

Heading towards commercialization? The case of live animal marketing in Ethiopia

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Abstract

The current levels of contributions of the livestock subsector in Ethiopia, at either the macro or micro level, is below potential. Policy, technological, organizational and institutional interventions to improve the contributions of livestock to the national economy need to be based on an understanding of the constraints and opportunities available based on sound theoretical and empirical analysis. This rapid marketing appraisal study is aimed at assessing the supply chains of live cattle and live shoats in the four Ethiopian regional states of Tigray, Amhara, Oromia and the Southern Nations, Nationalities and Peoples region (SNNPR). Livestock production in Ethiopia is based on traditional technology and practices, and is subsistence oriented. Although efforts are being made to introduce and promote market oriented livestock production, with or without fattening, these efforts are miniscule compared with the size of the livestock population and the number of household who rear them. Hence, it is important to build on these efforts, evaluate them to learn lessons, and strengthen the extension service to promote the market orientation among the wider farming population. In most of the study areas, feed shortage was identified as the most important constraint to livestock production. In some of the study areas, livestock diseases were identified as most important constraint, followed by feed shortage. Potential solutions to the feed problem vary depending on the resource bases of a particular intervention area. The relative bias of the extension service in favour of crop production has left the livestock extension service too limited. This calls for the need to invigorate the livestock extension service throughout the country. Especially, the development of market oriented livestock extension service deserves serious attention. Livestock credit supply falls short of demand in many of the study areas and some farmers complained about the periodic repayment schedule of the livestock credit. On average, there are four livestock market places per *woreda*. The primary markets in some of the Pilot Learning *Woredas* (PLWs) are fenced in which the respective municipalities charge buyers and sellers tax for sold animals upon exit. Farmers and traders in all of the study sites reported no or very little access to formal livestock marketing information. Farmers in all PLWs depend on actual market day information for prices and selling decisions. Livestock traders are almost exclusively male. Key informants indicated that there are no farmer associations or cooperatives involved in livestock marketing in the *woredas*, except in some areas where export abattoirs have established livestock marketing cooperatives and unions. The reasons for selling livestock, as reported by farmers, include the need to cover incidental cash expenses to fill household food deficit gaps, buy clothing, cover school and medical fees, cover expenses for social events, down payment for credit and credit repayments, payment for labour for agricultural activities, buy other animals, and to purchase crop inputs. Forced sales due

to shortage of feed and water during the dry period were also widely mentioned. The sale of male shoats dominates the sale of females. The age of shoats supplied to the markets in the eight PLWs ranges from 1 to 2 years. The most common weight of shoats offered for sale ranges between 15 to 25 kg live weight. In almost all PLWs livestock are transported mainly by trekking. Farmers and traders indicated a number of problems affecting marketing of shoats and cattle. The major ones include inadequate market places, lack of adequate supply of good condition animals, lack of holding (concentration) places, feed shortage, shortage of stock supply for fattening/reproduction, lack of market information and low price due to poor body conditions.

1 Introduction

Ethiopia ranks first in Africa and tenth in the world with respect to livestock population. Livestock are integral components of the Ethiopian farming systems, and perform multiple functions at different levels of aggregation. At individual smallholders' level, livestock are important source of food (meat and milk), cash income, services (transport and traction) and manure (for soil fertility management and fuel). Livestock have also social and cultural values among producers, particularly pastoralists.

The livestock subsector also provides wide and year-round employment opportunities for surplus family labour in rural Ethiopia (MEDaC 1999). Cash income from livestock production is especially important for the poor and landless Ethiopian households, particularly women, as is also true in many other developing countries (Delgado et al. 1999; Thornton et al. 2002). Income from livestock production is also used for income diversification investment activities (Little et al. 2001). For the average rural farm household with limited investment alternatives, livestock are used as store of wealth and hedge against inflation.

The current levels of contributions of the livestock subsector in Ethiopia, at either the macro or micro level, is below potential. The levels of foreign exchange earnings from livestock and livestock products is also much lower than would be expected, given the size of the livestock population. A number of fundamental constraints underlie these outcomes, including traditional technologies, limited supply of inputs (feed, breeding stock, artificial insemination and water), poor or non-existent extension service, high disease prevalence, poor marketing infrastructure, lack of marketing support services and market information, limited credit services, absence of effective producers' organizations at the grass roots levels, and natural resources degradation.

On the other hand, Ethiopia has a suitable environment for livestock production. Its vast grazing land area, if properly developed and managed, such as by introducing improved forage species and cut and carry systems, could contribute significantly to the alleviation of the feed shortage problem. Its indigenous livestock breeds which have good meat quality could increase marketable surplus if improved management practices are used. The growing domestic demand which results from increased urbanization, higher incomes due to economic growth, and rising population, offers significant incentive for increased market oriented livestock production. The increasing export demand for meat and live animals in the Middle East also offers Ethiopia an opportunity to expand its export earnings.

Policy, technological, organizational and institutional interventions to improve the performance of livestock supply chains need to be based on an understanding of the constraints and opportunities available based on sound theoretical and empirical analysis. An assessment of the technical factors affecting livestock productivity and production; the effectiveness of input supply, credit and extension services; producers' sales behaviour; livestock market participants, and marketing routes and channels; animal prices, marketing costs and margins; and marketing support services is required to gain a comprehensive understanding of the livestock supply and marketing system. In other words, investigation of livestock supply chains is essential to provide information on the current operation of the chains and identify potential constraints that need to be alleviated and opportunities that need to be utilized.

This rapid marketing appraisal study is aimed at assessing the supply chains of live cattle and live shoats in the four Ethiopian regional states of Tigray, Amhara, Oromia and the Southern Nations, Nationalities and Peoples region (SNNPR). This study is part of the livestock and livestock products marketing research study initiated by the Improving Productivity and Market Success (IPMS) of Ethiopian farmers project, a project implemented by the International Livestock Research Institute (ILRI) on behalf of the Ethiopian Ministry of Agriculture and Rural Development (MoARD).¹

The study is aimed at generating a qualitative understanding of the livestock supply and marketing situations in the four regions in general and in the eight Pilot Learning *Woredas* (PLWs) of the IPMS project (two in each region) in particular, including identification of major actors, trade routes, market outlets, and major problems of cattle and shoats production and marketing. This research study specifically attempts to identify leverage points of intervention in the supply chain in order to realize improvements that could benefit smallholders. The research, it is hoped, will contribute to filling the knowledge gap on marketing of live animals in Ethiopia.

The paper is organized as follows. Section two describes the method of study. Section three presents brief descriptions of the PLWs, while section four presents analysis of the trends in livestock population in Ethiopia. Section five deals with live animals production conditions. Section six deals with live animal production support services. Section seven deals with market structure, while section eight presents household marketing behaviour and price determination. Section nine concludes the paper and presents implications.

1. For more information about the IPMS Project, visit the project website: www.ipms-ethiopia.org.

2 Study methodology

The study was conducted in 2005/06 production year and all data and information pertain to the same year. The research follows the rapid appraisal of value chains approach (Holtzman 1995; Morris 1995). The study was conducted in the four Ethiopian regional states of Tigray, Amhara, Oromia and the SNNPR, with particular focus on the eight Pilot Learning *Woredas* (PLWs) (districts) of the Improving Productivity and Market Success (IPMS) of Ethiopian farmers project (two PLWs in each region) (Figure 1).

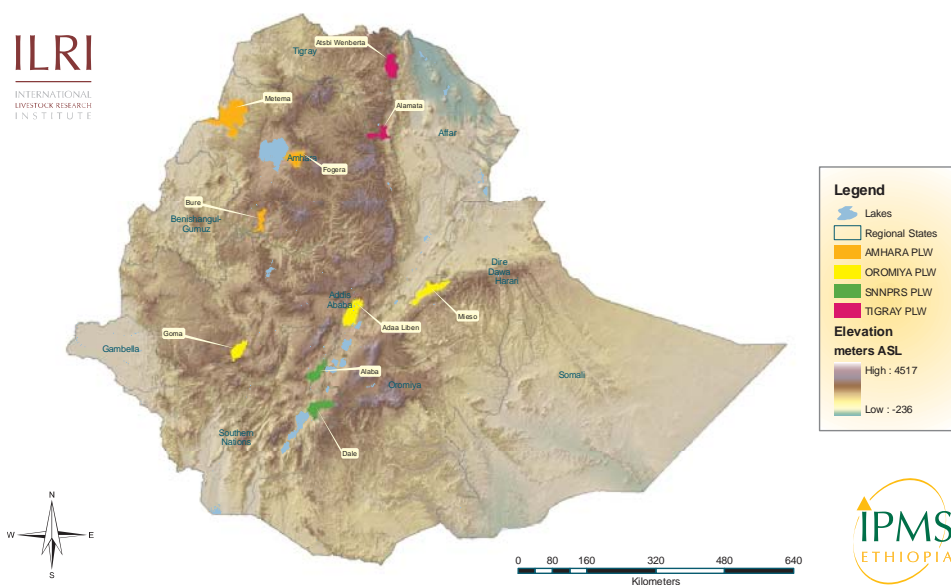


Figure 1. IPMS Pilot Learning Woredas.

Information was collected through discussions with key informants (producers, traders and agricultural experts) and key observants, and review of secondary literature and analysis of available secondary data. Discussions were held with experts of the respective *woreda* Offices of Agriculture and Rural Development (OoARD) and development agents (DAs); staff of the *woreda* Offices of Small and Micro Enterprises, Trade and Industry (OoSMTI) in the regions of Amhara and Tigray.

Discussions were also held at the regional level with officials and experts of the Bureaus of Agriculture and Rural Development (BoARD); directors and researchers of the four regional agricultural research institutes, namely Tigray Agricultural Research Institute

(TARI), Amhara Region Agricultural Research Institute (ARARI), South Agricultural Research Institute (SARI) and Oromia Agricultural Research Institute (OARI). Deliberations were also made with officials of the regional Bureaus of Trade, Transport and Industry (BoTTI), and officials of the regional Bureaus of Finance and Economic Development (BoFED).

Each of the regions is constituting an agricultural marketing agency either as an autonomous body or affiliated with the regional BoARD. Hence, discussions were made with experts of the Tigray Agricultural Marketing Promotion Agency (TAMPA), the SNNPR Export Products Promotion Agency (EPPA) (now renamed as South Agricultural Marketing Agency), officials of the Awassa and Tigray Chambers of Commerce and Sectoral Associations; and experts of the SNNPR and Tigray branch offices of the Central Statistical Authority (CSA). Municipality employees who collect tax at market places in SNNPR and Tigray regions provided useful information on marketing and sales conditions in the market places.

Managers and/or staff of livestock export and meat processing businesses were useful sources of information and ideas on the supply sources, constraints and opportunities these businesses were facing. Accordingly, discussions and exchange of ideas were made with managers and/or staff of the Modjo Modern Export Abattoir, Luna Export Slaughterhouse, and Modjo Organic Export Abattoir (all located at Modjo town, Oromia region); Helmex Export Abattoir and Elfora Debre Zeit Export Abattoir (both located at Debre Zeit town, Oromia region); Elfora Metehara Export Abattoir (located at Metehara, Afar Region); Elfora Melge Wondo Meat Plant Agro-industrial PLC (located in Wondo, SNNPR); Elfora Gonder Food Processing Plant (located at Gonder, Amhara region); and Abergelle International Livestock Development PLC (located at Mekelle, Tigray region).

Discussions with key informants were supplemented with personal observations of livestock market places. Secondary data were collected from regional and *woreda* level sources, as well as from the statistical abstracts of the Ethiopian Central Statistical Authority (CSA).

Following the framework of supply chains and associated business development services, the rapid appraisal study attempted to collect and *analyse* information on mode of production (production technology) and production orientation (subsistence or market oriented); livestock production support services (input supply, extension and credit); market environment, actors and channels (market places, market access, access to market information, livestock transportation, policy and regulatory issues, traders and brokers, meat processors and live animal exporters, and market channels); household live animal marketing and price determination (farmer decisions to participate in market

as sellers, time and frequency of sale, characteristics of animals offered for sale, price determination), among others. Triangulation techniques were used to verify the validity of the data and information. This report synthesizes the findings of the rapid livestock marketing appraisal in the four regions. Checklists used for the rapid appraisal study are given in Annex 1.

3 Description of the case study pilot learning *woredas* (PLWs) (districts)

Results are based on data and information collected through rapid market appraisal (RMA) method on live animals value chains in eight *woredas* (two *woredas* in each of the four regions where IPMS is operational): Atsbi Wonberta and Alamata (in Tigray); Fogera and Metema (in Amhara); Ada'a-Liben and Mieso (in Oromia) and Alaba and Dale (in SNNPR) (see Figure 1 for distribution of the *woredas*). Below, we give a brief description of each *woreda* with special emphasis on livestock production.

Human population density, elevation and rainfall for each study *woredas* are given in Table 1. The *woredas* of Metema and Mieso have low population density (below 50 persons/km²), while the others have population densities of above 200 persons/km², except Atsbi Wonberta, which has population density of about 120 persons/km². Dale *woreda* has the highest population density, followed by Alaba. Metema and Mieso *woredas* are predominantly lowland areas (below 1500 metres above sea level, masl), while Atsbi Wonberta is predominantly high altitude area, with the rest being mid-altitude areas. Rainfall is highest in the *woredas* of Dale and Fogera, and lowest in Atsbi Wonberta (Table 1).

Table 1. Area and population data in surveyed pilot learning *woredas*

PLWs	Area (km ²)	Population	Population/km ²	Average elevation (masl) (min, max)	Average rainfall
Atsbi Wonberta	885.3	108,700	122.78	2213.72 (922, 3069)	538.29
Alamata	550.3	128,872	234.18	1794.83 (1175, 3114)	711.21
Metema	3995	73,193	18.32	845.97 (520, 1608)	943.73
Fogera	1095	243,296	222.19	1924.54 (1774, 2516)	1217.46
Ada'a-Liben	1635.2	332,017	203.04	1982.22 (1701, 3050)	921.32
Mieso	2573.4	128,889	50.09	1337.47 (913, 2474)	793.26
Alaba	973.8	255,127	261.99	1836.37 (1555, 2261)	994.69
Dale	1326.4	416,842	314.27	1802.75 (1626, 2423)	1209.14

Source: IPMS (2005).

Livestock population density and per capita livestock holdings are given in Table 2. The per capita cattle population in the *woredas* ranges from 0.40 (in Dale) to 1.42 (in Metema). Dale and Metema *woredas* also have the highest and lowest human population, respectively. The per capita sheep and goat population is much lower than that of cattle. The per capita goat population ranges from 0.04 (in Dale) to 0.41 (in Metema), while the per capita sheep population ranges from 0.03 (in Fogera) to 0.74 (in

Atsbi Wonberta). Cattle population density also ranges from 0.26 per hectare (in Metema) to 1.66 per hectare (in Alaba). Table 2 indicates a negative correlation between per capita holding and livestock population density. Sheep population density per hectare ranges from 0.01 (in Metema) to 0.91 (in Atsbi Wonberta) and the goat population density ranges from 0.07 (in Metema) to 0.44 (in Alaba).

Table 2. Livestock population densities and per capita livestock holdings in the study woredas

PLWs	Cattle			Sheep			Goat		
	Total	Per ha	Per capita	Total	Per ha	Per capita	Total	Per ha	Per capita
Atsbi Wonberta	58,264	0.66	0.54	80,882	0.91	0.74	22,264	0.25	0.20
Alamata	83,589	1.52	0.65	7,607	0.14	0.06	27,867	0.51	0.22
Metema	103,756	0.26	1.42	4,956	0.01	0.07	29,863	0.07	0.41
Fogera	157,128	1.43	0.65	7,607	0.07	0.03	27,867	0.25	0.12
Ada'a-Liben	160,697	0.98	0.48	22,181	0.14	0.07	37,510	0.23	0.11
Mieso	92,411	0.36	0.72	7,325	0.03	0.06	41,869	0.16	0.32
Alaba	161,566	1.66	0.63	34,760	0.36	0.14	43,141	0.44	0.17
Dale	166,142	1.25	0.40	19,492	0.15	0.05	17,248	0.13	0.04

Source: IPMS (2005).

In Atsbi Wonberta *woreda*, sheep and goat production is an important source of cash income for smallholders. The shoats from the *woreda* are preferred by consumers and have high demand. As such, the *woreda* is an important supplier of sheep and goats especially to the regional capital town of Mekelle, but also to the nearby towns of Wukro, Edaghamus, and Adigrat. The sheep and goat skins are also reportedly of high quality because of their high fibre content. In Alamata *woreda*, cattle sales is an important source of cash income making the *woreda* an important cattle supplier to the regional capital of Mekelle.

Fogera *woreda* is an important supplier of cattle, but is a net importer of small ruminants.¹ Metema *woreda* shares an extensive border with the Sudan. As such, live animal trade to Sudan is an important activity. Ada'a-Liben *woreda* is an important supplier of livestock (cattle and shoats) to the surrounding markets, including Addis Ababa. Its proximity to Addis Ababa and its location at the gate of transport to the eastern and southern parts of the country makes it an important livestock market area.

Mieso is the only *woreda* among the study *woredas* that have pastoral and agro-pastoral farming systems, in addition to mixed crop–livestock sedentary system. About half of

1. Fogera *Woreda* is the origin of the famous beef-dairy cattle breed popularly known as Fogera breed.

the *woreda* is under pastoral and agro-pastoral system, accounting for the majority of livestock population, while the sedentary mixed crop–livestock system accounts for more than half of the *woreda*'s population. Households in this *woreda* derive substantial income from the sale of live animals (sheep, cattle and camels), milk and milk products. In terms of marketed volume, goats, cattle, sheep and camels are important in that order. Given the low potential for crop production due to thin soils and low rainfall, livestock production appears to have comparative advantage in the *woreda*. Dale *woreda* supplies small ruminants to surrounding markets. Alaba *woreda* is an important supplier of small ruminants to the surrounding markets and to Addis Ababa.

