buy sheep and goats for rearing and fattening. Live sheep and goats from the area are exported to the Middle East (especially Saudi Arabia) during Arafa holidays, mainly for sacrifice at during the Hajj pilgrimage.

Actors in sheep and goat value chain

According to the value chain assessment (VCA) framework, 'actors' in the value chain refers to those individuals or entities who engage in a transaction which moves a product from inception to end use. They must exchange money (or an equivalent service) as well as a product, which generally increases in value with each transaction (Campbell 2008). The primary actors in the livestock value chains in the study areas are producers (pastoralists), brokers, collectors, small and large-scale traders, hotels, sheep and goat butchers and individual and domestic consumers. Analysis of the characteristics of these actors and their marketing strategies helps in designing intervention measures to overcome the causes of unnecessarily high transaction costs and other factors that depress the proportion of the final price producers get. The characteristics of each of the actors are described below.

Producers

Sheep and goat producers in Shinelle district are pastoralists. Their average flock size is 3–14 sheep and goats per household, but flocks have been decreasing for the last five years because of recurrent droughts, and producers say these used to reach up to 300 animals per household just five years ago.

Pastoralists only sell animals as needed to pay school fees or buy food during dry seasons, so sales are not governed by market demand. The largest proportion of sheep and goats that pastoralists sell goes through brokers (65%); the remainder goes to collectors (30%) and other pastoralists (5%) who purchase for rearing or breeding. Livestock marketing in Somali Region is clan-based: producers sell their animals only through brokers belonging to their clan. Pastoralists trust such brokers and give them autonomy to decide on prices. Animals taken to market are sold through brokers. The price of animals increase during dry seasons. However, prices decrease during rainy seasons when there are a lot of sheep and goats coming to the market. In addition, prices increase during Muslim holidays.

Slaughtering cooperatives

The slaughter cooperatives are the major suppliers of meat to Shinelle town. Their slaughter houses and shops are built with USAID support in an effort to encourage marketing of safe meat to people. These cooperatives purchase 80% of sheep and goats from pastoralists and

the remaining 20% from collectors. When supply is short, they collect from areas like Shinelle, Bisle, Harey and Aligur.

Livestock collectors

Collectors are those market actors that collect animals from producers and sell to individual consumers, hotels and small traders that, in turn, supply either to large traders or slaughter cooperatives. They buy animals either directly from producers by moving around the pastoral villages or through brokers in the market. Collectors sell sheep and goats to traders (60%), hotels (10%) and individual consumers (30%) at Dire Dawa.

Brokers

Brokers play the biggest in sheep and goat markets. They mediate producers and buyers (traders/trader cooperatives, collectors, slaughtering cooperatives, etc). They have mainly clan-based relationships with preferred sellers. They get 50 birr for every animal sold.

Brokers in the market are not legal and their roles are controversial. They are the strongest actors and interfere with transactions they are not involved with. Brokers sell to collectors, traders/trader cooperatives, slaughtering cooperatives, large traders, hotels, etc.

Small traders

Small traders are those market actors that buy animals from brokers and sell them to either large traders or to hotels and individual consumers in Shinelle and Dire Dawa. They operate using their own capital and most retail live sheep and goats in Dire Dawa. They can hold up to 30 animals at a time.

Large traders

These are traders who collect live animals from brokers and collectors and either export live animals directly to Djibouti and Somalia or supply to individual consumers and butchers in Dire Dawa market.

Hotels

Hotels in Shinelle and Dire Dawa buy live sheep and goats from brokers and collectors. They usually buy from collectors who supply them with animals throughout the year.

Individual consumers

Individual consumers at Shinelle and Dire Dawa get sheep and goat meat from slaughter cooperatives and hotels. They also buy sheep and goat from Shinelle and Dire Dawa markets and slaughter them at home for household consumption. Since the area is dominated by Muslims, the demand for meat in the area is not seasonal. People always need meat. However, demand for meat increases during Ramadan.

Pastoralists buying for breeding purpose

Pastoralists buy sheep and goat from other producers for breeding purposes. This marketing transaction occurs either in the market or at farm gate level. Pastoralists buy animals when they are sure about their history. They always buy animals either from producers whom they know; or if they buy from the market, they buy animals whose owners are known to the brokers. Since livestock marketing relies on the clan structure through brokers, they can easily identify who is who and study animals' history.

