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## Shifting Sands: The Commercialization of Camels in Mid-altitude Ethiopia and Beyond

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## **Note**

The mid-altitude regions in this report refer to those areas adjacent to Afar, Kereyu, Ittu, Alla, and Hawiya pastoral production areas and located immediately above the central and northeastern escarpments within altitude ranges of between 1,100 and 2,000 meters above sea level, with the exception of Shiraro, which is located in northwest Ethiopia.

Photographs by Yacob Aklilu.



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## SUMMARY

This report describes an extensive and growing camel trade system that stretches for nearly 2,000 km from eastern Ethiopia to the far northwest of the country, and into Sudan. Among policy makers and researchers, little is known about this trade, although it involves more than six ethnic groups and is served by 24 markets across Oromia, Afar, Amhara, and Tigray Regions. The report starts to address this information gap using a five-week field study that followed the camel trade route from its origins in pastoralist areas, through to the movement of camels into Sudan. The report describes the trade route and markets and also the changing attitudes of mid-altitude farmers towards the ownership and use of camels.

At a time when the Ethiopian government and some aid donors are increasingly trying to encourage market development as a strategy for national economic growth, the camel trade makes a useful case study because it has evolved without tacit government or aid program investment. Therefore, the study illustrates how producers and traders can respond to market and buyer demands and develop relatively sophisticated systems in the absence of external support. The trade further illustrates the economic linkages that can develop between pastoralist producers and traders, and mid-land groups and actors across regional state borders, providing clear benefits for those involved. The trade was valued at US\$61 million in 2010, albeit mostly related to domestic trade. To put this figure in perspective, the value of formal cattle, sheep, and goat live animal and meat exports from Ethiopia in 2010 was around US\$125 million. Furthermore, the camel trade routes described in the study are not the only trade routes for camels within the country and beyond.

For mid-altitude farmers who are buying and using camels, the study shows a rational, adaptive response and the increasing use of a livestock species that is drought-tolerant, and, unlike cattle, does not require grazing land. Similarly, for pastoralists who decide to shift their herd composition and produce more camels, this shift

is logical given the market opportunities and the remarkable ability of camels to thrive in extremely dry conditions. The shift also indicates how economic benefits can outweigh socio-religious beliefs. Although camels are associated with Islam and so have been unpopular with Orthodox Christian farmers in Ethiopia, an important psychological shift is evident as small numbers of these farmers now own and breed camels. That said, these farmers are not yet using camels for meat or milk, but for transport, ploughing, and other physical tasks.

In addition to the growing popularity of camels among mid-altitude farmers, another “pull factor” in the trade was the dramatic rise in the price of camels in Sudan, with price increases of 70% to 100% reported. This trend provided a considerable incentive for nearly all Ethiopian actors, viz. pastoralists, farmers, and itinerant and regular traders, to engage in the camel trade in one way or another.

The report concludes with some policy recommendations and more immediate, practical measures that would assist the trade. Notably, the trade has developed without notable market infrastructure developments. Where infrastructure seems to be important, it is more in the area of good roads and peculiar to the northern camel trade, as in the need for a bridge across the Takeze River.

## 1. INTRODUCTION

### 1.1 Livestock and economic growth in Ethiopia

For many years, strategies for improving food security and economic growth in Ethiopia have included livestock development programs and research. These efforts have included specific livestock marketing interventions, and, during the last seven years or so, government policy support to formal livestock and meat exports has contributed to a clear growth in this area. For example, according to the National Bank of Ethiopia, between 2005 and 2010 the number of formal live animal exports increased from 163,000 to 334,000, and meat exports rose from 7,717 to 10,000 tons. When combined, these trends accounted for exports values of US\$43 million in 2005, rising to US\$125 million in 2010 (Aklilu and Catley, 2010).<sup>1</sup> Furthermore, the main supply areas for this growing formal trade were pastoralist areas of the country, especially Borana and Somali Region. Also of interest, these changes took place at a time when Ethiopia became internationally recognized as free of rinderpest, but outbreaks of other transboundary animal diseases continued to occur. Other than rinderpest then, these other diseases seemed not to be a major constraint to live animal or meat exports.

Although the livestock export business has shown very positive growth in recent years, there are questions over whether this scale of growth can be sustained. At present, the main pastoralist areas that supply livestock and meat for formal exports are subject to an uncertain policy environment and possible restrictions on access to the grazing and water resources that are needed to raise cattle, sheep, and goats in dryland environments. Essentially, unless the existing and relatively efficient pastoralist production systems are supported, it is unclear how these areas can continue to grow in terms of livestock exports. Comparable resource issues exist in mid- and high altitude areas, with the problem of limited grazing land being widely reported, over many years.