4 Trends, growth rate and shares of regions in livestock population

4.1 Trends and growth rates of livestock population in Ethiopia (1997/98–2004/05)

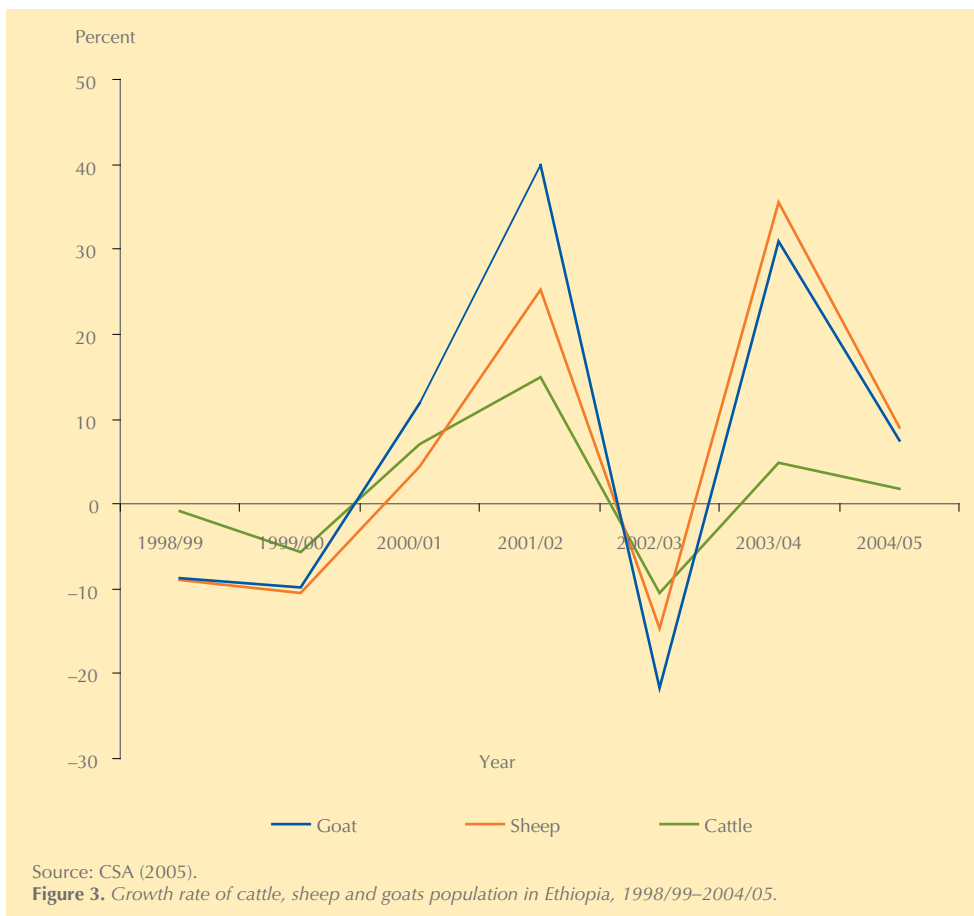
The cattle population of Ethiopia has been increasing during 1997–2005. During this period, the cattle population increased from 35 million to about 39 million heads of cattle.¹ In the same period, the sheep and goat population of the country increased from about 13 million to about 18 million and from 10 million to nearly 15 million, respectively (Figure 2).



However, there have been fluctuations in the size of the livestock population in the country. Both positive and negative annual growth rates were recorded (Figure 3). Interestingly, the sign of growth rates are consistent across cattle, sheep and goats. Negative growth rates were observed for 1998/99, 1999/2000 and 2002/03. The highest

1. Since data were missing for 2002/03, three years moving averages were used.

growth rate was observed for goats during 2001/02, which showed an annual growth rate of nearly 40%, followed by sheep (25%) and cattle (15%). Rainfall was high during 2001/02. The average annual growth rates for the period were 1.6, 5.75, and 7.54% for cattle, sheep and goats, respectively.

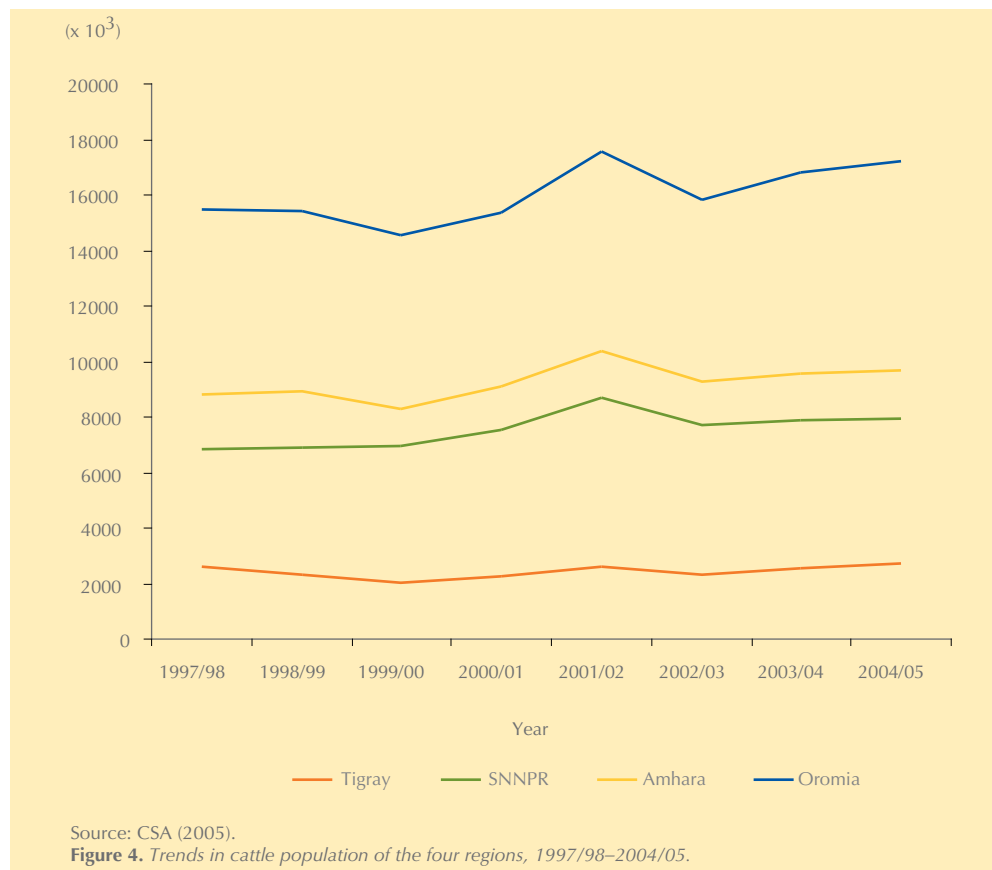


4.2 Trends and growth rates of livestock population by region, and share of regions

Cattle

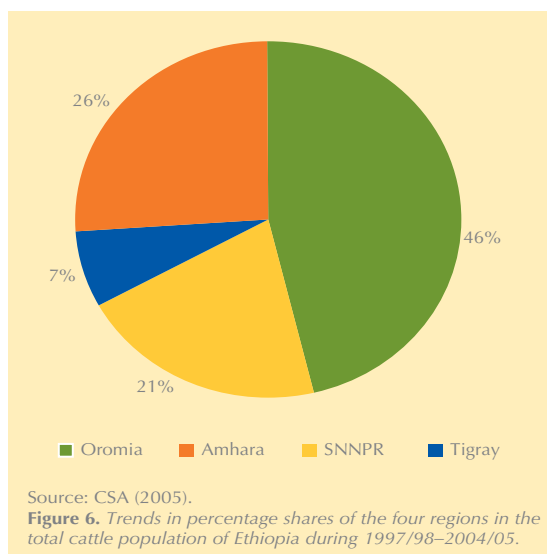
The average cattle populations for the 1997/98–2004/05 period were about 17.0 million, 9.6 million, 7.9 million and 2.6 million, for Oromia, Amhara, SNNPR and Tigray regions, respectively. Cattle population showed an increasing trend in all regions during the period (Figure 4). In Tigray, cattle population rose from about 2.6 million in 1997/98 to 2.7 million in 2004/05, while the population in Amhara rose from about 8.8 million in 1997/98 to 9.7 million in 2004/05. Similarly, in Oromia, the cattle population rose from

about 15.5 million in 1997/98 to 17.2 million in 2004/05, and the population in SNNPR, rose from about 6.8 million in 1997/98 to 7.9 million in 2004/05.



Cattle population grew by annual average rates of 1.33, 1.74, 1.80 and 2.45% in the regions of Tigray, Amhara, Oromia and the SNNPR, respectively, during 1997/98–2004/05. However, there were negative growth rates in cattle population in some years in the regions, notably in Tigray during this period (Figure 5). More than 10% drop in cattle population was observed in Tigray during the 1997/98 and 1999/2000, and 2002/03. All three years were years of low rainfall. In Amhara, negative growth rates of 7 and 11% were recorded in 1999/2000 and 2002/03, respectively. In Oromia, negative growth rates were recorded in 1999/2000 and 2002/03. The SNNPR recorded negative growth rate only in 2002/03.

The average regional shares in cattle population in the total cattle population of the country during the period were about 7, 26, 46 and 21%, for Tigray, Amhara, Oromia and the SNNPR, respectively (Figure 6). The shares of the regions remained fairly constant during the period (Figure 7). The average annual growth rates of the shares ranged only between –0.07 to 0.06%.

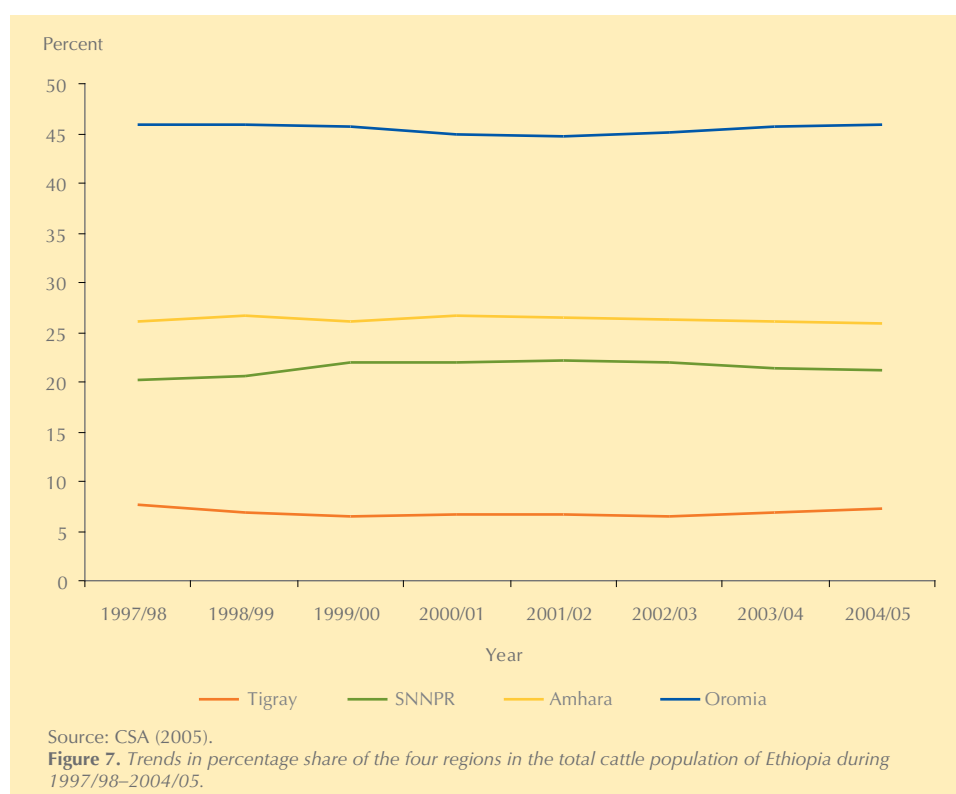


Sheep

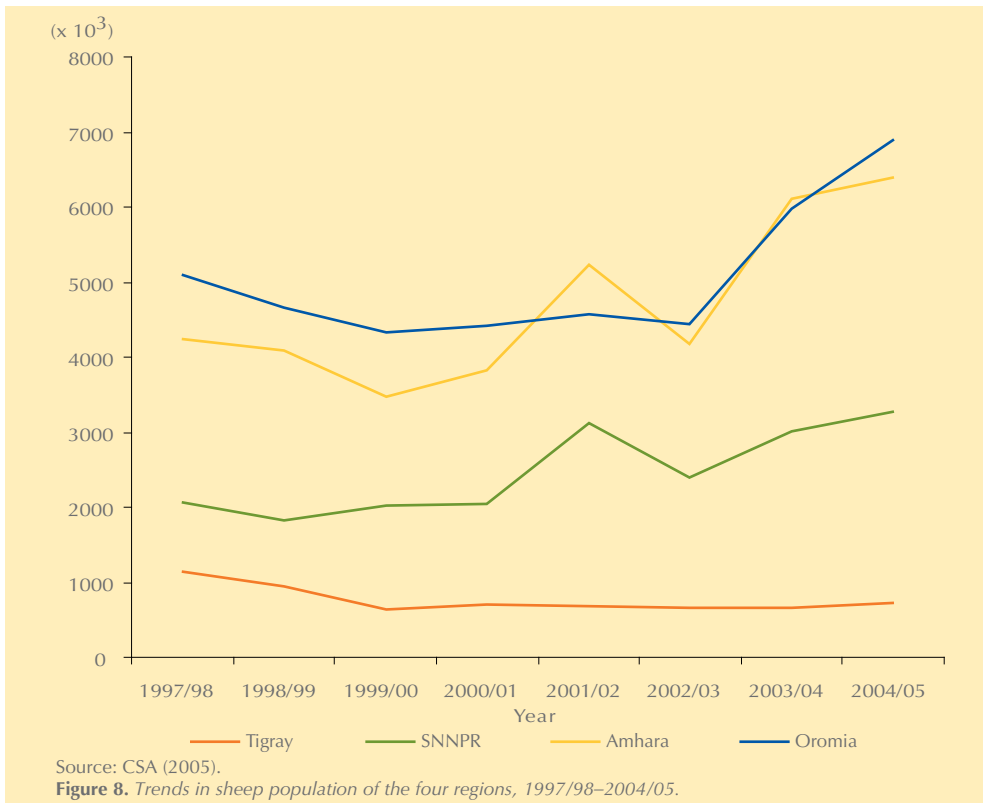
The average sheep populations for the 1997/98–2004/05 period were about 5.0 million, 4.7 million, 2.5 million and 0.8 million, for Oromia, Amhara, SNNPR and Tigray regions, respectively. Sheep population showed an increasing trend in all regions but Tigray (Figure 8). In Tigray sheep population dropped from about 1.1 million in 1997/98 to

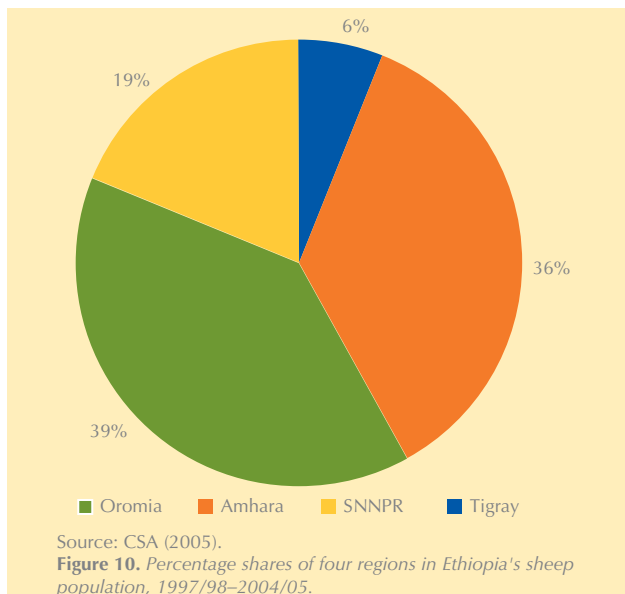
0.73 million in 2004/05, while in Amhara, the population rose from about 4.2 million in 1997/98 to 6.4 million in 2004/05. Similarly, sheep population rose from about 5.1 million in 1997/98 to 6.4 million in Oromia, and from 2.1 million to 3.3 million in SNNPR.

Sheep population grew by annual average rates of -5.05 , 8.46 , 5.33 and 9.14% in Tigray, Amhara, Oromia and SNNPR, respectively. Although all regions recorded negative growth rates of sheep population in some years during the period, very high negative growth rates were recorded in Tigray (Figure 9). Growth rates of about -18% and -33% were recorded in Tigray in 1998/99, 1999/2000, respectively, while positive growth rates of more than 11% were recorded in the years of 2000/01 and 2004/05, the years of high rainfall. The fluctuations in sheep population in Tigray is indicative of the need to look very carefully at the reasons for the dropfall in population.



The average regional shares in sheep population in the total sheep population of the country during the period were about 6, 36, 39 and 19% for Tigray, Amhara, Oromia and the SNNPR, respectively (Figure 10). The share of Tigray in sheep population among the regions dropped by an average annual growth rate of -9.11% , while the shares of Amhara, Oromia and the SNNPR increased by annual average growth rates of 1.52 , 0.13 and 2.74% (Figure 11).





Goats

The average goat population for the 1997/98–2004/05 period were about 4.47 million, 4.04 million, 2.3 million and 2.06 million for Oromia, Amhara, SNNPR and Tigray regions, respectively. Goat population showed an increasing trend in all regions (Figure 12). In Tigray goat population increased from about 1.54 million in 1997/98 to 2.1

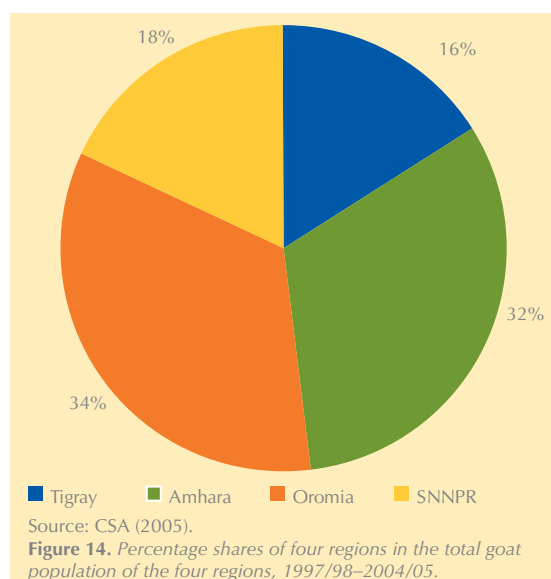
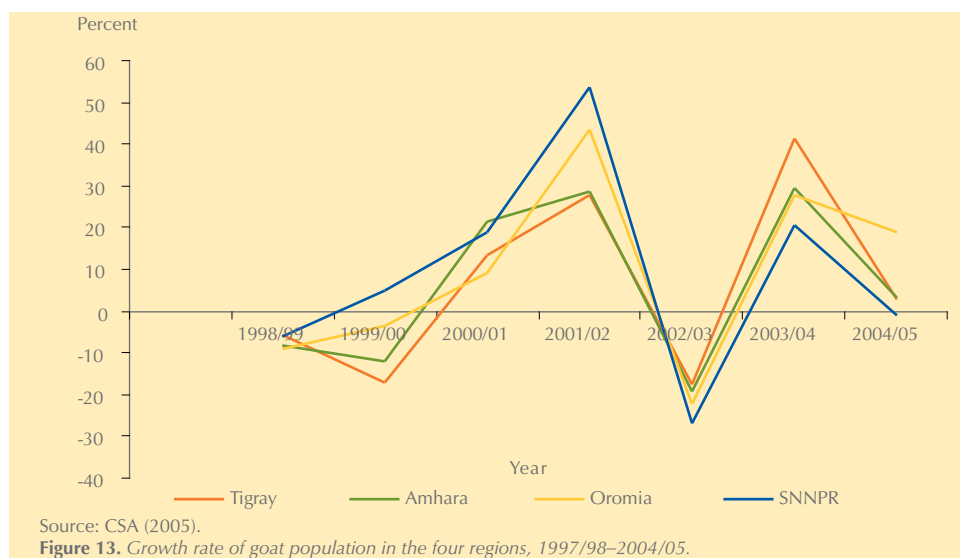
million in 2004/05, while in Amhara, the population rose from about 3.02 million in 1997/98 to 4.1 million in 2004/05. Similarly, goat population rose from about 3.0 million in 1997/98 to 4.8 million in Oromia, and from 1.5 million to 2.3 million in SNNPR.