Sheep and goat marketing routes

There are several marketing routes for sheep and goats produced in Shinelle zone (Figure 7). The dominant one is the Shinelle route followed by the Dire Dawa market route that includes export to Djibouti. This used to be through Dire Dawa, and they also export live animals from Shinelle to Somalia through Dire Dawa. Figure 6a shows the flow of animals to Shinelle market; Figure 6b shows the flow of animals from Shinelle and other markets to Dire Dawa. The major supplier to Shinelle market is Meta kebele (40%) and the study area; Ghaad supplies 20% of the animals coming to Shinelle market.

Dire Dawa is the major market absorbing animals from the area. Traders collect animals early in the morning from Shinelle market and immediately transport them to Dire Dawa market for sale in the afternoon. The majority of animals sold in Dire Dawa market are consumed by domestic consumers (butchers, hotels and individual consumers) and the rest are exported through Djibouti or Somaliland to the Middle East.

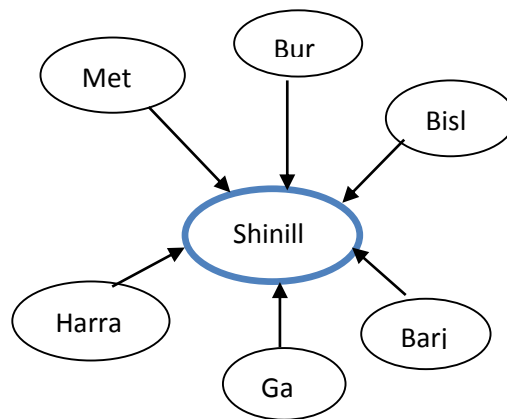


Figure 7a. Sheep and goat marketing routes to

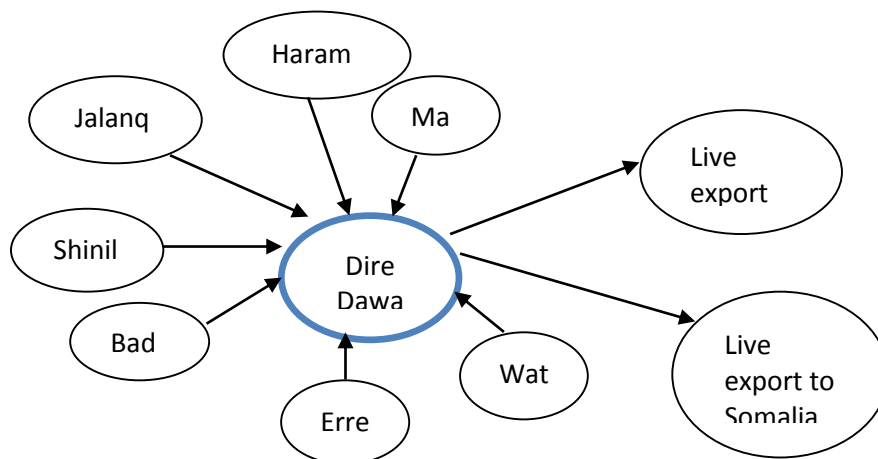


Figure 7b. Sheep and goat marketing routes to Dire Dawa market

Marketing channels

The analysis of sheep and goat marketing channels provides a systematic knowledge of the flow of livestock from production areas to end-users. Marketing of sheep and goat in the study areas starts with the collection of animals from production areas moving on to the terminal markets (Figure 7). In such marketing chains the animal passes through a number of market actors, implying the links in the value chain before it reaches the end-users. As has been alluded to, the main actors in the sheep and goats markets include a network of collectors, brokers, large traders, butchers, meat cooperatives, individual consumers, pastoralists and exporters of live animals. The number and type of market participants usually differ even among the final destination of the products. In this study, we identified five major marketing channels:

Market channel 1: Pastoralists →Brokers →Large traders →Export market

This is the largest channel through which sheep and goats are live exported to Djibouti and Somalia. Large traders buy live animals mainly through brokers. They also get some proportion of live animals from collector and directly from cooperatives. The price of live animals when exported to foreign market rises during holidays.

Market channel 2: Pastoralists →Brokers → Collectors → Hotels

Hotels in Dire Dawa city buy matured female sheep and goats from collectors. They prefer female sheep and goats because mature female sheep and goats have a better meat yield and fat cover and are cheaper.