### 1.2 Camels in Ethiopia: key information gaps

In contrast to cattle and small ruminants, camels have received very limited attention from policy makers in Ethiopia. In terms of research, a growing body of literature is available on camel production and diseases (e.g., Abebe Wosene, 1991; Bekele, 1999; Melaku Tefera and Fesha Gebreah, 2001; Bekele Mergersa Bati, 2004; Bekele Mergersa, 2010), but relatively little information is available on camel marketing and trade (e.g., Yohannes Mehari et al., 2006). However, important trends in camel ownership have been reported, such as the increasing ownership of camels by Borana herders (Desta and Coppock, 2004) and the Issa-Somali in Shinile zone (Kassahun et al., 2008), associated with the drought-resistance qualities of camels changing vegetation, and other factors. More recently, a boom in camel trade from pastoralist areas has been recognized, with pastoralists shifting herd composition to produce more camels for the market (Aklilu and Catley, 2010).

The research presented in this report aims to fill some of the information deficits on camel trade in Ethiopia by describing an extensive camel trade route that stretches for nearly 2,000 km from Melka Oda in Bale and Miesso (near Awash in the east) to the Raya Plains, Shiraro, and Setit Humera (the crossing point to Sudan) in northwest Ethiopia. The trade involves more than six ethnic groups as producers, value adders, itinerant/regular traders and trekkers, and truckers. Despite the physical scope of the trade and the range of actors involved, it seems not to have been documented previously. Therefore, the key questions included:

- What is the structure and organization of the camel market network?
- What are the drivers of the camel trade, such as internal demands for camels in non-pastoralist areas of Ethiopia and demands for camels in Sudan?

<sup>1</sup> At the time of writing this report in April 2011, formal cattle and beef exports from Ethiopia were adversely affected by the political instability in Egypt. This was thought to be a temporary setback to the export business, and, in part, was offset by a shift towards the Kenya markets and trucking of fattened cattle into Kenya via Moyale.

- What are the trends in camel prices and volumes of sales at different points in the network? Where is value added and how?
- How, if at all, have the attitudes and practices of mid-altitude farmers changed to adopt camels? How are camels being used and what are the constraints to camel ownership and production? How are these changes explained in relation to traditional or religious beliefs relating to camels?
- How is the formal export of camels to Sudan organized, and what are the constraints to this trade?

### 1.3 Structure of the report

The findings of report are structured into three sections:

- Section 3 provides a brief account on the history of the salt trade route from the Afar (Danakil) Depression that provided the

impetus for familiarization, acquisition, and increasing utilization of camels by mid-altitude farmers.

- Section 4 focuses on background factors that contributed to the increasing preference of camels over donkeys or mules, as stated by farmers. Current estimates of the camel population, emergent breeding practices, and the limitations of resources in the mid-altitude regions are also discussed in this section.
- Section 5 provides details on the significance of the trade route including: market networks; market actors and security issues; trekking and trucking routes; trade volume; and price movements and taxation, including the export trade to Sudan.

Section 6 offers some discussion points and makes recommendations for supporting the camel trade and raising awareness at the policy level of the importance of camels to livelihoods and economic growth in Ethiopia.

**Figure 1. Camel trade routes in Ethiopia examined during the study**



## 2. METHODOLOGY

The study was conducted over five weeks by following camel movements and trade routes from Miesso in the east of Ethiopia to Humera in the far northwest. Although the trade routes stretches for about 2,000 km, the research team traveled 8,000 km by road, due to the need to visit the various markets, and because market activity was often limited to specific days of the week. Seventeen out of twenty-four markets serving the trade route were accessed during the study. Interviews were conducted with 108 informants (Annex 1), including pastoralists, farmers, itinerant traders, value adders, middlemen, drovers, and exporters, as well as relevant agricultural, finance, and customs staff.

The study was conducted in collaboration with woreda<sup>2</sup> agricultural office staff in all locations, with customs offices in Gondar and Humera, and with government finance offices in Miesso, Bati, and Kobo. The woreda agricultural offices provided information on the evolution of the increasing acquisition of camels by farmers, camel population estimates, feeding practices, prevalent diseases, and social changes that have been brought about by the introduction of camels. They included data on trading, such as changes in camel prices and volume of trade.

Traders, brokers, and trekkers provided information on trade volume estimates, identification and roles of main actors, market networks and value-adding practices, trekking and trucking routes, trade-associated costs (including taxation), seasonal trends, and impacts of conflict on the trade. Camel-owning farmers provided information on the underlying reasons for the increasing preference of camels over equines, returns on investment, feeding and husbandry practices, implications on social and cultural practices, and their own perceptions of major constraints. The study also aimed to interview mid-altitude farmers who bred camels.

This type of informant was rare, but three farmers were identified in Kobo, Alamata, and Mehoni, and they explained how they became involved in breeding camels in their respective areas.