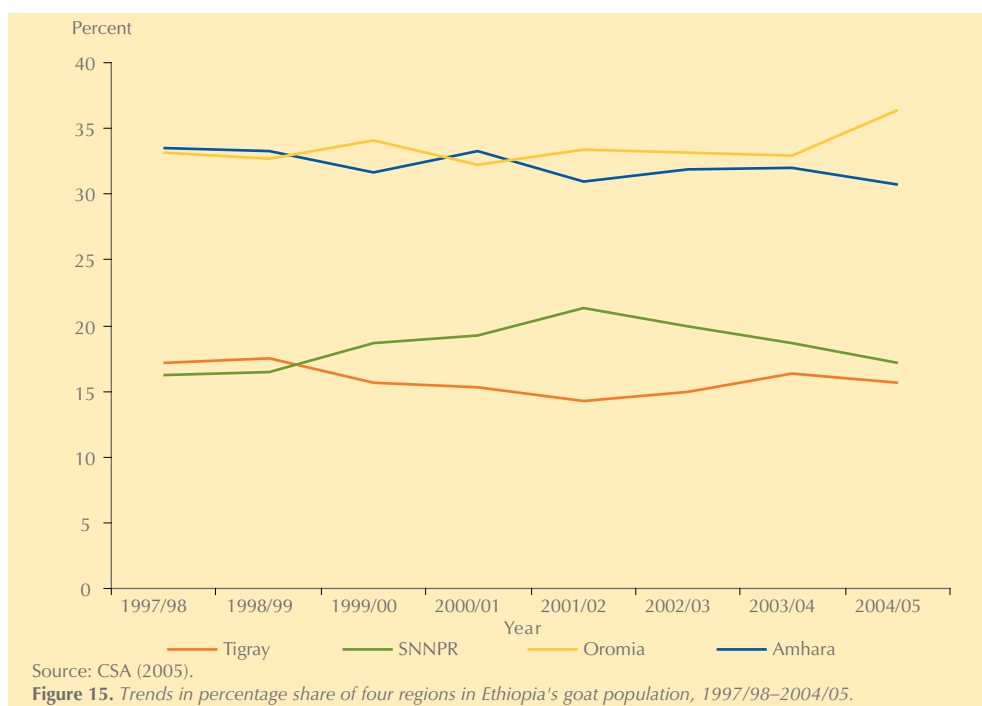


During 1997/98–2004/05, goat population grew by annual growth rates of 6.4, 6.15, 9.2 and 9.14% in Tigray, Amhara, Oromia and SNNPR, respectively. All regions recorded negative growth rates of goat population in some years during the period (Figure 13). The highest negative growth rates in goats population were recorded in 2002/03 (ranging from –17% in Tigray to –27% in SNNPR), a year of low rainfall. Very high positive growth rates were also recorded for the year 2001/02 (ranging from 28% for Tigray to 53% for SNNPR), consistent with the amount of rainfall. The high fluctuation in goats’ population in the regions is indicative of the need to look closely at the reasons beyond the rainfall factor in order to devise means to counteract the fluctuation.

The average regional shares in goats’ population in the total goat population of the country during the period were about 15.87, 32.12, 33.5 and 18.45% for Tigray, Amhara,

Oromia and the SNNPR, respectively (Figure 14). Among cattle, sheep and goats, Tigray has the highest share in goats' population. In 1997/98 and 1998/99, Tigray's share in goats population was higher than that of the SNNPR, a condition which had been reversed since 1999/2000. The share of Tigray and Amhara in the total goat population of the four regions declined by an average annual rate of -1.83% and -2.0% , respectively, during the period, while the share of Oromia and SNNPR grew by annual average rate of 2.52% and 2.06% , respectively (Figure 15).





4.3 Per capita cattle, sheep and goat population in the four regions

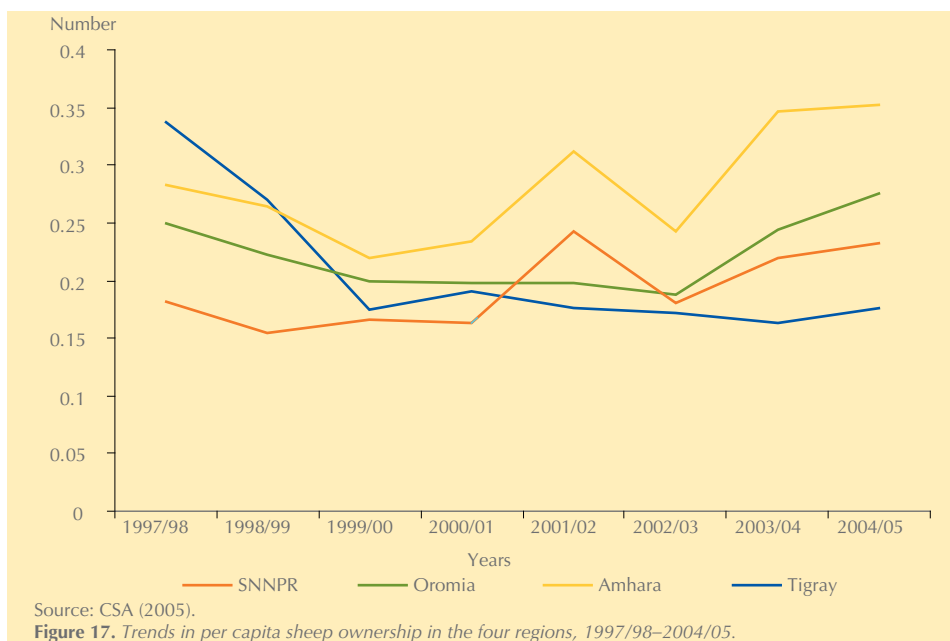
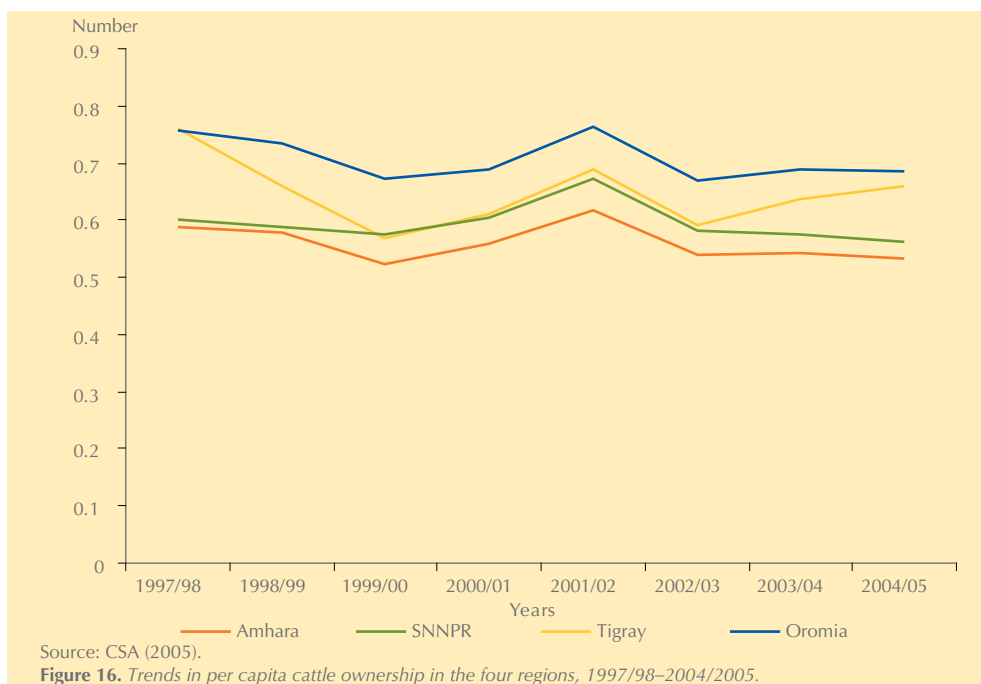
The absolute number of livestock population and the regional shares provide useful information in terms of the magnitude of importance livestock have in each region. However, it is also important to ask the extent of contribution livestock make at the household level. One general indicator of such importance would be the size of per capita holding. In this section, we *analyse* the average per capita holding of cattle, sheep and goats by region.

Cattle

The average per capita holdings of cattle did not differ much across the regions during 1997/98–2004/05, ranging only from 0.71 (in Oromia) to 0.56 in (Amhara). The per capita cattle population was consistently (although only slightly) highest in Oromia, followed by Tigray, Amhara and SNNPR through the 1997/98 to 2004/05 period (Figure 16).

Sheep

As with cattle, the average per capita livestock population of sheep did not show much difference across the four regions during the same period, ranging only from 0.28 (in Amhara) to 0.19 (in SNNPR). Unlike with cattle, the relative per capita sheep population of the regions changed during the period (Figure 17). For example, Tigray had the highest per capita sheep population in 1997/98 but the lowest since 2001/02.



Goats

Compared with cattle and sheep, a larger difference was observed in the per capita goat population across the regions. While Tigray had an average per capita goat population of 0.43, the other regions had per capita population of 0.2 or less. Tigray had highest per capita goat population throughout the period, followed by Amhara, while the relative ranking in per capita goat population between Oromia and SNNPR changed over the period (Figure 18).



5 Mode of live animal production, feeds and livestock diseases

The mode of live animal production in all the eight PLWs is traditional, with little or no business orientation. Female animals are normally kept for reproduction, which also yield some amount of dairy products. Male cattle are kept to provide draught power. Old cattle and sterile cows are consumed or sold, usually 'as is', without making significant efforts to fatten them. In some areas, fattening of old bullocks and cows is traditionally practised. Limited efforts to fatten shoats are also traditionally practised in certain areas. In recent years efforts have been made by the various government services (OoARD, women affairs) to promote fattening of small and large ruminants, usually in the form of household or livestock extension packages. Most of these programs were supported by training and credit.

Feed

Farmers in the PLWs identified feed shortage as the most important production constraint, except in Metema, Mieso, and Fogera where livestock diseases were identified as the most important constraint. For example, feed is the critical problem in Atsbi Wonberta that hinders farmers from supplying the highly demanded sheep to the nearby markets, including Mekelle. Similarly, in Alamata *woreda*, informants revealed that feed shortage is a critical problem to increase the number of cattle offered for sale, although the *woreda* is an important supplier of cattle to the Mekelle town. The feed supply problem is not limited only to the shortage of own produced feed or naturally available feed such as from grazing lands, but also the unavailability of feed supply for those who could afford to buy.

Sources of animal feed supply in the PLWs include green fodder from communal and private grazing lands; crop residues (straws, green and dry maize and sorghum stover); aftermath grazing; grass hay and baled grass; fodder trees (e.g. *Sesbania*); commercial feed supply from feed processing plants and cooperatives; and commercial by-products such as rice bran, *noug* cake and molasses (Table 3). The use of feed from commercial sources is, however, very limited.

There are differences in the availability and type of feeds used across the study *woredas*. In Metema *woreda*, an extensive grazing land serves as feed source. As such, availability of feed does not seem to be a critical problem. The problem, however, is lack of proper management (utilization and conservation) of the existing feed. Due to the hot temperature, grasses on grazing lands become too dry in the dry season and lose most of

their feed value. Moreover, wild fire (sometimes fire put on purposely) destroys a wide area of the grazing lands. In the months of May and June, the first showers induce quick growth of grass feed with favourable influence on the availability of feed. Some farmers in the *woreda* plant fodder trees like *Sesbania* using irrigation water.

Table 3. Important feed/fodder sources for live animal production in the study PLWs

PLWs	Grazing areas	Crop residues	Commercial feed	By-products
Atsbi Wonberta	Communal grazing lands Enclosure hillsides	Wheat, barley and teff	Limited	Limited
Alamata	Communal grazing areas	Sorghum stover Maize stover Teff straw	Limited	Limited
Metema	Communal grazing lands Uncultivated land used as grazing areas	Sorghum stover Maize stover	Baled grass (emerging in some areas)	Limited
Fogera	Communal grazing lands	Rice straw Millet straw Maize stover Sorghum stover Teff straw	Limited	Rice bran Noug cake
Ada'a-Liben	Communal grazing lands	Teff straw Barley straw Wheat straw Maize stover	Baled hay Noug cake Feed from commercial feed producers and cooperatives	Wheat bran Wheat shorts Noug cake
Mieso	Communal grazing lands	Sorghum stover Maize stover	Limited	Limited
Alaba	Communal grazing lands Private pasture grazing	Teff straw Wheat straw Maize stover	Limited	Limited
Dale	Communal grazing lands Backyard forage	Maize stover Enset Banana	Limited	Limited

In Fogera, rice straw is becoming an important feed. Rice bran is also becoming an important by-product feed.¹ In Fogera *woreda*, an extensive grazing land is covered with a pervasive thorny weed *Asteracantha longifolia* (locally known as *amekela*). The weed

1. The misconception by farmers that rice straw and bran reduce milk yield of cows and might lead to sterility of cows is fading away and rice production is now considered as an important source of feed. Some farmers mix the rice bran with local beer residue, commonly known as *atella*.

suppresses growth of grass forage species and prevents livestock from grazing due to its stinging thorns. Efforts to control the weed would contribute significantly to the alleviation of the feed shortage, at least in some parts of the *woreda*.

Teff straw is an important feed resource in the Ada'a-Liben *woreda*. Ada'a-Liben *woreda* also has a better commercial feed supply than any of the other study *woredas*. Moreover, teff productivity is higher in the *woreda* which improves the availability of teff straw.

In Mieso, since the *woreda* is drought prone, feed shortage is an important problem during the dry season. Interventions to promote sustainable feed supply would include an integrated approach centred on the availability of irrigation water. Sorghum stover is an important feed in Mieso. Interventions to improve the feed value of sorghum stover could contribute to alleviation of the feed problem.

Communal and private pastures make substantial contribution to sheep and goat feeds in Alaba (Tsedeke 2007). However, growing private pasture faces the problem of shortage or lack of forage seed supply. Private forage seed supply has started recently. In addition, tillers (tinned plants especially maize) and fillers (crops intentionally planted on part of crop lands or around homestead to be used as feed) are important feed sources in Alaba.

Long season sorghum is widely grown in Alamata *woreda*. Hence, sorghum stovers are widely used as feed. However, farmers keep the stovers so dry that the stovers lose their feed value significantly. Interventions to improve the feed value of the sorghum stovers could contribute significantly to the alleviation of the feed problem.

Dale is a high population density *woreda*, and so land is very scarce. Dependence on crop residues as feed sources does not appear to be promising. Hence, backyard forage development integrated with the perennial crops production could offer a better possibility. The difference in the types of feeds available, the extent of feed shortage, and the ensuing differences in the potential solutions to alleviate feed shortage across the study *woredas* is an important indication of the need for targeted and location specific interventions in promoting feed development.

Livestock diseases

Livestock diseases were reported to be the most important constraints of livestock production, followed by feed shortage, in Metema, Fogera, and Mieso PLWs.² The common livestock diseases identified in the PLWs include sheep and goat pox, liver fluke

2. A special study on the major livestock diseases in the PLWs has been completed and will be published separately.

(fasciolosis), Pasteurellosis, PPR (*peste des petits ruminants*), trypanosomosis, mastitis and blood urine. In Fogera *woreda*, biting flies prevent animals from grazing during the day, especially when temperature is high.

Trypanosomosis is identified as important disease in Metema, Fogera and Dale *woredas*. The Amhara BoARD has identified Metema as one of the *woredas* in the region that are affected by trypanosomosis. It was also reported that the biting flies in Fogera transmit trypanosomosis mechanically making the disease economically important.

6 Livestock production support services

6.1 Input supply

Initial stock

The source of initial breeding stock for farmers in the PLWs include purchases from the nearby markets, gifts from parents and relatives, farmer-to-farmer exchange through bartering system, share holding, and limited supply of improved breeds from the *woreda* OoARD as part of the household extension program. It is important to note that the source of breeding stock from nearby markets also include animals brought from other areas in particular from pastoralist areas. Examples of this can be seen in Mieso and Alamata, where breeding animals from the Somali and Afar communities, respectively, can be found.

The main types of local animals as observed and/or reported by key informants are given in Table 4. Generally, the types of local animals differ by the altitude of the *woreda*. In the more highland areas, highland types dominate. In some cases, key informants were not able to identify the type of the animals reared.

Table 4. Main types of local animals as observed and/or reported by key informants

PLWs	Cattle	Sheep	Goats
Atsbi Wonberta	Respondents could not identify	Abyssinian highland ¹	Abyssinian highland
Alamata	Raya (lowland type)	Elle	Respondents could not identify
Metema	Fogera	Gumuz	Rutana
Fogera	Fogera	Respondents could not identify	Respondents could not identify
Ada'a-Liben	Zebu, Boran, Kereyu	Local highland type	Local highland type
Mieso	Respondents could not identify	Black head (Wanke)	Mayo (milk) Bako (meat)
Alaba	Respondents could not identify	Highland type	Highland type/lowland type
Dale	Respondents could not identify	Bokasso, Fero, Highland type	Respondents could not identify

1. The types of shoats reared in the Tigray Region are popularly identified as Abyssinian highland, Elle, Begayit and Akeleguzay.