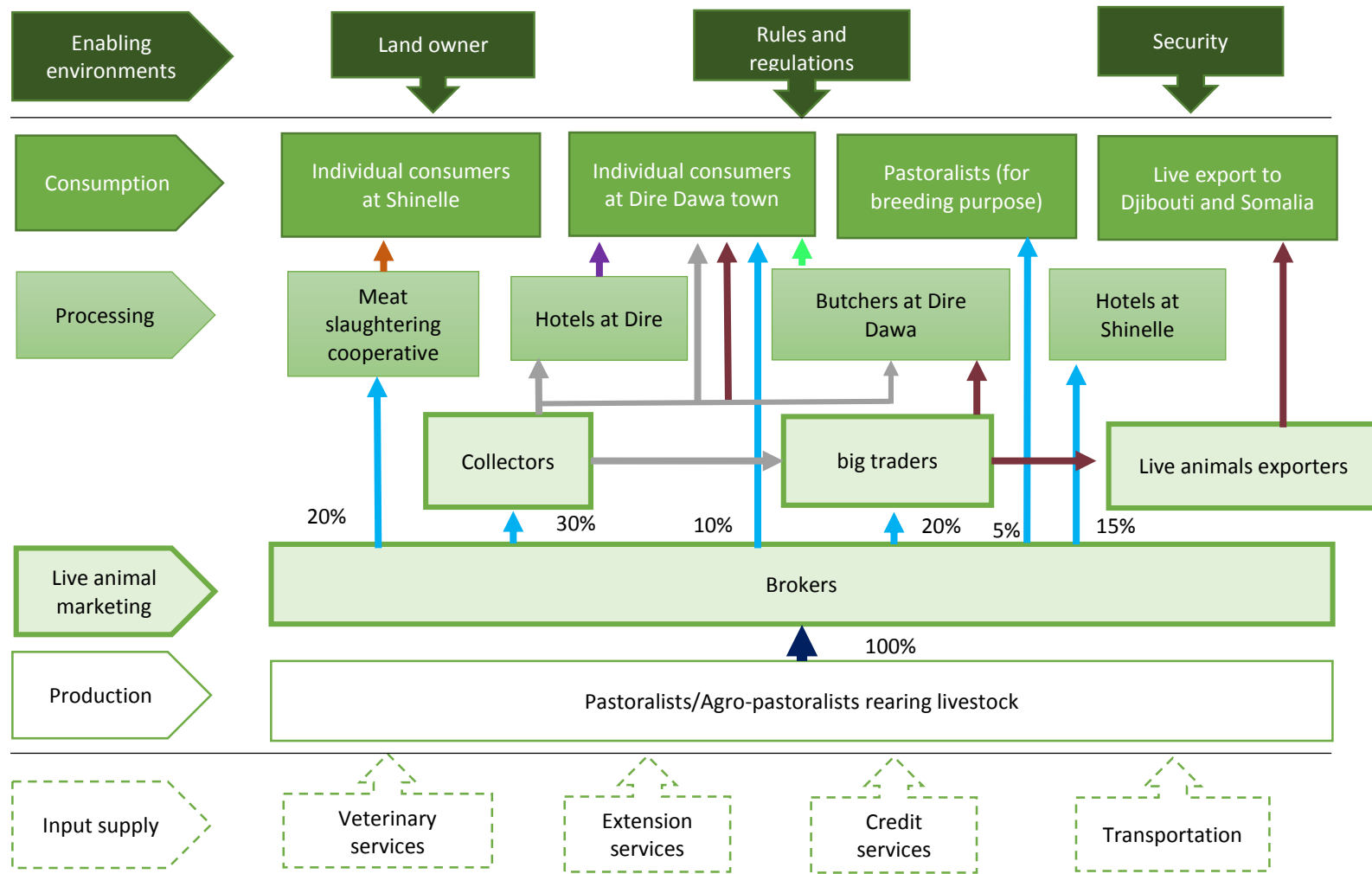


Figure 7. Sheep and goat marketing channels in Shinelle

Market channel 3: Pastoralists → Brokers → Collectors → Large traders → live exporters

This channel operates mainly during the Arafa season, exporting live sheep and goats to Saudi Arabia through Somaliland and Djibouti. Live animal exporters collect animals from the study area and other parts of the country and export them. Only male animals are collected. There is strong competition between the domestic market and live exporters over sheep and goats. As a result, the price of sheep and goats increases during this season. Since collection of animals for this market overlaps with the time when the Muslim community needs meat for Ramadan, there is a significant increase in the price of sheep and goats at this time.

Market channel 4: Pastoralists → Brokers → Collectors → Large traders → Individual Consumers

This channel refers to the channel in which consumers in Dire Dawa city get sheep and goats from the study area through collectors. The collectors sell the animals to large traders that have market outlet in Dire Dawa. Individual consumers usually buy from such traders.

Market channel 5: Pastoralists → Brokers → Collectors → Large traders → Butchers

Butchers in Melka Jebdu and high class butchers of Dire Dawa city get animals for slaughter from this channel. Butchers usually buy in bulk from large traders.

Constraints in the sheep and goat value chain

Major constraints hampering the performance of the sheep and goat value chain in the study area are discussed below.

Constraints in input supply

Inadequate budget, miscommunication and long procurement and dispatch process of veterinary drugs and equipment. The district agriculture office is responsible for provision of the required animal health services; however it lacks the capacity for efficient service provision. There are mis-communications during order of the required animal health drugs and vaccines at district level. Animal health service provision campaigns (treatment and/or vaccination) are only undertaken once every year and sometimes this is not even successful. This is mainly caused by inadequacy of allocated budget for veterinary drug and vaccine purchase and as procurement is handled by the regional agricultural bureau, it has a long procurement and dispatch process.

Inadequate number and capacity of Community Animal Health Worker (CAHW) and veterinary technicians. There are not enough community animal health workers and veterinary technicians in the district; existing ones lack the required capacity in knowledge and equipment.

Non-functioning animal health posts and poorly equipped CAHWs. There are 16 animal health posts in Shinelle district, but only four have adequate staff, drugs and equipment.

No formal credit services in the area for procurement of necessary inputs. Credit services are lacking and actors in the study area, especially producers, face problems when they need feed, animal health services and breeding stock. This can make it hard to sustain supply in the value chain.

Lack of feed suppliers in the area. Feed is the major determinant for any livestock production, and producers in Shinelle are short of it for most of the year. Sheep and goat production depends on poor-quality natural pasture which is only available for a maximum of five months.

Absence of knowledge and skill of sheep and goat management. Pastoralist sheep and goats are produced for subsistence and this limits the number sold in the market. Also, extension agents working in the study area have no on-the-job capacity building scheme.

Constraints to production

Feed shortages due to erratic rainfall. Feed shortage is the major constraint. Rainfall is scarce and erratic and native pasture is only available from March to July. Similarly, available feed resources are not utilized efficiently by the pastoralists and feed conservation is unknown. Consequently, pastoralists are compelled to migrate in search of feed for their sheep and goats which makes the supply of sheep and goat along the value chain inconsistent. Other feed resources such as cactus do exist, but there is no tradition of using these and other unconventional feed resources.

Lack of awareness creation on improved sheep and goat production and management.

Pastoralists are not aware of improved methods of sheep and goat production in the area; be it improved management or husbandry. Their Breeding methods are traditional and they even do not know the drawbacks that come from inbreeding. As there is no efficient delivery of animal health services, people usually use traditional treatments and animal health care. Extension agents also do not get enough training and capacity building on improved sheep and goat management, breeding, health care, etc. This restricts them from playing a role in improving the awareness of the producers on improved sheep and goats production.

Loss of production (morbidity and mortality) due to frequent and prolonged droughts.

There are no strategies for mitigating drought, so when it occurs some pastoralists lose the majority of their animals.

Prevalence of diseases and parasites. Pastoralists lack awareness and know-how on animal health care. The animal health service delivery system in the area is also very weak. Due to this, diseases like PPR, contagious caprine pleuropneumonia (CCPP), sheep and goat pox, and endoparasitic and ectoparasitic diseases and others are prevalent; this needs further investigation.

Subsistence based livestock production and lack of market orientation. Producers market sheep and goats only when they are in need of cash. This shows that production is guided by pastoralists' subsistence needs rather than market demands. The awareness, knowledge and capacity of producers and extension agents on market-oriented sheep and goat production are very low.

Short shelf life of milk due to poor handling and management and lack proper containers.

Sheep and goat are both milked, but only goat milk is marketed. Milk production, handling and management during production and marketing are all poor and conditions are unhygienic. Milk containers are also made of plastic and are very difficult to clean.

Constraints to marketing

Lack of a market information system and market regulations on market actors. When pastoralists need for cash, they just sell an animal at the market to get the right amount. They don't have market information on how much the animal might be sold for. Their animals are sold at the price set by the brokers, and brokers benefit most. This is caused by lack of consistent, reliable and accessible market information system. The absence of regulation hurts pastoralists; brokers seem to be a law unto themselves.

Long distance between the production areas and the livestock markets. Sheep and goat are marketed in Shinelle or Dire Dawa – more than 30 kilometres from some sheep- and goat-producing kebeles. Clustering of actors in these two markets makes smooth transactions difficult.