Feed supply¹

Feed supply is limited in almost all the study *woredas*. Natural feed, commercial feed and by-products are supplied in the PLWs in a very limited extent. Commercial feed supply is essentially limited to the urban areas serving urban agriculture such as dairy and fattening. Farmers sale straws, green grasses, hay, baled hay, green and dry stovers. In some cases, traders are involved in feed market. However, there is a long way to go in promoting and developing feed marketing in the study areas (see Table 3).

6.2 Extension services

The OoARD is the sole source of extension service in the PLWs.² The OoARD extension package in the *woredas* include animal fattening, promotion of improved forage technologies, feed conservation practices, improved animal management (e.g. housing) and veterinary services. It is important to note that, although there are signs of livestock extension service in all PLWs, the coverage of the service is too limited relative to the need.

Improvements in forage development include promoting backyard forage development, feed development on enclosures and grazing lands by planting grass and leguminous species, and fodder trees. In addition, the extension service is involved in farmer training on management and utilization of improved feed technologies, appropriate feeding practices, and development of government and cooperative fodder nurseries that grow variety of seedlings. It was reported that seedlings are distributed almost free to farmers in some *woredas*, a practice that should change in order to avoid the dependency syndrome that might arise as a result of free handout of seedlings. The extension service also emphasizes the need to have pasture lands clean from weeds, improved animal housing and health care.

The fattening extension program follows a similar approach in many of the PLWs. Generally, the fattening extension package involves selection of beneficiary farmers, arrangement of credit supply and the provision of inputs. A peasant association (PA) level committee, composed of *woreda* OoARD experts, DAs, chairperson of the PA, and selected farmers from the PA, assists the selected farmers in purchasing animals (cattle and shoats). Generally, the shoats fattening extension program was designed to enable farmers to fatten and sell at least three times a year. However, we observed that in some *woredas*, some farmers divert the credit to other purposes and some of them quit after

1. The IPMS project has conducted a separate study on feed marketing in the four regions of Tigray, Amhara, Oromia and SNNPR. A separate report will, therefore, be published on it.

2. In Metema, ILDP is involved in providing extension service in livestock development, especially in improved feed utilization and conservation, such as baling.

fattening only once. When asked why this was so, some farmers responded that keeping livestock for production purposes is preferred by some households for prestige purposes. Other problems observed with regard to the fattening extension program in the PLWs include problems of input supply (both initial stock for fattening and feed), and lack of livestock marketing extension services. Some farmers reported that the credit comes at a time when there were no animals to buy for fattening.

It must be noted that although efforts are being made to introduce and promote market oriented livestock production, these efforts are miniscule compared with the size of the livestock population and the number of household who rear them. Hence, it is important to build on these efforts, evaluate them to learn lessons, and strengthen the extension service to promote the market orientation among the wider farming population.

6.3 Veterinary services

As with the extension service, veterinary services are also provided almost solely by the *woreda* OoARD, and often far below the demand by farmers. For example, in Metema PLW, where livestock diseases were mentioned as the most important constraint, only four animal health posts staffed with animal health technicians provide veterinary services. It was reported that the Metema *woreda* had plans to upgrade all animal health technicians to animal health assistants at the diploma level through training at the agricultural technical and vocational education and training colleges (ATVETs). Experts also indicated that shortage of veterinary drugs is a major concern in the Metema *woreda*.

Similarly, the Fogera OoARD experts reported that there was serious shortage of animal health workers to meet the demand of farmers for animal health services. In Ada'a-Liben *woreda*, veterinary services are provided by *woreda* OoARD, the Ada'a-Liben Dairy Cooperative and private individuals. In Mieso the Office of Pastrolaists and Rural Development (OoPRD) provides veterinary services, although the coverage is too limited. There are only three veterinary posts in the *woreda*. Whenever there is livestock disease outbreak, veterinarians positioned at the *woreda* capital are also called upon to provide veterinary services in the infected areas. Some veterinary drugs are sold in the market, a practice that might compromise the effectiveness and appropriateness of the drugs (Fekadu 2006).

6.4 Credit supply

The sources of credit supply in the PLWs include the *woredas'* OoARD and the microfinance institutions. It was indicated that farmers in the PLWs receive livestock credit mainly for fattening purpose as part of livestock fattening extension program. In

limited cases, other sources of credit such as from projects, the women's associations and others were also available.

In some of the study *woredas*, livestock credit services were terminated or significantly reduced. For example, in Metema *woreda*, the OoARD used to provide credit to farmers for fattening purpose. It was reported that the credit supply for fattening was reduced, despite the apparent high need for credit for goat production and fattening in the *woreda*. According to OoARD experts, the credit supply was terminated due to problems of credit collection. Similarly, in Fogera *woreda*, although credit for fattening purposes was provided by the OoARD, the supply was reduced. Some farmers also complained about the repayment schedule which, according to them, does not fit the requirements of fattening activities, since the credit terms require periodic repayment that does not match the fattening cycle.

Some of the PLWs require down payment for the livestock credit. For example, in Ada'a-Liben and Alaba *woredas* a farmer had to contribute 25% of the purchase price as down payment. According to the OoARD experts, down payment is required in order to implant sense of ownership, facilitate repayment of the credit and reduce the beneficiaries' future repayment burden. However, farmers in the *woredas* complained that the amount of credit supplied was below the purchase price of the animals and that the credit money was released at a time when the livestock prices are higher. There seem to be an increasing demand for credit for fattening purposes in all the study *woredas*. Some farmers also reported the problem of finding the right animals to buy at the time when the credit was provided.

7 Live animals market structure

7.1 Livestock market places

A number of feeder and primary markets exist in the PLWs (animal trade movement routes in the regions is given in Annexes 2–5). On average, there are four livestock markets per *woreda* (Table 5). The primary markets in some of the PLWs are fenced in which the respective municipalities charge tax on buyers upon exit from the market. Some of the municipalities also charge sellers for unsold animals since they find it difficult to distinguish between sold and unsold animals. Many of the markets in the PLWs feed into each other, especially when the market days are different. In some PLWs shoat markets are different from cattle markets. Markets in the PLWs do not have market infrastructures.

The most common market day of these livestock markets is Saturday, followed by Monday, Tuesday, and Thursday (Table 5). Market days on Wednesdays, Fridays and Sundays are not common. Based on traditional calendar, markets in Dale *woreda* convene every five days. In some market places, markets convene twice a week, while in a few (usually capital towns of the *woreda*) markets convene every day, although the largest gathering takes place in one or two days.

Table 5. Livestock markets in the PLWs

PLWs	Market place	Major animals sold	Fenced or unfenced	Market days
Atsbi Wonberta	Endaselase	Sheep, goat	Fenced	Saturday
	Haikimeshal	Goat, sheep	Fenced	Saturday
	Dera	Sheep	Unfenced	Tuesday
	Kilisha Emni	Goats, cattle	Unfenced	Tuesday
Alamata	Alamata	Cattle, sheep	Fenced	Saturday
	Waja	Cattle, sheep	Fenced	Tuesday
	Gerjele	Cattle, sheep	Unfenced	Monday
Metema	Kokit,	Cattle, goats	Unfenced	Saturday
	Meka	Goats , goats	Unfenced	Saturday
	Shehedi (largest market)	Cattle, goats	Unfenced	Everyday (Saturday and Sunday being largest market days)
	Shinfa	Cattle, goats	Unfenced	Saturday
Fogera	Woreta	Goats ,cattle , sheep	Fenced	Everyday (Saturday being largest market day)
	Alemba	Sheep, goats, cattle	Unfenced	Saturday
	Kidist Hana	Cattle (breeding cattle	Unfenced	Monday
	Gura Amba		Unfenced	Saturday
	Gobate	Cattle	Unfenced	Saturday

PLWs	Market place	Major animals sold	Fenced or unfenced	Market days
Ada'a-Liben*	Adulala	Goats, sheep, cattle	Unfenced	Friday
	Godino	Cattle, Sheep	Unfenced	Monday
	Dire	Cattle, goats	Unfenced	Monday
	Debre Zeit	Sheep, goats	Fenced	Saturday
Mieso	Mieso	Goat ,sheep, cattle, camel	Tuesday market place is fenced. Monday market place is unfenced	Monday and Tuesday
	Asebot	Cattle, goat, sheep, camel	Unfenced	Thursday
	Bordede	Cattle, goat, sheep, camel	Unfenced	Thursday
Alaba	Kora	Goats, sheep	Unfenced	Monday
	Kulito	Sheep, goats, cattle	Fenced	Thursday
	Kobo	Goats, sheep	Unfenced	Friday
	Guba	Sheep, goats	Unfenced	Tuesday
Dale**	Besheno	Goats, sheep	Unfenced	Tuesday
	Sasamodella	Sheep, cattle	Fenced	Every fifth day
	Antete	Goats, sheep	Fenced	Every fifth day
	Bokasso	Sheep, cattle, goats	Fenced	Every fifth day
	Naramodela	Sheep, cattle, goats	Fenced	Every fifth day

* Ada'a-Liben *woreda* has been split into two. The data pertain to the situation before the split.

** Dale *woreda* has been split into three. The data relate to the situation before the split.

In Atsbi Wonberta, buyers in the livestock market places of Endaselase and Haikimeshal are required to pay Ethiopian birr (ETB)¹ 1/shoat to the municipality upon exit from the market place. Sellers also pay the same tax amount on unsold shoats upon exit from the market mainly due to the problem the municipality was facing in identifying sellers from buyers. Usually, the markets of Kilisha Emni and Haikimeshal feed into the market at Endaselase, while sheep from Dera are directly transported to the nearby towns of Adigrat, Wukro and Mekelle, since Dera is closer to the Mekelle–Adigrat main road than Endaselase. Similarly, the Waja and Gerjele markets in Alamata *woreda* feed into the Alamata market, although traders in the Waja and Gerjele markets also take cattle directly to Mekelle. In Metema, a market fee of ETB) 1.5 per cattle is charged at the Shehedi market, and the fee receipt remains valid for one month. Goats are not charged market fees in this market. In Fogera *woreda*, although the Woreta livestock market is fenced, sellers sell their animals outside of the fenced market place, apparently to avoid paying marketing fees.

In Mieso *woreda*, interestingly the Monday and Tuesday market places in Mieso town are different. While the Tuesday market place is fenced, the Monday market place is not. On the Monday market, the Somalis are major sellers. On the Tuesday market, the Oromo pastoralists and agro-pastoralists are the major sellers of animals. In this market, the

¹ In November 2007 USD 1 = ETB 9.0864.

municipality collects taxes of ETB 2 per animal for shoats, ETB 10 per animal for cattle and camel, and ETB 5 per donkey. In Alaba *woreda*, the Kulito town municipality collects tax of ETB 1.5 per animal for shoats, and ETB 3 per animal for cattle or donkey. Sellers pay the same amount of tax on unsold animals upon exit from the market place.

7.2 Distribution of livestock market places and market access

The livestock market places in each of the PLWs are distributed around the capital town of the *woreda*, with the capital of the *woreda* serving as an important market place (Figures 19–20). The market places are distributed in the 10–60 km radius from the *woreda* capital. Some parts of a *woreda* are far from a market place. As such distance to market places was reported as a major problem of market access by farmers.

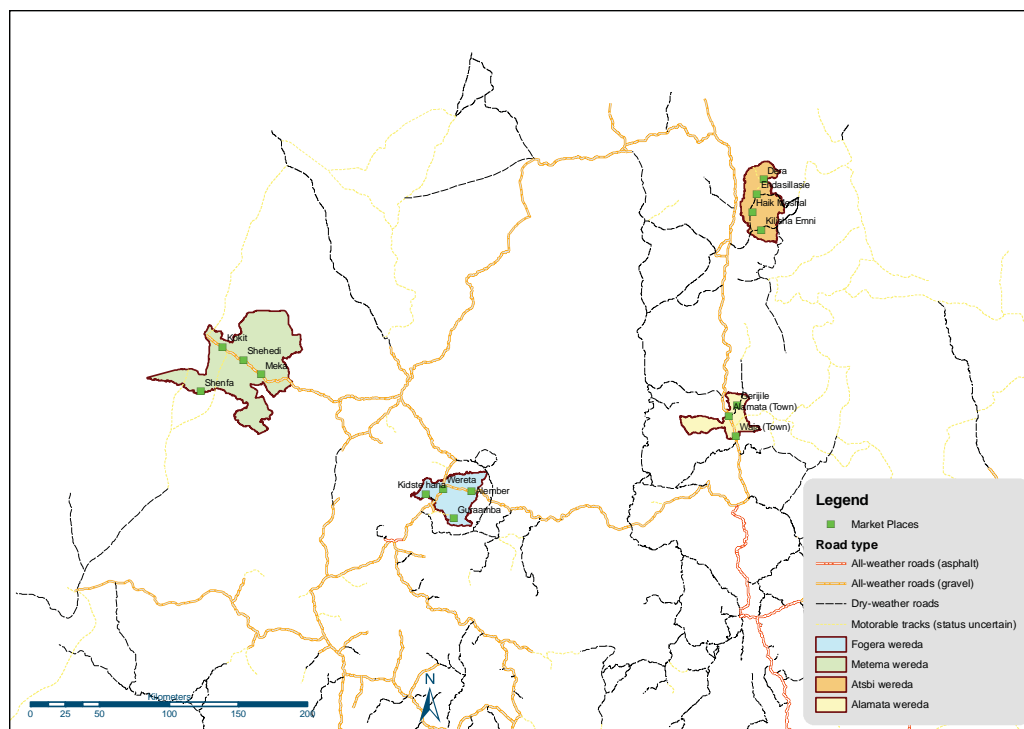


Figure 19. Livestock market places in Ada'a-Liben, Mieso, Alaba and Dale PLWs.

The Ada'a-Liben PLW has good access to markets mainly due to its proximity to the Addis Ababa market and the nature of the distribution of the market places. The good road access in the *woreda* also contributes to better market access. As such, farmers in the *woreda* perceived little problem of access to livestock market due to distance. Moreover, there seems to be adequate and continuous demand for cattle and shoats in the *woreda*, mainly because of the easy access of buyers to the market places. In Atsbi Wonberta

woreda, some part of the woreda is still far away from livestock markets. A new road that improves the connection of the woreda to the Adigrat market is expected to increase market access of farmers in the northern part of the woreda. In Alamata woreda, farmers reported that transporting animals to market was not a major problem of market access as the woreda is basically flat plain, especially in the lowland system. However, distance to market was a concern for the highlanders.

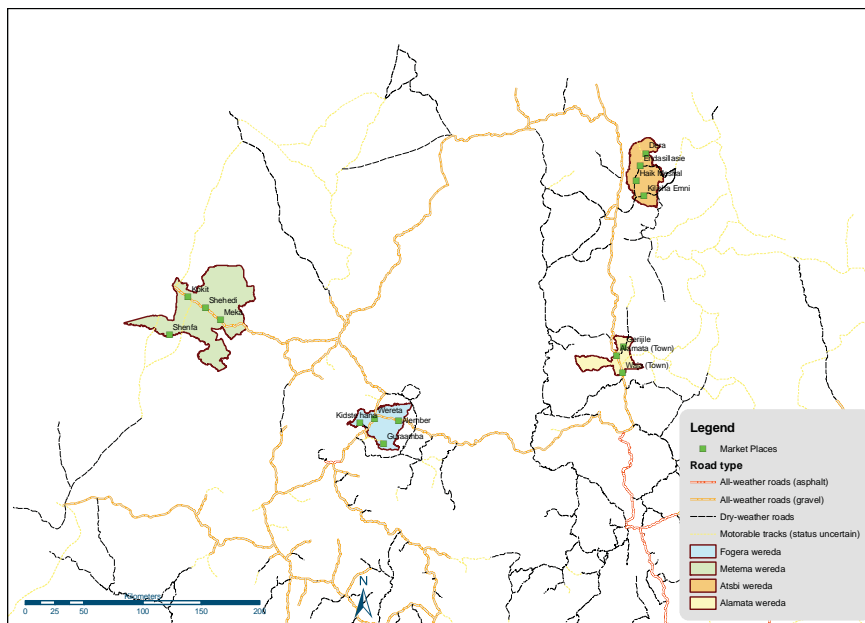


Figure 20. Livestock market places in Atsbi Wonberta, Alamata, Fogera and Metema PLWs.

Farmers in Metema and Fogera woredas identified distance to market and associated transportation problem as the major market access problems in the woredas. Similarly, in Mieso woreda, distance to market was reported as an important market access problem to producers. Some farmers trek their animals for 3–5 days before they reach the Mieso market. Similarly, in Dale woreda, farmers reported distance to markets as problem of market access. However, farmers were of the opinion that despite the transportation problems, they could have benefited significantly more from livestock sales should the feed shortage problem be alleviated. Distance to market places was not an important factor in Alaba woreda, since farmers commonly sell animals at farm gates.

7.3 Livestock market actors

Traders

In most PLWs, both producers and traders are involved in selling livestock directly to consumers. Traders can be residents of the woreda or those who come from other areas.

Livestock traders may travel for as far as hundreds of kilometres for business. Informants reported the involvement of brokers and commission agents in Ada'a-Liben and Mieso PLWs. Livestock traders are almost exclusively male. Key informants indicated that there are no farmer associations or cooperatives involved in livestock marketing in the *woredas*. Every producer markets animals individually. There are no grades and standards applied to livestock. There is little prior marketing arrangement and personalization of exchange in the livestock market. Sellers usually sell animals to whoever offers higher prices.

Some traders combine farming and trading while some act as both wholesalers and retailers. As retailers, they sell directly to consumers in the nearby towns. As wholesalers, they sell to retailers in the same towns or to those who come from outside the *woredas*. Traders are usually not involved in fattening; they buy from the markets, transport the animals and sell them in their destination market. Several traders complain about the lack of appropriate livestock market places.

The involvement of brokers was reported to be significant in Ada'a-Liben and Mieso, the *woredas* where livestock purchase for export meat or live animal export purposes is also very important. In the Ada'a-Liben markets, it was reported that brokers usually work for the buyers, and tend to collude² with each other in fixing prices. The larger livestock buyers may use several brokers in one market, the more likely they collude. Further investigation is required to identify the positive and negative roles of brokers in the livestock market in the *woreda*.

In Mieso *woreda*, most sales involve brokers, who usually assume the power of negotiation on prices on behalf of producers. The brokers eliminate the direct contact between producers and buyers. The producers usually hand over their animals to brokers upon arrival at the market places, because producers believe that the brokers know better about the market conditions. It appears that the brokers, especially Somali brokers, usually have clan relationships with the producers who hand them over animals. The brokers who have no clan relationships with producers do usually have some other relationships with the producers. Brokers negotiate on prices with buyers and payment is effected in cash on the spot. In the Ada'a-Liben and Mieso, the *woreda* OoARD experts suggested that organizing farmers for collective marketing of cattle and small ruminants can be an option to improve the marketing of livestock and increase benefits to farmers. Normally, brokers are paid commission from sellers and buyers, amounting to ETB 2 per animal for shoats, and ETB 10 per cattle and camels.

2. Locally, the practice of broker collusion to fix prices is called 'tying prices'.

Meat and/or live animal exporters

Six export abattoirs are currently operational in Ethiopia, viz. Elfora³ Bishoftu (located in Bishoftu, Oromia), Elfora Melge Wondo (located in Wondo, SNNPR), Elfora Metehara (located in Metehara, Oromia); Helmex (located in Bishoftu, Oromia); Modjo Modern Export Abattoir (located in Modjo, Oromia); and Luna Export Abattoir (located in Modjo, Oromia) (Figure 21). Three new export abattoirs are under establishment, viz. Modjo Organic Export Abattoir (located in Modjo, Oromia); Abergelle International Livestock Development PLC (located in Mekelle, Tigray); and Ashraf Industrial Group (located in Bahir Dar, Amhara). The establishment of the Modjo Organic Export Abattoir is completed, and the plant is ready for operation.

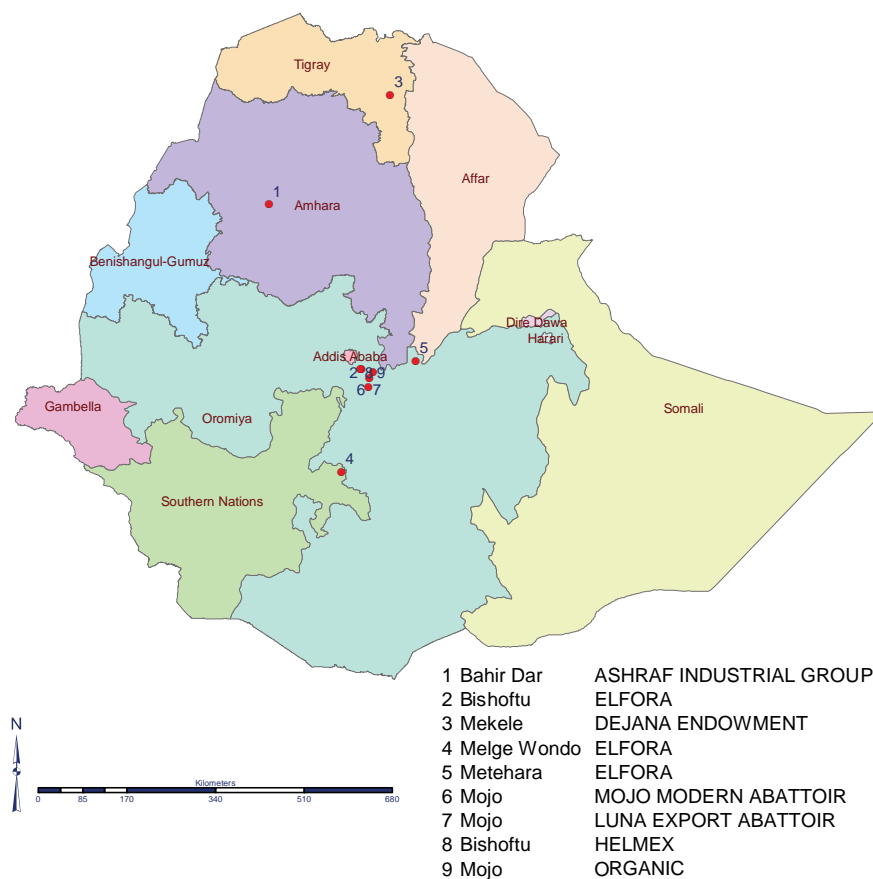


Figure 21. *Export abattoirs in Ethiopia.*

3. Elfora Agro-Industries PLC is a business owned by Dr Sheikh Mohamed Hussien Ali Al-Amoudi. In addition to the export abattoirs, the company has four plants that process meat for domestic sale, viz. Dire Dawa Meat Processing Plant, Conder Food Processing Plant, Kombolcha Food Processing Plant, and Addis Meat Processing Plant. In addition to the meat and food processing plants, Elfora Agro-Industries PLC also has plants that process crop products which are located at areas known as Birr Sheleko and Chefa Robit.

The export abattoirs export chilled and frozen beef, mutton and goats meat. Unlike the other companies, Elfora is also involved in live animal export. The Elfora Bishoftu abattoir slaughters sheep and goats for export, and cattle for domestic sale. The Elfora Melge Wondo slaughters cattle, while the Elfora Metehara abattoir slaughters sheep, camel and goats. The Modjo Modern Export Abattoir slaughters sheep and goat, while the Luna Export Abattoir slaughters sheep and goat, and cattle based on demand. The newly established export abattoirs plan to slaughter sheep, goats and cattle.

Elfora Melge Wondo has purchasing centres in the SNNPR region. Cattle (including calves) and shoats are purchased from different areas of SNNPR, and Oromia regional state. It has fixed buying centres at Yabelo, Negele Borena, and Shakiso. These buying centres have a team of buying personnel including veterinarians, and are equipped with weighing scales since animals are purchased based on weight. Personnel of the buying centres purchase animals brought to the buying centres by suppliers (traders, cooperatives or farmers) or they travel to market areas (e.g. Bale, Moyale) to purchase animals on market days. It was reported that there are four farmer cooperatives in Negele Borena area who supply animals to the plant. The cooperatives purchase cattle and shoats and supply them to the company's purchasing centres. But their scale of operation is limited. Elfora Debre Zeit Abattoir purchases animals through its own buyers or contracts with traders.

Helmex export abattoir has no fixed purchasing centre. Suppliers collect yearlings, calves and shoats from different areas in the country and bring them to the abattoir. The supply of animals to Helmex comes from Oromia (Negele Borena, Yabelo, Arsi, Harar, Metehara, Shewa, Gindebert, Ambo); Somali region; and Arbaminich and Sodo in the SNNP region. Some animals are bought from Wello area in the Amhara region.

Luna Export Abattoir has its own purchasing centres in different places for different types of animals. Bale and Ginir goats with good body condition were reported to be most preferred by the abattoir, as the meat does not turn black in the process of storage. Moreover, it was reported that shoats from Ogaden, Babile, Borena, Yabelo, Konso, Wolayita, Afar, Wello, and Shaula are also preferred. With regard to camels, it was reported that the Ginir type is most preferred. Generally, it was noted that meat from goats with long horn is more liable for meat discoloration. Luna Export abattoir has organized primary cooperatives and a union in Yabelo, which supply animals to the firm's purchasing points at negotiated prices.

According to key informants, the formation of cooperatives and union has the benefits of reducing excessive price fluctuations, and may increase benefits to farmers. It was reported that there has so far been good working relationship between the abattoir and the farmers cooperatives and the union. The abattoir arranges for the producers to visit

the abattoir to create appreciation of the process and thereby encourage them to increase production and supply of animals. The cooperatives or union supply animals from their own production and some times they also buy animals from others and supply to the local purchasers. The shoats, especially goats, must be of weight between 14 and 25 kg and non-castrated. Any trader or producer can supply animals by bringing to the slaughterhouse, as well.

The Abergele International Livestock Development PLC, located in Tigray region, is a company intended to develop competence in processing and exporting meat, live animals and other livestock products to the international market. It plans to be involved in both live cattle and small ruminants export, and beef and small ruminant meat processing and export. The company is working to establish a slaughter house in Tigray, to be located near Mekelle, the regional capital.

7.4 Livestock transportation

In almost all PLWs livestock are transported mainly by trekking. The trekking cost per head of cattle or shoat depends upon the distance travelled. In some PLWs, traders use trucks to transport shoat to outside the *woredas*. In most cases, traders prefer trekking their animals as it is cheaper than transporting with trucks.

For example, it takes about eight days to trek cattle from Alamata to Mekelle, at a cost of ETB 16/head (about ETB 2/day per animal), while trucks charge about ETB 60–80/head. Hence, traders prefer to trek their animals as it is cheaper than transporting with trucks. In Metema *woreda*, it costs ETB 50/cattle for trucking from Shehedi (the capital town of the *woreda*) to Metema Yohannes (the export port), a distance of only about 35 km, but only ETB 5/cattle for trekking an animal the same distance.

ISUZU trucks are mostly used for trucking animals. Traders or producers prefer to truck fattened animals, apparently to avoid weight loss and deterioration in body conditions during transportation. An ISUZU truck could carry 6–10 cattle. In Ada'a-Liben *woreda*, key informants estimated that about 40% of the purchased cattle in the *woreda* are trucked. In Mieso *woreda*, shoats are trucked from Mieso to Modjo, Debre Zeit and Addis Ababa. The cost of trucking shoats from Mieso to Addis Ababa is usually ETB 700–800 per full load of an ISUZU truck, which carries about 80–120 shoats, depending on the size of the animal. Cattle are also trucked from Mieso to Addis Ababa, at a cost of ETB 800–900 per full load of ISUZU truck, which carries about 10 heads of cattle at once.

Animals purchased in Alaba are moved to Awassa Zuria *woreda*, Shashemene, Hosaena and to Addis Ababa. Shoats are trucked from Alaba to Addis Ababa on ISUZU trucks. The

cost of trucking amounts to ETB 800–900 per full load of ISUZU. Likewise, traders use trucks to transport cattle from Alaba to Addis Ababa. An ISUZU truck carrying about 12 cattle charges about ETB 1000.

7.5 Availability of studies and data, and access to market information

7.5.1 Availability of studies and data

Regional Bureaus of Agriculture and Rural Development (RBoARD)

In Tigray, Oromia and SNNPR, it was found out that there was no available livestock market studies documented in the RBoARDs. In Amhara region, market chain studies of dairy, beef, and small ruminants had been conducted by the RBoARD, reports of which were available at the bureau. In Dale *woreda*, experts of the OoARD reported that livestock marketing studies were conducted by the Fourth Livestock Development Project.

The Tigray RBoARD had developed a schematic sketch of livestock market trade routes within the region, and routes of livestock inflows and outflows from the region. There are also secondary databases collected at *woreda* level and compiled at the RBoARD. These secondary data include prices by category of animals and volume of transaction.

In all regions, various efforts have been made by the *woreda* OoARD to collect market data during market days. There are variations across *woredas* in the formats with which the secondary data were collected. In most of the *woredas*, market data was not collected continuously throughout the year. The market data were never transmitted back to the farmers in any of the regions. Rather, the data would be compiled at *woreda* level and transmitted to the regional BoARD.

In some of the *woredas*, (e.g. Alaba, Atsbi Wonberta and Alamata), in case a buyer needs warranty on the animal bought (e.g. to ensure that it is not stolen from others), the municipality tax collectors register the seller's address, the colour of the animal, price and other information about the animal on the tax receipt upon payment of extra fee. This is said to have minimized sale of stolen animals. Such tax receipts can be used as source of market information, although there could be selection problem since information is recorded only for sold animals whose buyers require warranty.

Regional Office of Disaster Prevention and Preparedness Commission (DPPC)

Regional DPPC offices are also involved in gathering information on livestock supply and price in the regions, as part of their disaster prevention and preparedness activities.

For example, the Tigray regional office of the Disaster Prevention and Preparedness Commission (DPPC) was collecting data on livestock prices and supply in *woredas* throughout the region. Weekly prices were collected at *woreda* level, and aggregate monthly price data were sent to the regional office. In addition to collecting market data, the office conducts simple analysis of relative price movements and publishes brief reports on market trends.

7.5.2 Access to market information

Farmers and traders in all the PLWs reported none or very little access to formal livestock marketing information, although traders may be better informed about market conditions and prices than farmers because of their networks. Farmers in all PLWs depend on actual market day information, or on market information obtained from relatives, friends or neighbours for prices and selling decisions. Hence, lack of market information was found to be a serious problem in farmer negotiation power.

7.6 Policy, regulatory and institutional aspects of livestock marketing

There were no licensing requirements for involvement in livestock trading in the regions of Tigray, SNNPR and Oromia. Licenses for livestock trading were required in Amhara. According to the Amhara region trade law, any business with a capital of ETB 3000⁴ or more should be licensed and it is very likely that the livestock traders need at least ETB 3000 to operate as livestock traders, especially cattle.⁵

According to OoARD experts and officials of the regional Bureau of Trade, Transport and Industry (BoTTI) in the regions of Tigray, Oromia and SNNPR, the reasons given for the absence of license requirements include the difficulty to control the trading business as the traders are mobile from place to place and the lack of documentation of business records by traders. It would be interesting and useful to find out if license requirements would improve the marketing of livestock in the region. In Alamata, although there was no license requirement at the time of the study, it was reported that license requirements were in effect until 2001. It was not clear why the requirement was terminated.

4. According to the head of the Fogera *Woreda* Desk of Small and Micro Enterprises, Trade and Industry, some trading businesses need to acquire license even if the operating capital is less than ETB 3000 (e.g. grain trade). Registration is permitted for subsectors such as consumer goods retail (shops), tailors, carpenters, welders etc.

5. According to the regional law, businesses with operating capital of less than ETB 3000, only have to register. Ethiopian law stipulates that traders with less than ETB 5000 capital can operate without being licensed (they only need to be registered), while businesses operating with above this capital should be licensed. .

Unlike in the other three regions, the Amhara region has *woreda* level offices of Small and Micro Enterprises, Trade and Industry that issue trade licenses⁶ for domestic trade. These offices were established in 2004. Traders involved in livestock export are licensed only by the Ministry of Trade and Industry. Despite the strict requirement for license in the Amhara region, many unlicensed traders are involved in livestock trading, signifying the difficulty encountered in enforcing trade laws in the livestock trading business. Staff of the Small and Micro Enterprises, Trade and Industry commented that the livestock trade licenses did not specify the species of animals the licensed is expected to be involved in trading, thus creating problems of controlling the traders. It would be interesting to investigate if specific licenses would improve the situation.

6. In the regions of Tigray, Oromia and SNNPR such offices are organized only at the regional and zonal levels.

8 Household livestock marketing behaviour and price determination

8.1 Reasons for household selling decisions

Reasons for sale

The reasons for selling livestock, as reported by farmers, include to cover cash needs to fill household food gaps, clothing, school and medical fees, social events, down payment for credit and credit repayments, payment for labour for agricultural activities, to buy other animals, and to purchase crop inputs. Forced sales due to shortage of feed and water during the dry period were also widely mentioned. In some *woredas*, especially Metema, fear of theft was mentioned as an important reason for selling animals. The importance of the different reasons for selling animals differs from place to place. Below, we discuss the reasons for selling *woreda* by *woreda* in order to highlight the relative importance of the reasons.

Farmers in Atsbi Wonberta and Alamata *woredas*, apart from those involved in fattening activities, reported that the major reason for selling small ruminants is to cover incidental cash expenses, including expenses for buying food for the household, social events, and credit payment. Farmers in these *woredas* also indicated that they sell livestock due to drought and feed shortages during the dry season (February–June).

In Metema *woreda*, a major commercial crop production area, the main reasons of farmers to sell animals are to pay for labour for agricultural activities (especially land preparation, weeding and harvesting) and fear of theft of oxen. Animal theft is becoming a major concern of farmers in the *woreda*. Selling animals to buy food is not a reason in Metema. In Fogera *woreda*, cash need to meet social obligations was mentioned as the most important reason for selling animals, while the need to fill food gap was considered unimportant. In Ada'a-Liben *woreda*, since crop productivity, especially teff, is relatively high, the need to sell animals to fill food deficits is not an important reason except in few lowland PAs. Key informants also reported that sometimes producers sell livestock during dry season due to shortage of feed. Under such situations, animals' body conditions are poor and prices tend to be low.

In Mieso *woreda*, since the area is drought prone, the main reasons for selling animals is to cover cash needs to buy food grains and to cope up with seasonal feed and water shortages. Households also reported that they sell animals in order to replace them with younger stock. In Dale and Alaba *woredas*, filling food gap, loan repayment and forced sales during dry period were mentioned as the most important reasons for selling.

8.2 Characteristics of animals offered for sale

The animals offered for sale in the PLWs are local breeds. Introduction of improved breeds is rare. The sale of male cattle and shoats dominates the sale of females. Female animals are sold mostly when they are old or infertile. According to farmers, an ox is usually used for traction starting at the age of 5 and used for traction for 5–6 years, after which it may be sold for beef, with slight difference from area to area in the duration bullocks are used for traction. The age of shoats supplied to the markets in the eight PLWs ranges from 1 to 2 years. The most common weight of shoats offered for sale ranges between 15 to 25 kg live weight. The body condition of the animals offered for sale in most of the PLWs is mostly good. Farmers and traders estimate the age of the animals by checking their teeth. Shoaat's body weight is also assessed by gently holding the waistline of the animals. The colours of shoats and cattle demanded differ from *woreda* to *woreda*. Below, we give short descriptions of the characteristics of animals sold that are specific to each *woreda*.

In Alamata, it was reported that about 80% of the cattle sold are bullocks. Cattle offered for sale in Alamata are predominantly brown in colour. The sheep offered for sale are mostly light yellow in colour, while the goats are basically black with several white spots. Sheep from the highland system are mostly hairy, while those from the lowland system have smooth hair, as are the goats.

In Metema *woreda*, goats offered for sale are predominantly white or grey in colour, while the cattle are mostly brown. According to farmers, goats of black colour are not demanded. In Fogera, average age of cattle offered for sale was estimated to be 8–12 years, while the age of cattle sold for reproductive purposes was estimated to be 3–5 years. The dominant colour of cattle sold in Fogera is black, with some having mixed colour (black, white and brown), while that of shoats is white, with smooth hair.

In Mieso *woreda*, black head Somali sheep locally known as Wanke are the major sheep type sold. An interesting phenomena occurring in the Mieso market was that the demand for female sheep was increasing. These female are destined for the Addis Ababa market. It should be interesting to find out why this increase in demand for female sheep was occurring. While goats' colour sold in Mieso is mixed dominated by brown and grey, the sheep are mostly white with black head. Better demanded sheep in Dale *woreda* are light yellow or brown in colour.