Existing market infrastructure is not functional. In Shinelle, there is a well-built livestock market place but it is not serving its intended purpose, and marketing is done elsewhere.

Poor linkage between producers and buyers. Producers do not have preferred buyers; they simply take their animals to the market and see who shows up to buy. There is no knowledge and information transfer between actors.

Poor horizontal linkages between actors in the sheep and goat value chain. Linkages and relationships within actors do not exist and majority operate on individual basis. Pastoralists do not have strong cooperatives or marketing groups, either to sell animals or buy inputs. As a result, their bargaining power is weak and they are always 'price-takers'. The only visible link between pastoralists is person to person, then information can be quickly disseminated.

Informal cross-border livestock marketing. There is informal (and more profitable) livestock cross-border marketing to Djibouti and Somalia.

Opportunities for sheep and goat value chain improvements

The major opportunities for improving the sheep and goat value chain in Shinelle are as follows.

- Huge livestock production potential and market demand: Somali Region is known for its huge livestock resource and Shinelle is a major part of that.
- Indigenous sheep and goat breeds preferred for the export market: Small ruminant breeds in the study area are indigenous and preferred for export to Middle Eastern markets. Improving the production and marketing of sheep and goat to these markets in a sustainable way is important.
- Perceived interest and willingness on the part of producers for market-oriented livestock production systems: Pastoral livestock is mainly subsistence-oriented, but demand-driven production is necessary for pastoralists to make progress, and such a paradigm shift requires knowledge and willingness. Pastoralists are willing to move toward a market-oriented systems, which is an opportunity in itself.
- Actors' interest in cooperatives: All actors along the sheep and goat value chain in the study area have a great interest in getting organized into cooperatives so as to improve their horizontal and vertical linkages.
- Availability of livestock feed and feeding technologies: The Ethiopian Somali Region Pastoral and Agro-Pastoral Research Institute (SoRPARI) has introduced different improved forage varieties and tested them for adaptability and performance in several locations. These varieties are both rainfed and irrigated, and the institute has released them to end-users. Similarly the institute generated different feeding and feed-management technology packages to help pastoralists make efficient use of available resources.
- Availability of livestock services: In Shinelle district, there are animal health posts, pastoralist training centres, livestock markets, etc. that need capacity building, both in manpower and materials.
- Ongoing initiatives of improving meat production through crossbreeding technologies (Dorper): SoRPARI has different ongoing and completed research projects on improving the production and productivity of indigenous sheep and goat breeds through crossing them with exotic breeds. Similarly, there are completed small ruminant fattening research activities for quickly attaining standard export weight (i.e. 90–120 days), aimed at investors.
- Road access from Dire Dawa to Djibouti and Somalia for export marketing: In the study area, roads and other infrastructure have been well constructed and all actors can access both domestic (Dire Dawa) and export livestock markets (Djibouti and Somalia).

Conclusions and recommendations

Shinelle district is endowed with huge livestock resources including sheep and goats, camel and cattle. Sheep and goats are sources of household nutrition and income. But the productivity of animals is very low because of low genetic performance and poor management. Lack of clear understanding about the problem of inbreeding and maintenance of a given breeding ram/buck for a very long time in a herd is one of the major causes for poor genetic performance of the available sheep and goats.

The availability of feeds and the traditional feeding practice is another important factor undermining the productivity of sheep and goats. Feed harvesting and conservation for use during the dry seasons is not common. Thus sheep and goat production depends mainly on grazing of naturally occurring pasture and browses. Animals are not provided with any supplementary feed during droughts, when pastoralists' coping strategy is simply temporary migration.

Efficient service delivery is one of the key factors influencing the efforts to develop sheep and goat value chain in the area. But the input delivery system, including veterinary services, is very weak. There are no feed suppliers or credit services. A weak and poorly coordinated service-delivery system, coupled with highly fragmented marketing that lacks strong vertical and horizontal linkages, is a major constraint.

Recommendations

Throughout the study we have identified the major constraints along the sheep and goat value chain. To improve the performance of the entire value chain we suggest the following recommendations.