8.3 Time and frequency of sale

Farmers in most PLWs sell animals mostly during the holiday seasons which usually occurs between September and December, and the month of April. Sales during the dry season (February–June) due to feed shortage is also common. In the *woredas* of Metema and Mieso, livestock sales are made more or less regularly throughout the year. However, the peak livestock sales in Metema is during the months of June (to finance agricultural labour) and December (for loan repayment). With regard to frequency of sale, farmers in most PLWs make animal sales once or twice a year.

September is a month of the two important Ethiopian holidays (New Year and The Finding of the True Cross) and farmers are usually in need of cash at this time to cover school expenses for children and to fill household food deficit until harvest time. As a result, farmers sell substantial number of shoats in September, a month when the body condition of the animals is also good and the animals can fetch better prices. Bullocks are also sold usually after the planting season, which is usually during September and October.

In Ada'a-Liben *woreda*, there is usually an increase in supply of animals from farmers during September to November, since farmers have little other alternatives of cash income. After harvest the supply of cattle and shoats tends to decline. During May to June, price of cattle tend to increase due to increased demand from farmers for traction. With regard to the frequency of sale in the *woreda*, the majority of producers sell animals once a year, although the frequency of sales depends on a number of household, socioeconomic and market factors.

In Mieso *woreda*, sedentary farmers, pastoralists and agro-pastoralists offer their animals for sale throughout the year. Animal conditions are better during September to December and prices are usually higher at this time. However, the period January to April exhibits higher number of animals offered for sale due to shortage of feed. During this time, the sellers are mainly pastoralists and agro-pastoralists. During the rainy season (June–August), the number of animals offered for sale decreases because households (especially the pastoralists and agro-pastoralists) have more milk for household consumption and feed availability improves. Fattened cattle and better conditioned shoats are usually sold during holidays. It was reported that an average farm household in the *woreda* is expected to sell 2–3 times in a year which would involve different species of animals. Households in Dale and Alaba *woredas* sale animals mostly once a year and the number sold at a time would not usually be more than one per household.

8.4 Price determination

On the surface, and as reported by market participants, livestock markets appear reasonably competitive, since market power concentration is not easily visible, except in areas where brokers are involved. Sellers trek back their animals if prices are perceived to be too low. Prices are determined based on negotiations between seller and buyer at the market place, except in areas where brokers are involved. In all PLWs, payment is effected in cash on spot at the market place. However, a more rigorous analysis is needed to establish if indeed the livestock markets are competitive enough.

The role of brokers in affecting livestock prices was controversial. Most farmers complained about brokers' involvement in the livestock market. Brokers are involved in transactions and transportations of animals and obtain commission of unfixed amount from sellers, buyers and transporters. The brokers operate informally. Key concerns farmers reported about brokers include: high brokerage fees, misinformation on prices paid by buyers, siding with buyers, and hindering transaction if they were not allowed to be involved (Tsedeke 2007). On the other hand, traders who come from distant locations reported that they require guarantee of local brokers for any problems that may arise after sales (e.g. stolen animals, family members disagreeing on selling the animal etc.).

In general livestock prices are affected by several factors. These include period of sale (festival vs. non-festival periods); age, weight, colour and body condition of animals (as influenced by feed availability and diseases); value of hides and skins; urgency of household cash needs (e.g. to fill food gaps); role of brokers; and distance producers travel to sell animals and the ease of trekking animals back.

8.5 Major market related problems of producers, traders and exporters

Producers, traders, exporters and agricultural experts reported a number of problems confronting the livestock marketing system in Ethiopia. Below, we give a brief account of the major problems.

The major problems reported by producers include lack of market information and low price due to poor body condition during the dry periods. Interestingly, farmers also mentioned the supply side factors as having implications for their effort to respond to market signals, the major one being feed shortage and diseases. Moreover, farmers also reported that the unavailability of supply of stock for reproduction is a concern in their effort to respond to market signals. Producers involved in fattening activities reported that shortage of stock supply for fattening; especially at the time they receive the credit is a

problem that the extension service and the credit institutions should think of. In Metema *woreda*, theft of animals was widely mentioned as a problem. In the *woredas* where brokers are involved, farmers complained that brokers misinform about the actual prices paid by buyers, collude with each other, and serve mainly the interests of buyers. Hence, although the brokers may be serving an important function during the exchange process, they might be profiteering at the expense of farmers.

The major problems reported by traders include lack of adequate supply of good condition animals, inadequate market places, lack of holding (concentration) places, feed supply, lack of market information, and multiple taxation at checkpoints (especially when animals are trekked or trucked through towns). Lack of efficient vaccination services for export was reported as a problem in Metema.

Exporters also reported a number of problems in the livestock marketing system. The major problems include lack of adequate supply of appropriate and good quality animals, poor marketing infrastructure, livestock diseases, lack of adequate sanitary and phytosanitary services to support exports, long market channels (usually 3–5 stages between producer and the abattoirs), and problems with airfreight transport services.

9 Conclusion and implications

Livestock production in Ethiopia is based on traditional technology and practices, and is subsistence oriented. The extension service is beginning to introduce and promote market oriented livestock production, mostly as part of the household extension package program. The extension program combines credit supply, training, and technical assistance. However, it must be noted that although efforts are being made to introduce and promote market oriented livestock production, with or without fattening, these efforts are miniscule compared with the size of the livestock population and the number of household who rear them. Hence, it is important to build on these efforts, evaluate them to learn lessons, and strengthen the extension service to promote the market orientation among the wider farming population.

The major feed sources include green fodder from grazing lands; grass hay; straws, green and dry maize and sorghum stover, and aftermath grazing; enset and banana leaves; and fodder trees (e.g. *Sesbania*). Baled grass, commercial feed supply from feed processing plants and cooperatives, and commercial by-products such as rice bran, seed cakes and molasses are also used as feed. Commercial feed supply is emerging in urban parts of the PLWs. The use of feed from commercial sources is, however, very limited. These results imply the need for interventions to develop feed markets in Ethiopia.

In most of the study areas, feed shortage was identified as the most important constraint to livestock production. In some of the study areas, livestock diseases were identified as most important constraint. The feed shortage problem is not limited only to the unavailability of own produced feed or naturally available feed such as from grazing lands, but also the lack of adequate supply of feed in the market for those who could afford to buy. Hence, alleviating the feed shortage problem stands out as critical step in promoting market oriented livestock production in Ethiopia. Livestock diseases, ranked the second most important constraint in most of the study areas, also need due close attention.

Potential solutions to the feed problem could vary depending on the resource bases of a particular intervention area. In the study sites, potential interventions could include better utilization and conservation of available feed (e.g. Metema); controlling pervasive thorny weed *Asteracantha longifolia* (locally known as amekela) (e.g. Fogera); treatment of sorghum and maize stover to improve nutritive value (e.g. Alamata, Metema and Mieso); improving forage seed supply (all PLWs); backyard forage development and integrating forage with perennial crops (all PLWs); and promoting collective action for grazing land management and feed development on enclosures (e.g. Atsbi Wonberta). A proper mix of interventions is possible in many parts of the study areas.

The OoARD is the sole source of extension service throughout the country. The OoARD extension services include promoting animal fattening; promoting improved forage technologies and feed conservation practices; improved animal management (e.g. housing) and provision of veterinary services. Although there are signs of livestock extension service in all PLWs, the coverage of the service is too limited relative to the need. The relative bias in favour of crop production has left the livestock extension service too limited. This calls for the need to invigorate the livestock extension service throughout the country. Especially, the development of market oriented livestock extension service deserves serious attention.

The sources of livestock credit supply include the *woredas* OoARD and the microfinance institutions. It was indicated that farmers receive credit in all the PLWs mainly for fattening purpose as part of livestock fattening extension program. However, credit supply falls short of demand. Some farmers complained about the periodic repayment schedule of livestock credit which, according to them, is not consistent with the fattening cycle. The assessment of the livestock credit service indicates the need to increase credit supply and adjust the terms and conditions of credit to the production characteristics of livestock.

A number of feeder and primary markets exist in the PLWs. On average, there are four livestock market places per *woreda*. The primary markets in some of the PLWs are fenced in which the respective municipalities charge buyers and sellers tax for sold animals upon exit. Some of the municipalities also charge sellers for unsold animals since they find it difficult to distinguish between sold and unsold animals. In some PLWs shoat markets are different from cattle markets. Markets in the PLWs do not have market infrastructures. Livestock marketing infrastructural development needs to be considered on a case by case basis depending on the importance of livestock in each *woreda*.

There are no license requirements for involvement in livestock trading in Tigray, Oromia and SNNPR. In Amhara region license is required to involve in livestock trading business, although enforcement of the law has not been easy. Further investigation is needed to determine whether licensing requirements will improve livestock marketing and to find means of better enforcement of license requirements.

Farmers and traders in all of the study sites reported no or very little access to formal livestock marketing information, although traders may be better informed about market conditions and prices than farmers. In most of the PLWs the OoARD collects livestock market information which rarely gets disseminated to the producers or traders. Farmers in all PLWs depend on actual market day information for prices and selling decisions. Farmers identified distance to market, transportation problem and feed shortage as major

problems of access to livestock markets. These results imply the need to develop an appropriate livestock market information service which could serve the needs of farmers and traders, and market place development or facilitation of linkages of farmers to profitable markets.

Both producers and traders are involved in selling livestock directly to consumers. Traders can be residents of the particular *woreda* or who come from other areas for business. In some areas (e.g. Ada'a-Liben, Mieso and Alaba) brokers and commission agents are involved in livestock marketing. The role of brokers and commission agents is becoming controversial, with farmers complaining that brokers collude to fix price and work in favour of buyers. Further investigation is required to identify the positive and negative roles of brokers in the livestock market in the *woreda*, and their links with traders and the export abattoirs.

Livestock traders are almost exclusively male. Key informants indicated that there are no farmer associations or cooperatives involved in livestock marketing in the *woredas*, except in some areas where export abattoirs have established livestock marketing cooperatives and unions. Every producer markets animals individually. There are no grades and standards applied to livestock. There is little prior marketing arrangement. There is no personalization of exchange in the livestock market; sellers usually sell animals to whoever offers higher prices. In all PLWs, payment is effected in cash on spot at the market place. These results imply the need to promote collective livestock marketing by organizing cooperatives or marketing groups. Such organizations can increase benefits from economies of scale and raise the bargaining position of producers.

The reasons for selling livestock, as reported by farmers, include the need to cover incidental cash expenses to fill household food deficit gaps, buy clothing, cover school and medical fees, cover expenses for social events, down payment for credit and credit repayments, payment for labour for agricultural activities, buy other animals, and to purchase crop inputs. Forced sales due to shortage of feed and water during the dry period were also widely mentioned. The relative importance of the reasons for sale vary from place to place. In some *woredas*, especially Metema, fear of theft was mentioned as an important reason for selling animals. Most of the reasons for selling do not indicate market orientation objectives. Hence, promoting market oriented livestock production systems deserves close attention.

The animals offered for sale in the PLWs are local breeds. The sale of male shoats dominates the sale of females. The age of shoats supplied to the markets in the eight PLWs ranges from 1 to 2 years. The most common weight of shoats offered for sale ranges between 15 to 25 kg live weight. The body condition of the animals offered for sale in

most of the PLWs was generally good, except during the dry period. The colours of shoats demanded differ from *woreda* to *woreda*. Farmers in most PLWs sell animals mostly during the holiday seasons. In the PLWs of Metema and Mieso, livestock sales are made more or less regularly continuously throughout the year. With regard to frequency of sale, farmers in most PLWs make animal sales once or twice a year, and usually one or two animals per household per year. These results imply provision of information on the requirements of buyers in the markets that are important for the producers.

In almost all PLWs livestock are transported mainly by trekking. The trekking cost per head of cattle or shoat depends upon the distance travelled. In some PLWs, traders use trucks to transport shoat to outside the *woredas*. In most cases, traders prefer trekking their animals as it is cheaper than tracking. Trucking is preferred for fattened animals in order to reduce weight loss and deterioration in body conditions. Further investigation is required to determine the costs of alternative livestock transportation methods, including costs of body weight loss, death of animals and deterioration in body conditions.

Farmers and traders indicated a number of problems affecting marketing of shoats and cattle. The major ones include inadequate market places, lack of adequate supply of good condition animals, lack of holding (concentration) places, feed shortage, shortage of stock supply for fattening/reproduction, lack of market information and low price due to poor body condition in some of the *woredas*. Informants also indicated theft of animals; multiple taxations at checkpoints; disease; and lack of vaccination services affect livestock marketing in the PLWs. All processors and exporters reported that shortage of appropriate animals is the most important problem they are facing in their business. This situation strongly indicates the need for the extension service to aggressively intervene on the production side to increase off-take.

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Annex 1: Checklist used for rapid appraisal of livestock marketing

1. Producers

1.1 **Production orientation** (subsistence, size of stock; market oriented, size of stock; types of species marketed (sheep, goats, cattle))

1.2 **Mode of production** (traditional, modern)

1.3 **Input supply** (source, availability, quality, timing, price etc.) (source of initial stock, breeding stock supply, fattening stock supply, feed supply, veterinary service, problems with input supply)

1.4 **Decision to sell** (since when involved in selling, reasons for sale, time of sale, frequency of sale and size of sale, place(s) of sale and why those places, types of buyers (consumers, retailers, wholesalers, processors etc.), selection of buyers, relationship with buyers, price determination, any prior arrangement with buyers, payment (cash or credit, time after sale etc.), problems during exchange, market access (ease of access, problems of access), opportunities for improved marketing and market access)

1.5 **Characteristics of animals offered for sale** (breed type, age, condition, sex, weight, colour, hair, type of better demanded animals in the market (age, weight, colour, condition, sex, hair etc.))

1.6 **If market oriented** (time business started, capital (other than value of animals), labour involved (full time and casual))

1.7 **Access to market information** (availability, source, type of information, cost of information, timeliness)

1.8 **Credit service** (need for credit, purpose(s) credit needed, availability, source, adequacy, terms, interest, problems encountered with service, opportunities for improved credit access)

1.9 **Extension service on livestock production and marketing** (source, availability, purpose of service, quality of service, problems encountered with service, opportunities for improved service)

1.10 **Estimated cost of production**

1.11 **Policy and regulatory issues** (taxation, regulations, other)

2. Assembly trading/wholesaling/retailing

2.1 **Business and capital** (type of business, time business started, capital (fixed, operating), labour employed (fulltime, casual), type of animals traded (sheep, goat, cattle))

2.2 **Purchasing** (place(s) of purchase, why these places; volume of purchase/year; transportation of animals to waiting place and sale point; relationship with sellers; characteristics of animals purchased; breed type; age; condition; sex; weight; colour; hair; type of better demanded animals in the market (age, weight, colour etc.); prior arrangement with sellers (e.g. contract farming, out-growers scheme etc.); purchase price determination; payment to sellers; mode of payment (cash, credit, other); time of payment; problems with purchasing; supply; price; regulations etc.)

2.3 **Selling** (place(s) of sale, why these places; volume of sale/quarter, year or other time units; relationship with buyers; sales price determination; mode of payment from buyers (cash, credit, other), time of payment after sale)

2.4 **Market information** (availability, type, cost, quality, timing)

2.5 **Entry and exit conditions** (entry, exit)

2.6 **Characteristics of better demanded animals** (breed type, age, condition, sex, weight, colour, hair)

2.7 **Problems with selling** (buyers, prices, market access, regulations, other)

3. Woreda office of agriculture livestock experts

3.1 **Mode of production in woreda** (subsistence, market oriented, if both, relative size)

3.2 **Market channels**

3.3 **Type of animals offered for sale in woreda** (cattle, sheep, goat)

3.4 **Characteristics of animals offered for sale** (breed type, age, condition, sex, weight, colour, hair, type of better demanded animals in the market (age, weight, colour etc.))

3.5 **Destination(s) of final sale and means of transportation of animal**

3.6 **Any studies on livestock marketing and databases** (studies, databases (price, volume traded by type of species and category of animals))

3.7 **Key traders in woreda** (names, residence places, capital, address and telephone numbers)

3.8 **Livestock markets in *woreda*** (name(s) of market(s); size of markets, market infrastructure)

3.9 **Livestock market regulations** (license requirements and who issues licenses, taxation and duties, other regulations)

3.10 **Farmers' selling behaviour** (reason for selling, time of selling, frequency of sale)

3.11 **Livestock trade route** (within *woreda* livestock trade flows, inflow of livestock to *woreda*, outflow of livestock from *woreda*)

3.12 **Problems of market access**

3.13 **Problems during exchange**

3.14 **Extension service to farmers** (source, availability, purpose of service, problems encountered with service, opportunities for improved service)

3.15 **Credit service to farmers/traders** (need for credit, purpose(s) credit needed, availability, source, adequacy, terms, interest, problems encountered with service, opportunities for improved credit access)

3.16 **Input supply service to farmers/traders** (improved breed, feed, veterinary service, other)

3.17 **Market information in *woreda*** (availability, type, cost, quality, timing)

3.18 **Market institutions in *woreda*** (grades and standards, farmer cooperatives and marketing groups, exchange mechanisms (e.g. auctions etc.), traders associations)

3.19 **Opportunities to expand market** (existing markets, new markets)

3.20 **Other views related to livestock marketing**

4. Regional marketing support/export agencies etc.

4.1 **Willingness to be involved in the livestock market study**

4.2 **Previous studies on livestock marketing and data** (previous studies on livestock marketing, availability and accessibility of data (on prices, volume of transaction, livestock population by zone or *woreda* etc.), key areas of study needed, other issues)

5. Regional Office of Statistics (availability of data (on prices, volume of transaction, livestock population etc.), accessibility of data, other issues)

6. Regional Chamber of Commerce (names and addresses of licensed livestock traders, licensing requirements and who issues licenses, data (availability of data on prices, volume of transaction etc.), accessibility of data)

7. Regional Bureau of Trade and Industry

7.1 **Licensing requirements for livestock trade** (who issues licenses, licensed traders' names and addresses)

7.2 **Data** (availability, accessibility)

8. Regional Bureau of Agriculture experts

8.1 **Willingness to be involved in the livestock market study**

8.2 **Previous studies and data** (previous studies, data (on prices, volume of transaction, livestock population etc.), availability, accessibility)

8.3 **Livestock trade routes in region** (livestock trade flows within region, inflow of livestock to region, outflow of livestock from region)

9. Regional Agricultural Research Institute

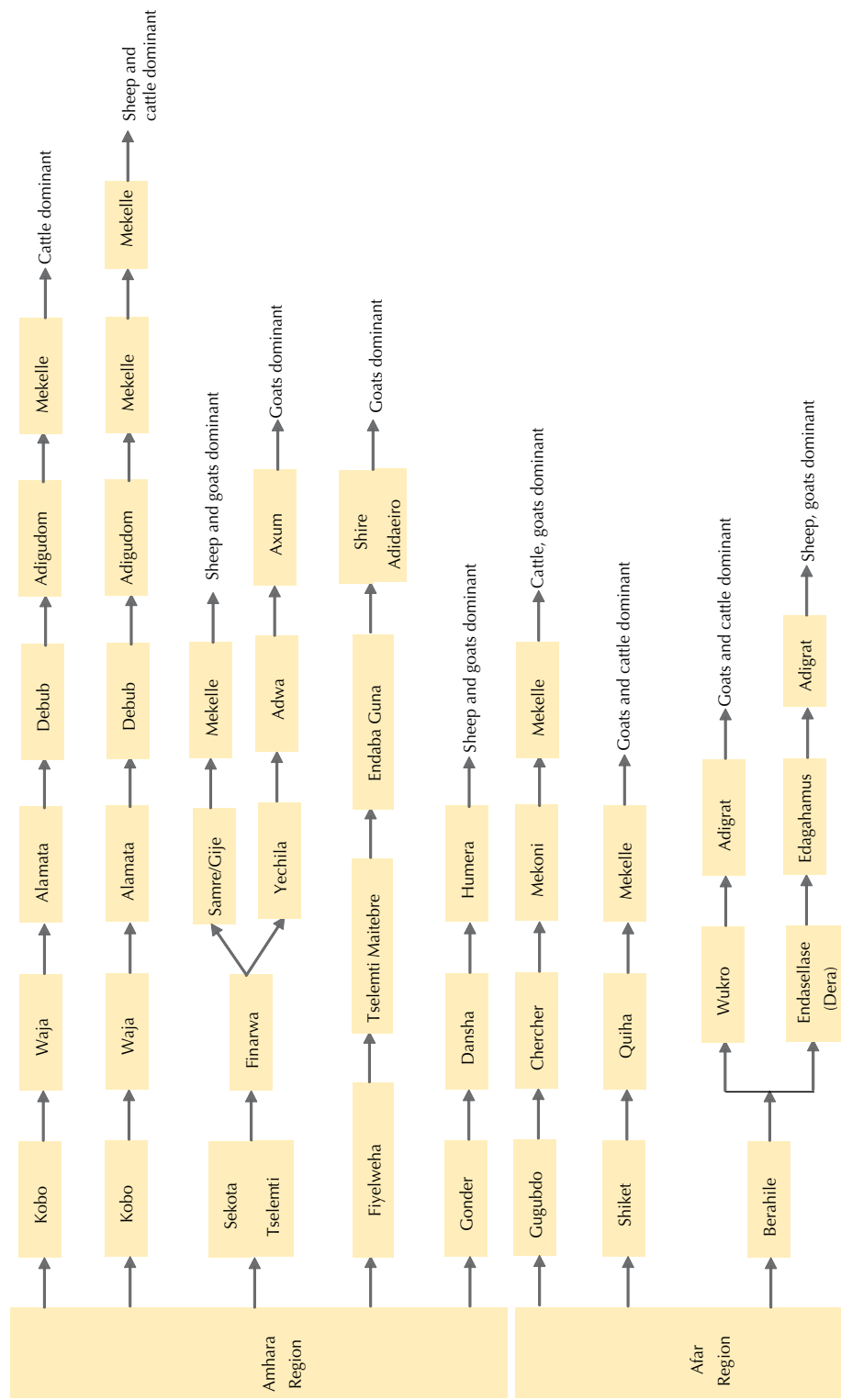
9.1 **Involvement in the livestock market research**

9.2 **Previous studies and secondary data** (previous studies, data availability and accessibility)

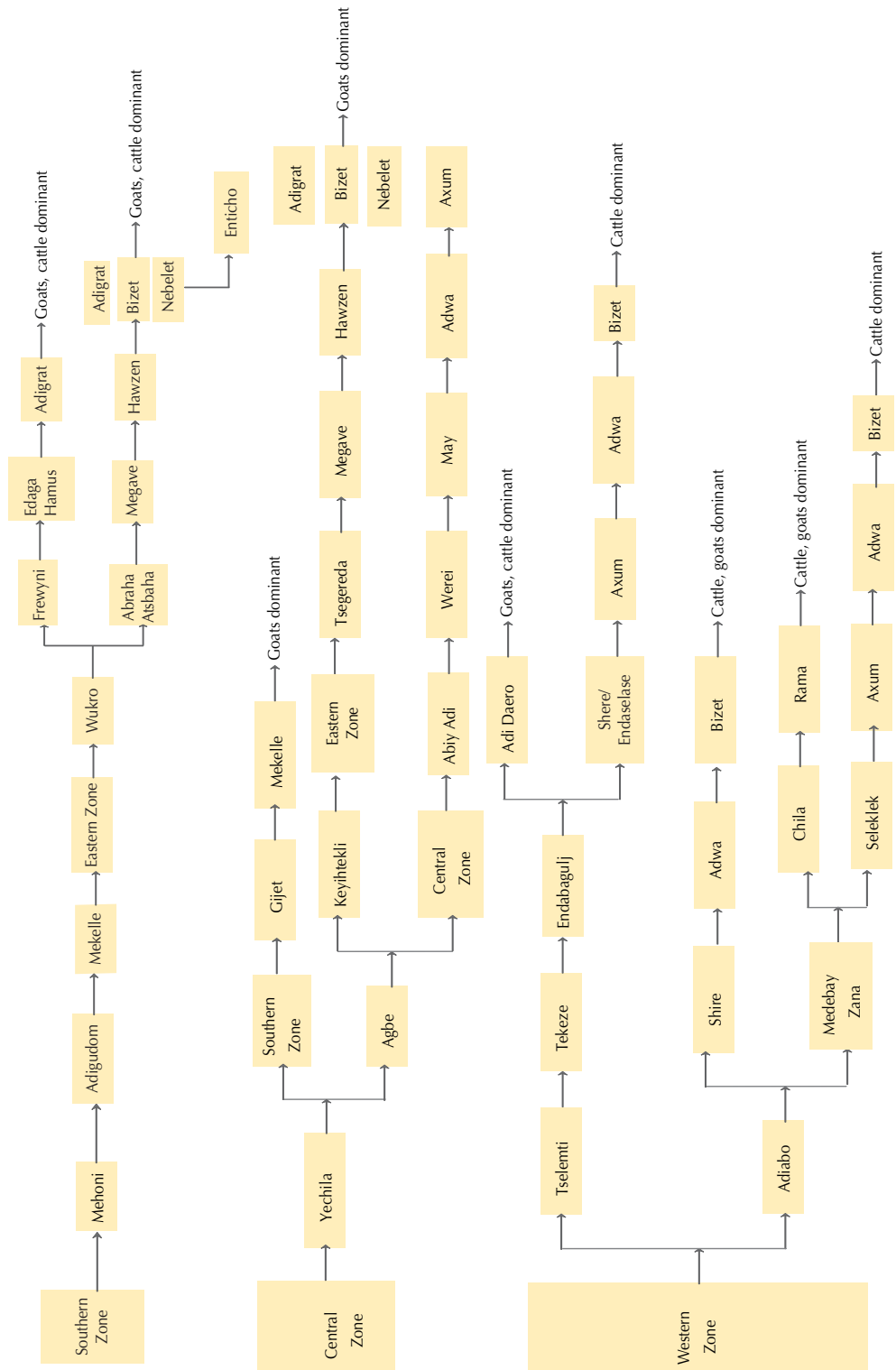
10. Specialized agencies, companies, businesses in region (processors (meat factories etc.), exporters (live animal exporters, meat exporters etc.), others)

Annex 2: Livestock trade routes of Tigray Region

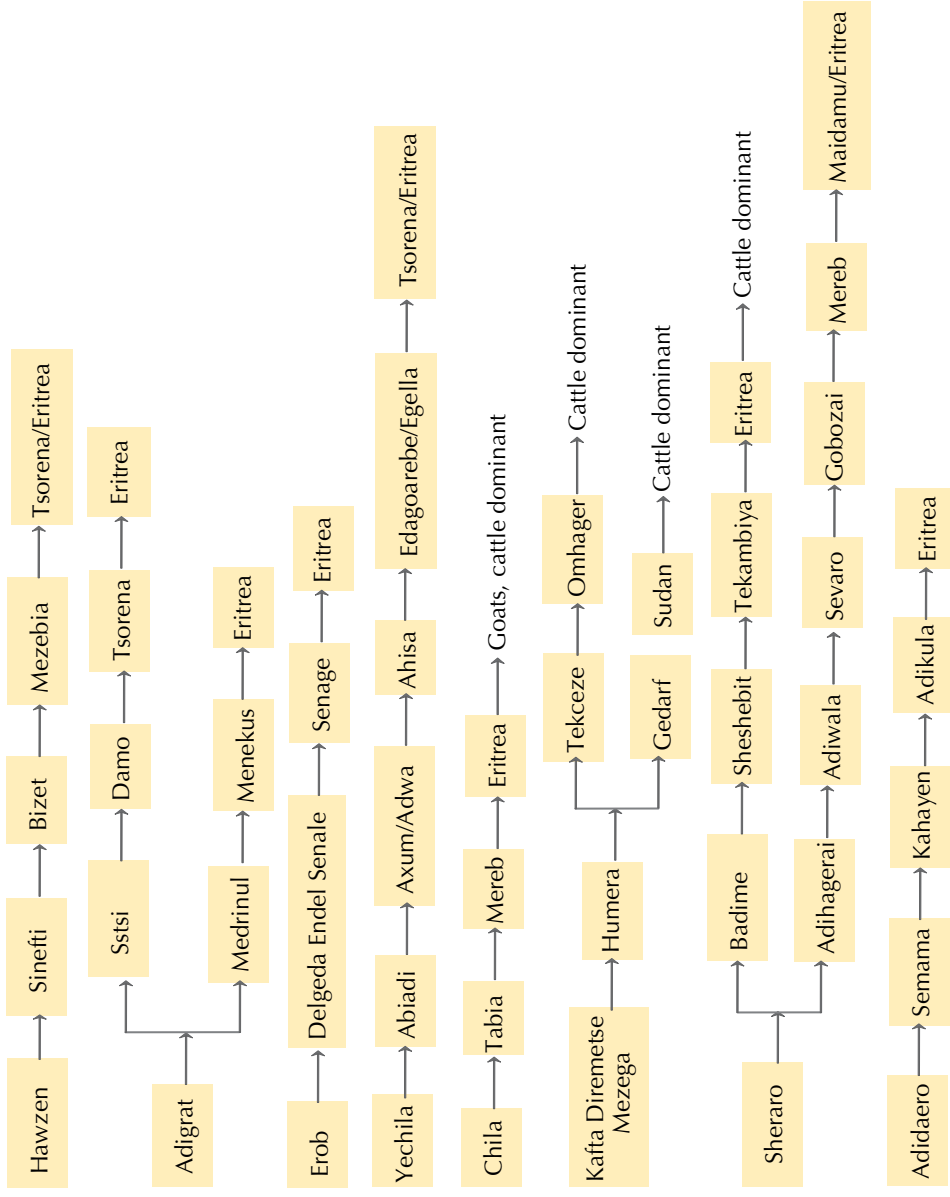
2.1 Inward trade animals flow routes, Tigray Region



2.2 Intra-region animals trade flow routes of Tigray Region

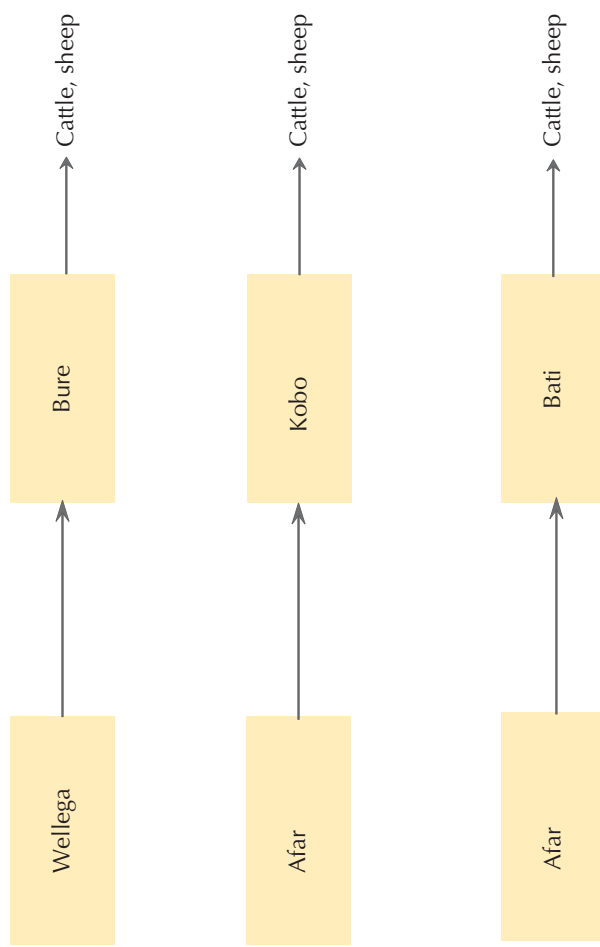


2.3 Outward animals trade flow routes, Tigray Region

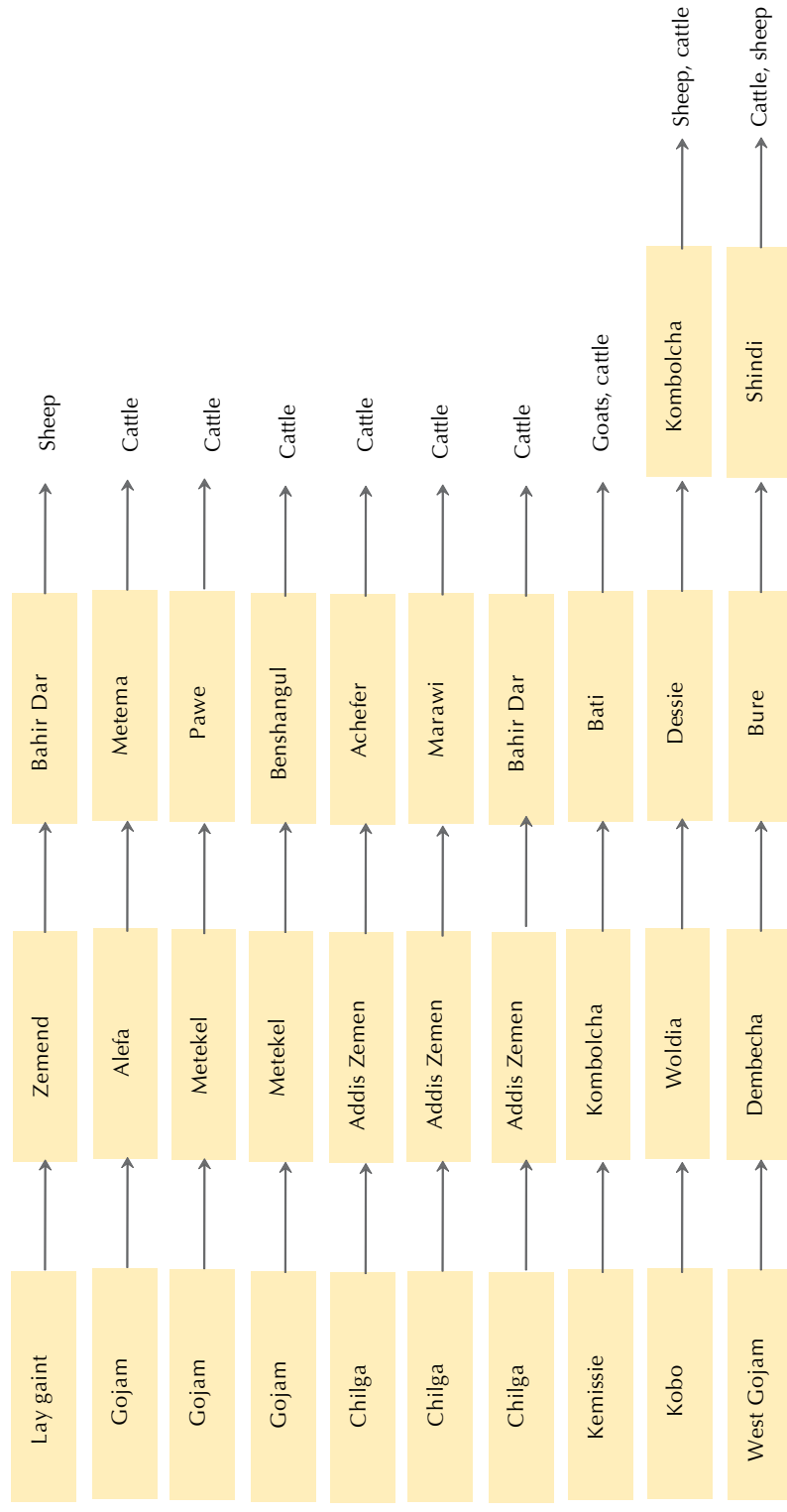


Annex 3: Livestock trade routes of Amhara Region

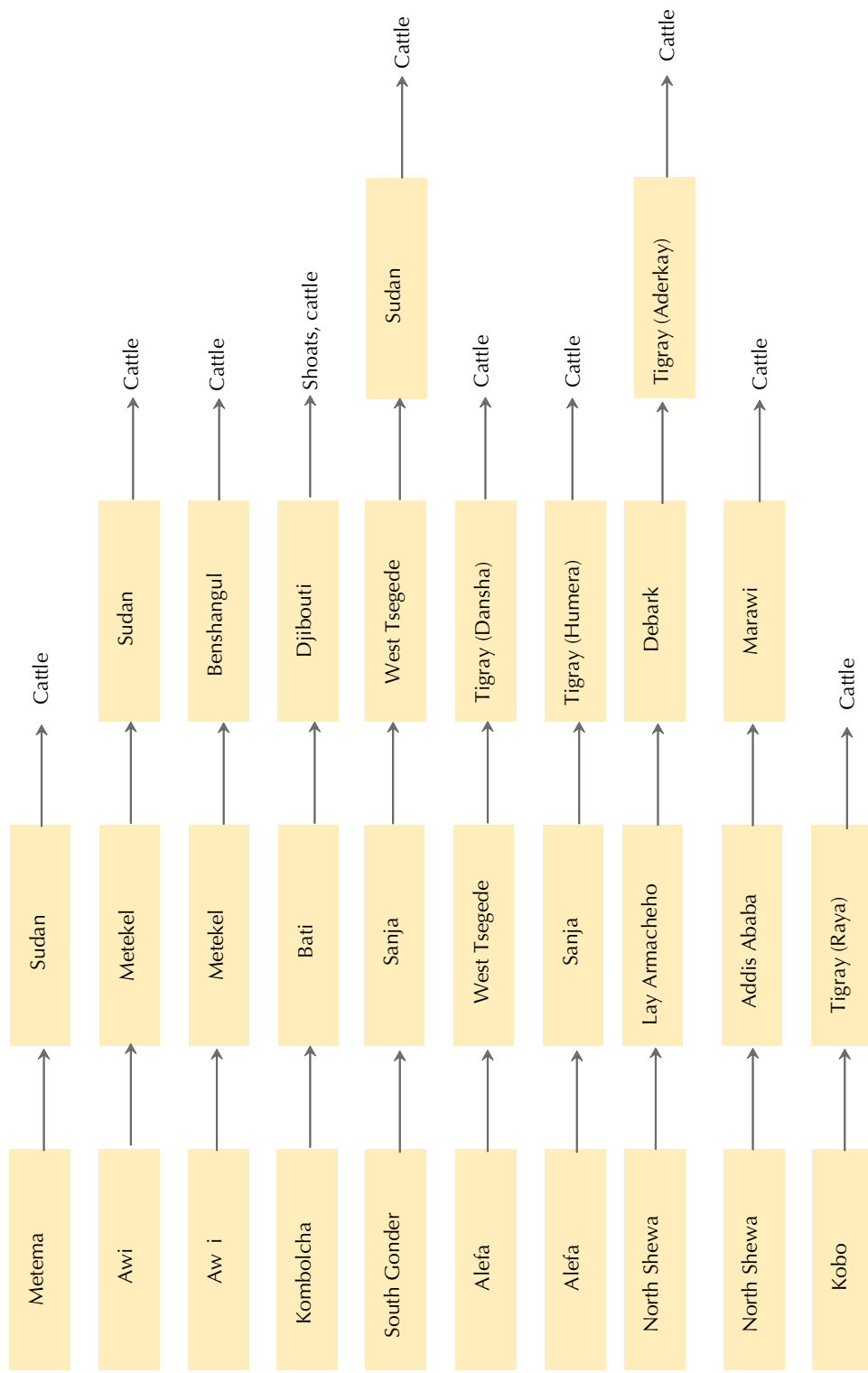
3.1 Inward animals trade flow routes, Amhara Region