Improving inputs

- To improve the availability of veterinary drugs and equipment it is crucial to have an effective revolving public fund at community level for drugs and equipment. The current drug regulatory practices should be assessed to identify gaps and put in place effective regulation.
- To improve animal health, it is recommended that new CAHWs be recruited and trained. Training of existing CAHWs and veterinary technicians needs to be prioritized. It is crucial to train the pastoral community on improved animal health care.
- To make health posts more functional, all necessary veterinary drugs and equipment need to be made available. It is important to develop, test and implement an economically viable 'business model' for the CAHWs (linking them to the private sector perhaps). Budget should be allocated for rehabilitating health posts.
- The regional government should do more to promote microfinance, and encourage new credit and savings cooperatives and strengthening the available ones.
- More and better feed is need throughout the year. This can be achieved by introducing adaptable livestock forages generated through research, and by encouraging the establishment of new livestock feed producers and producer cooperative and small-scale livestock feed suppliers through credit services.
- Training and capacity building of pastoralists and extension and development agents should be scaled up.

Improving production

- Best-bet technologies for livestock feed resources and range and flock management should be introduced. Pastoralists and extension and development agents should be thoroughly trained on them. Exploration of available unconventional feed resources such as cactus that can be of great value is also recommended. Pastoralists and agents should be given practical training on improved sheep and goat production and management, with a special focus on improved feeding and nutrition, breeding management techniques (which includes avoiding inbreeding) and improved animal health care and improved housing.
- Effective community-based drought mitigation strategies should be developed, and training and capacity building for producers and agents on these strategies must be promoted.
- To improve sheep and goat health, the awareness of pastoralists and extension agents and/or animal-health extension workers on health care must be raised, and the animal-health service-delivery system improved.
- To change the attitude of pastoralists from subsistence-based sheep and goat production to commercial production, it is vital to improve producer benefits from the value chain and the quality of the animals along it. Appropriate training for pastoralists and extension agents is also recommended.
- The skill base of pastoralists for hygienic milk production, handling and marketing techniques should be widened. Organizing them into cooperatives and linking them with buyers is an important intervention to develop quick delivery system of the milk and to bring about a dramatic improvement in quality.

Improving marketing

- Effective market information system and information flow is a backbone to improve sheep and goat value chains in Shinelle. Raising the awareness and commitment of both regional- and district-level agricultural offices on development of market information system and linking them to the National Livestock Information System is suggested. Similarly, activities of market actors need to be regulated, especially those of brokers. For this it is essential to engage concerned stakeholders with the view to establish market regulations and work towards enforcement.
- To improve the accessibility of market places, the establishment of livestock markets is of a paramount importance. Thus it is suggested that diagnosis of the density of primary and secondary markets in the area and the establishment of new markets, where necessary, should be considered.
- In order to make market infrastructures functional, it is recommended that a diagnostic survey is made to identify the exact reason for existing problems and implement recommendations suggested from the survey to reactivate those markets.
- Strong linkages between between producers and buyers are crucial, centred on knowing what quality and products buyers require and producing and supplying them. It is suggested that multi-stakeholder platforms are organized for actors to meet regularly.

- Strong horizontal linkages between value chain actors are important to enable them make a better use of the marketing process. This is difficult when actors operate on an individual basis as they currently do. Therefore it is recommended to form producer/trader cooperatives and build their capacity and knowledge on business management. In addition, exchange visits with successful communities with strong horizontal linkages is recommended.
- Informal cross-border trade should be formalized, including by the use of incentives, and stakeholder consultation platforms should be formed to discuss the issue. Strong linkages should be established between actors in Shinelle and abattoirs in other parts of the country, so producers don't feel the need to send their animals abroad.

Suggested Interventions

Value Chain Stage	Constraints	Suggested Interventions	Priority	How	Implementers	Research (R)/ Development(D)	Time Horizon
Input supply	– Inadequate budget, miscommunication and long procurement and dispatch process of veterinary drugs and equipment	– Establishment of effective revolving funds for procurement of veterinary drugs and vaccines at community level by organizing cooperatives.	1	– Organize cooperatives, provide seed money, etc	– Bureau of Agriculture (BoA) – District Admin – NGOs at site – ICARDA/ILRI – PRIME	D	Short term (ST)
		– Implement public sector level revolving fund system.	1	– Budget allocation, develop implementation modality, Provide seed money		D	ST
		– Strengthen the regulatory aspect of drug supply from public and private sources.	1	– Assess and identify gaps in current practices, develop and enforce the regulatory mechanism		R	Medium Term (MT)
	– Inadequate number and lack of capacity of CAHWs and Vet technicians.	– Recruit new CAHWs and build their capacity.	1	– Need assessment on CAHWs & Vet Techs.	– BoA – District Admin – SoRPARI – ICARDA/ILRI – PRIME – NGOs	R	ST/MT
		– Provision of refresher courses for existing CAHWs and Veterinary technicians.	2	– Selection of trainees – Development of training materials – Conduct of ToT – Actual conduct of the training		D	ST
		– Train the pastoral community in animal health care.	1	– Monitoring and evaluation of impact			ST