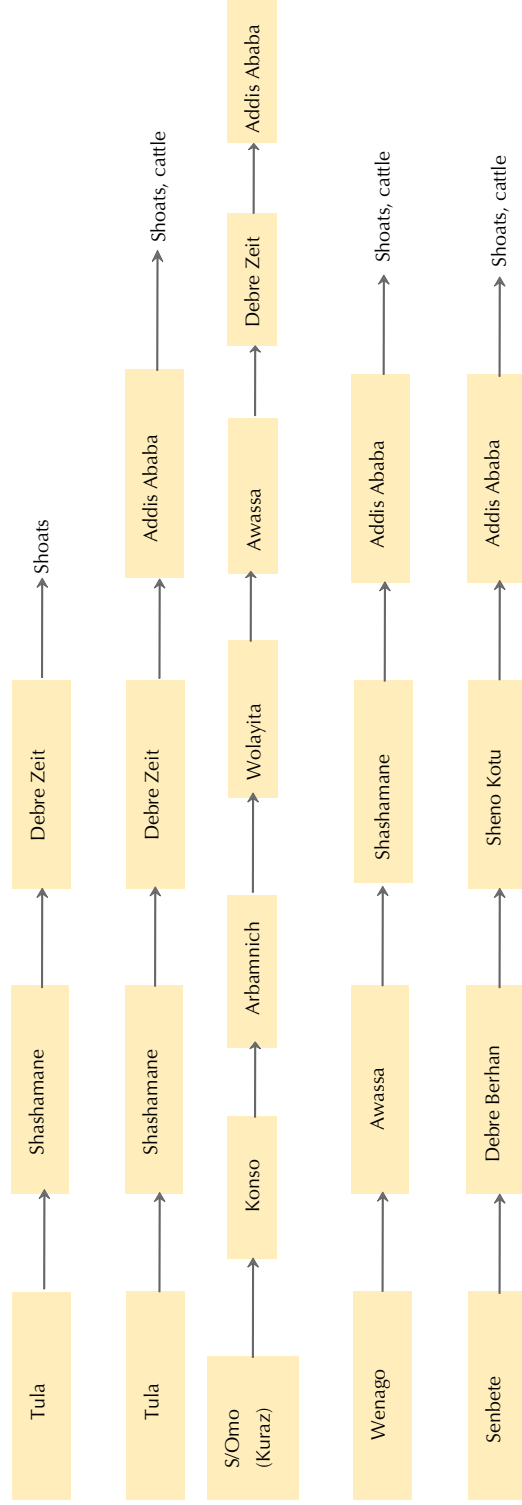
3.2 Intra-region animal trade flow routes, Amhara Region



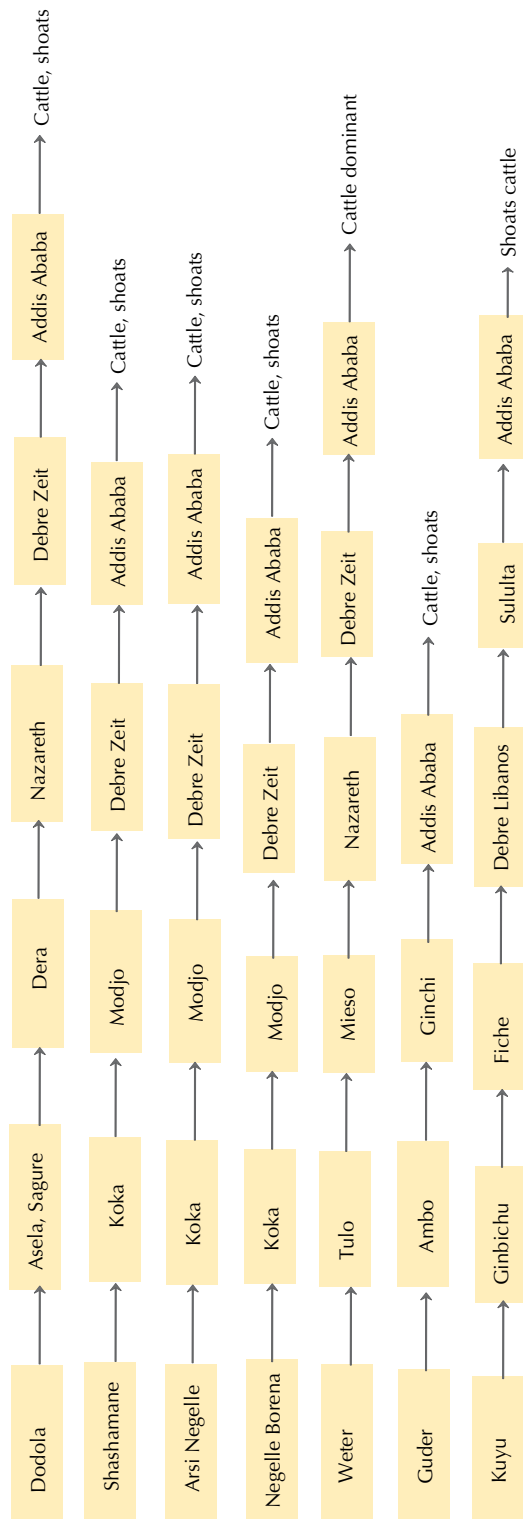
3.3 Outward animals trade flow routes, Amhara Region



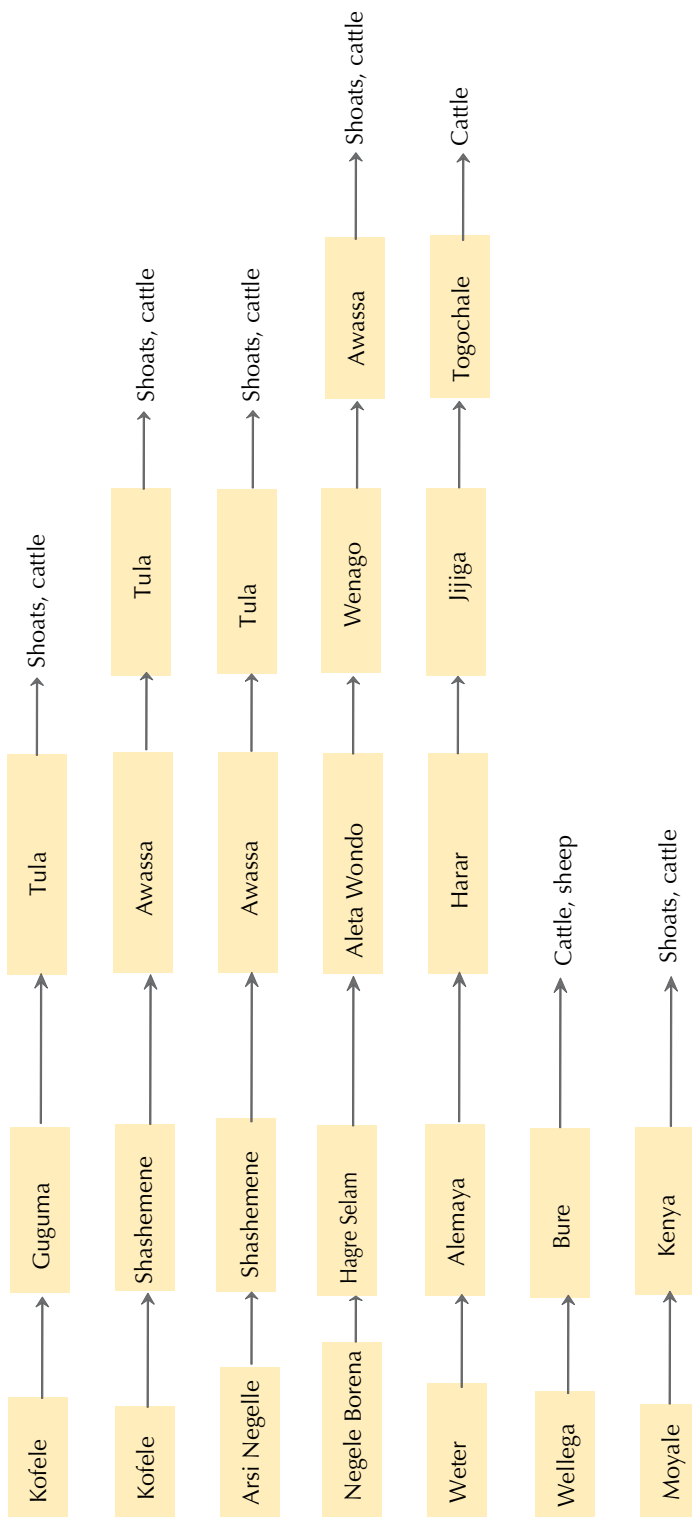
Annex 4: Livestock trade routes, Oromia Region
 4.1 Inward animal trade flow routes, Oromia Region



4.2 Intra-region animals trade flow routes, Oromia Region

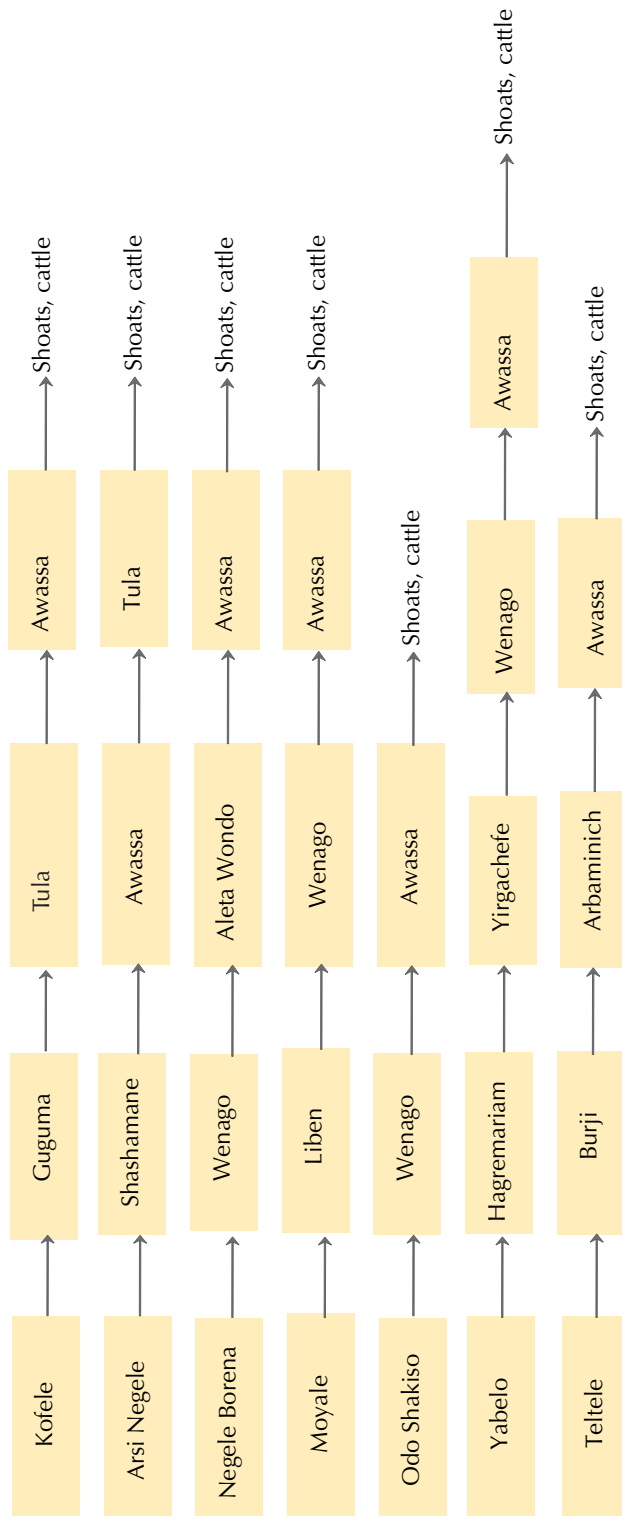


4.3 Outward animals trade flow routes, Oromia Region

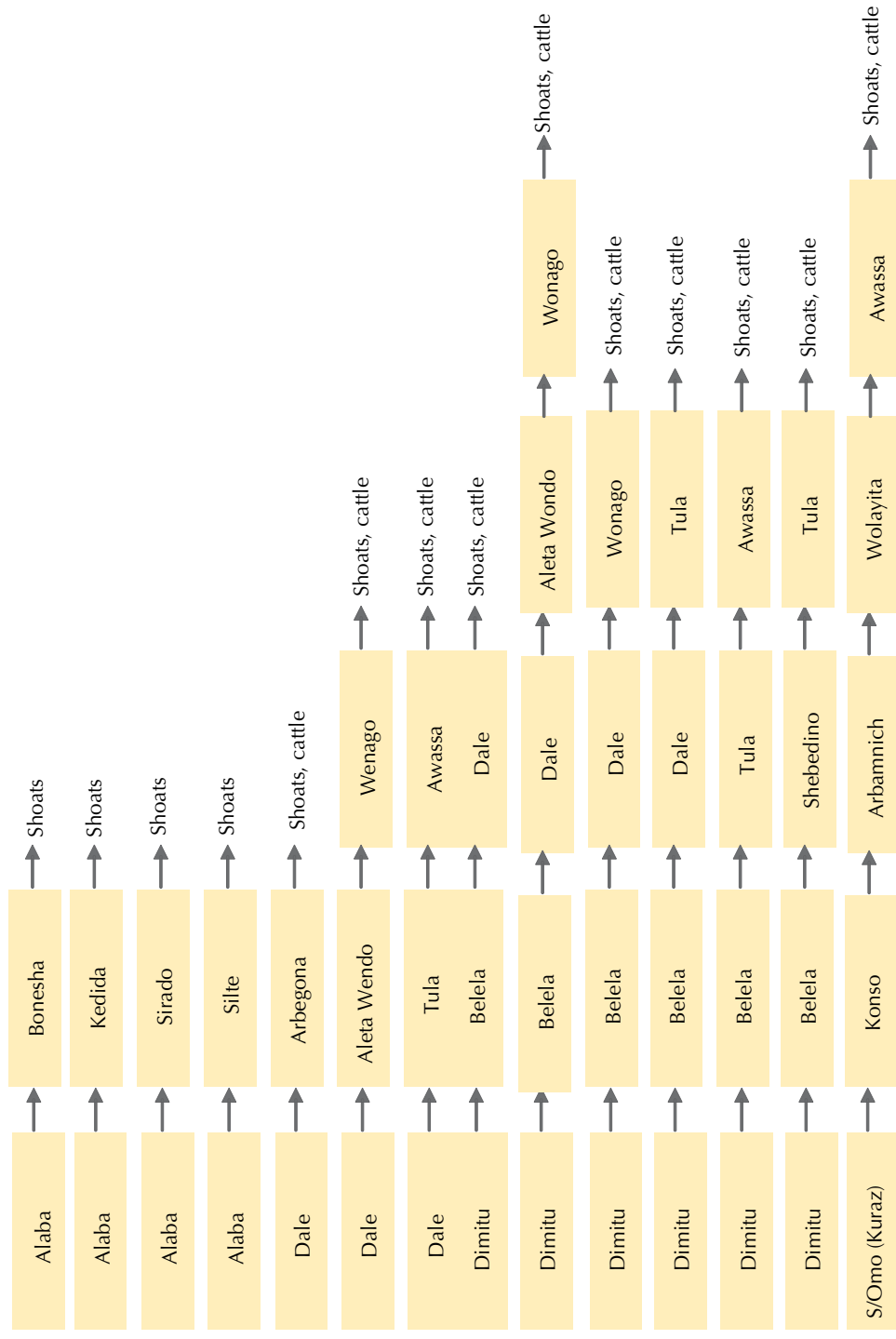


Annex 5: Livestock trade routes, SNNPR

5.1 Inward animals trade flow routes, SNNPR



5.2 Intra-region animals trade flow routes, SNNPR



5.3 Outward animals trade flow routes, SNNPR