	<ul style="list-style-type: none"> – Nonfunctional animal health posts and poorly equipped CAHWs. 	<ul style="list-style-type: none"> – Provision of necessary drugs and equipment to health posts – Develop, test and implement economically viable business model for CAHWs (ex. Linking them to private sector) – Maintenance and rehabilitation of animal health posts and staffing to address the gap. 	<p>1</p> <p>1</p> <p>1</p>	<ul style="list-style-type: none"> – Identification of drugs and equip. needed – Budget it – Procurement – Inventory of avail. Bus. Models & Identify potential – Piloting potential model – Allocate budget 	<ul style="list-style-type: none"> – BoA – District Admin – ICARDA/ILRI – PRIME – NGOs 	R	<p>ST</p> <p>MT</p> <p>ST</p>
	<ul style="list-style-type: none"> – No credit service facilities and practices in the area for procurement of necessary inputs. 	<ul style="list-style-type: none"> – Establish MFIs in the region – Encourage and support formation/strengthening of credit and saving cooperatives 	<p>1</p> <p>1</p>	<ul style="list-style-type: none"> – Discuss with the regional government and find mechanisms to bring the regional MFI in to the district. – Current status assessment of saving and credit coop. and gap. – Where approp. Establish new ones or strengthen the existing. 	<ul style="list-style-type: none"> – BoA – District Admin – MFIs (Regional) – ICARDA/ILRI – PRIME – NGOs 	D	<p>MT/LT</p> <p>MT/Long term (LT)</p>

				<ul style="list-style-type: none"> Assess mechanisms of building their financial capacity 			
	<ul style="list-style-type: none"> Lack of feed supply 	<ul style="list-style-type: none"> Encourage and support formation of livestock feed producers/producer cooperatives. Encourage and support small scale livestock feed suppliers 	<p>1</p> <p>1</p>	<ul style="list-style-type: none"> Identify potential feed sources for the area Test the adaptability of forages Facilitate credit service Training on business management development of supportive policies/incentives 	<ul style="list-style-type: none"> BoA District Admin SoRPARI ICARDA/ILRI PRIME NGOs 	<p>R</p> <p>R</p> <p>D</p> <p>D</p> <p>D</p>	<p>MT</p> <p>MT</p>
	<ul style="list-style-type: none"> Absence of knowledge and skill on sheep and goat management. 	<ul style="list-style-type: none"> Build the knowledge and capacity of pastoralists, extension agents and DA on sheep and goat management skills 	<p>1</p>	<ul style="list-style-type: none"> Need assessment on pastoralists & DAs. Selection of trainees Development of training materials Conduct of ToT Actual conduct of the training Monitoring and evaluation impact 	<ul style="list-style-type: none"> BoA District Admin SoRPARI ICARDA/ILRI PRIME NGOs 	<p>D</p>	<p>ST</p>
Production	<ul style="list-style-type: none"> Feed shortages due to erratic rainfall. 	<ul style="list-style-type: none"> Introduce proper conservation and efficient utilization of available feed resources and range & flock management. 	<p>1</p>	<ul style="list-style-type: none"> Identify potential feed utilization and conservation approaches Select best-bet practices 	<ul style="list-style-type: none"> BoA District Admin SoRPARI ICARDA/ILRI PRIME NGOs 	<p>D</p>	<p>ST/MT</p>

		<ul style="list-style-type: none"> – Explore locally available non-conventional feeds (eg. Cactus) and their efficient utilization. 	1	<ul style="list-style-type: none"> – Train and raise awareness on the best-bet practices. – Follow up Implementation – Introduction and evaluation of potential cactus varieties and other nonconventional feeds. 		R	MT
	<ul style="list-style-type: none"> – Lack of awareness creation on improved sheep and goat production and management practices 	<ul style="list-style-type: none"> – Train extension agents in sheep and goat production and management practices with special focus on feeding, breeding management (I.e. in breeding), housing, health care, etc 	1	<ul style="list-style-type: none"> – Need assessment on DAs. – Selection of trainees – Development of training materials – Conduct of ToT – Actual conduct of the training – Monitoring and evaluation impact 	<ul style="list-style-type: none"> – BoA – Woreda admin – SoRPARI – ICARDA/ILRI – PRIME 	D	ST
	<ul style="list-style-type: none"> – Prevalence of diseases and parasites 	<ul style="list-style-type: none"> – Awareness rising of the pastoral community in animal health care. – An effective animal health delivery service 	1 1	<ul style="list-style-type: none"> – Mobilization of CAHWs and Vet. Technician – Carry out epidemiological study – Implement effective vaccination 	<ul style="list-style-type: none"> – BoA – District Admin – SoRPARI – ICARDA/ILRI – PRIME – NGOs 	R D D	ST MT
	<ul style="list-style-type: none"> – Subsistence based 	<ul style="list-style-type: none"> – Train pastoralists and 	1	<ul style="list-style-type: none"> – Need assessment 	<ul style="list-style-type: none"> – BoA 	D	ST

	<p>livestock production and lack of market orientation</p>	<p>extension workers in market oriented livestock production</p> <ul style="list-style-type: none"> - Facilitate input provision that support market oriented production system 	1	<ul style="list-style-type: none"> - Selection of trainees - Development of training materials - Conduct of ToT - Actual conduct of the training - Monitoring and evaluation impact - Identifying and prioritizing input requirement. - Encourage and support credit and saving cooperatives to play a role in input provisions and marketing. - Build the capacity of input suppliers (Cooperatives, small scale, rural private suppliers) 	<ul style="list-style-type: none"> - Woreada Admin - ICARDA/ILRI - PRIME 	D	MT
	<ul style="list-style-type: none"> - Short shelf life of milk due to poor handling and management, lack of improved/standard milk containers and equipment's 	<ul style="list-style-type: none"> - Train pastoralists in milk handling and quality maintenance. - Develop quick delivery 	1	<ul style="list-style-type: none"> - Assessment of bacteriological quality of raw milk - Need assessment on pastoralists. - Selection of trainees - Development of training materials - Conduct of ToT - Actual conduct of the training 	<ul style="list-style-type: none"> - BoA - District Admin - SoRPARI - ICARDA/ILRI - PRIME - NGOs 	R	ST

		systems through establishing cooperatives and linking them to buyers.	2	<ul style="list-style-type: none"> – Monitoring and evaluation impact. – Identify strengths and weakness of current delivery system – Strengthening existing cooperative engaged in milk delivery. 			MT/LT
Marketing	<ul style="list-style-type: none"> – Lack of market information system and market regulations on market actors 	<ul style="list-style-type: none"> – data collection and transmission from livestock markets in district (making it the responsibility of district agriculture office) – Linking the district with national livestock market information system – Establish and enforce market regulations (activity of actors) 	1	<ul style="list-style-type: none"> – Awareness rising on NLIS – Field data collectors have to be trained on digital inform. technology – Institutionalizing – Identify gaps and develop rules and regulations – Carry out awareness and multi stakeholder consultation on those rules and regulations – Enforcement 	<ul style="list-style-type: none"> – MoA – BoA – Woreada Admin – SoRPARI – ICARDA/ILRI – PRIME 	D	MT
			1			R	MT
	<ul style="list-style-type: none"> – Long distance between the production areas and the livestock markets 	<ul style="list-style-type: none"> – Support establishment of livestock markets where it is necessary. 	1	<ul style="list-style-type: none"> – Undertaking diagnostic survey to understand the density of primary and secondary market in the area. 	<ul style="list-style-type: none"> – SoRPARI – MoA – BoA – District Admin – ACDI/VOCA – ICARDA/ILRI – PRIME – NGOs (Oxfam) 	R	MT
	<ul style="list-style-type: none"> – Existing market infrastructure not 	<ul style="list-style-type: none"> – Reactivate the market function 	1	<ul style="list-style-type: none"> – Identify the reason for non-functionality of 	<ul style="list-style-type: none"> – BoA 	R	ST/MT

		<ul style="list-style-type: none"> Facilitate experience sharing through exchange tours/visits for improved market linkages 		<ul style="list-style-type: none"> We need to also find ways of mobilizing finance or linking the cooperatives to MFIs. Scan communities with successful horizontal linkages between value chains actor Plan visits for experience sharing 			
	<ul style="list-style-type: none"> Unregulated informal cross border livestock marketing. 	<ul style="list-style-type: none"> Encourage formal trade with proper quarantine and certification among actors (ex. Brokers) 	3	<ul style="list-style-type: none"> Stakeholders consultation Formal linkages with abattoirs Incentives 	<ul style="list-style-type: none"> BoA Woreada Admin SoRPARI ICARDA/ILRI PRIME Customs Auth. MoA Private abattoirs Banks ELAEA 	D	MT/LT

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