Exporters gave accounts of current operational practices, export prices, trade opportunities and constraints, including proposed solutions for existing and anticipated problems. The trip to the salt mines provided first-hand observations regarding the influence of the Afdera salt mines, and the impact of the upgrading of the road to Berahle on the rectangular salt block trade. Customs offices provided relevant information on export trends, camel export data, revenue earned, problems associated with contraband businesses, and the current practices of exporters.

**Limitations:** Direct information could not be obtained from seven of the markets in the chain, except by way of secondary information from traders that operate in these markets; in many cases, available market data were limited to the average price of camels. Data on weekly volume of supplies and sales were available only for Chifra, Waja (Alamata), Mehoni, Shiraro, and Bati markets. As a result, supply and sales volumes in this paper reflect informed estimates of traders (for all other markets) and tax collectors for three markets. Towards the end of the second trip, we discovered that a new camel export route from Miesso and Metehara to Sudan through Metema had just become operational. This trade route is not included in this report due to time constraints. As the study was confined within the national boundary, it was not possible to prove if camels exported to Sudan were destined for domestic consumption or for re-export to Egypt or the Middle East. Nevertheless, we expect that this paper will provide relevant information on the northern camel trade route, one that has not been documented before.

<sup>2</sup> A woreda is the third-level administrative unit in Ethiopia, after region and zone; it is roughly equivalent to a “district” size unit in other countries.

### 3. THE CAMEL TRADE: AN OVERVIEW



*Camels carrying salt blocks, Danakil Depression*

#### 3.1 Historical background

*It all started with the salt mine in the Afar Depression.*

Yimer Ibrahim, camel breeder in Alamata

Although little known to the outside world, the camel trade route to northern Ethiopia has been (according to elders) operating for a long time. In the past, this trade route served in supplying sturdy camels for the salt mines that are located in the Danakil (Afar) Depression at Reged in Berahle, described as one of the most inhospitable regions in the world (Cominos, 1964).

As in many other countries, trade in old-time Ethiopia was conducted mainly through barter. The *amole*, the rectangular salt block mined from the Afar Depression, was the medium of barter and according to Medhane (1995), “the rise and fall of polities in Northern Ethiopia was intimately connected to access to and control over” this resource. In writing about trade in old-time Ethiopia, Pankhurst (2010) notes that

*Local trade consisted of exchanges of goods over short distances, attended mainly by the local peasantry and monks who would bring their produce for sale at weekly local markets (grain, honey, butter, cattle, hides and skins, etc.). Long distance trade, largely based on caravans, on the other hand, was composed of travelling Muslim merchants, involved in the import-export trade. Such traders travelled far and wide to the Red Sea and Gulf of Aden ports, such as Hergigo, Zeila and Berbera, while some ventured to Egypt, Arabia, Persia, India, Sri Lanka and China importing Indian cottons, Chinese silks and European manufactured goods of all kinds while exporting gold, ivory and musk. There were also itinerant merchants,<sup>3</sup> often a thousand or two strong, who travelled during the dry period between regions, under the command of a negadras, or Chief of the Trade. These traders were largely involved in transporting and exchanging goods between regions.*

Nevertheless, the most fascinating caravan was the great salt caravan that transported rectangular salt blocks from the Afar Depression to the highlands. Pankhurst (2010) cites Francisco Alvares, who in the sixteenth century saw

<sup>3</sup> These were known as “*sirara nagades*” in old-time Ethiopia.



*Salt blocks in the Danakil Depression*

*One such caravan comprising three or four hundred pack animals in herds laden with salt ... while other caravans belonged to big lords who sent them to the salt plains every year to obtain salt bars to meet their expenses at court as the amole was circulated instead of money.*

A century later, Pankhurst further adds the observation of the Portuguese Jesuit missionary, Manoel de Almeida, who described the road from the salt-producing region of Tigray to the Province of Dembeya (near the then-capital, Gorgora by Lake Tana), as being “constantly full of salt caravans, consisting of no less than 1,000 porters, as well as perhaps 500 donkeys, who found the journey particularly arduous.”

We can safely assume that in the old days, a combination of donkeys, mules, and camels must have been used in transporting salt from the depression up to the escarpment, from which point on only donkeys and mules were used to carry the salt to higher altitudes. As time went on, more camels were employed between the depression and the escarpment. The procurement of camels probably began from the adjacent Afar areas, where the mine is located, before increasing demand caused traders to begin sourcing camels from the central eastern parts of Ethiopia.

Regardless, the engagement of camels was a logical move, given the arduous nature of this

route. The spectacular salt caravan route stretches between altitudes ranging from 1,800 m above sea level (at Agula) to below 100 m over a short stretch of 165 km. Even as recently as a year ago, before the directive to transport salt blocks on trucks from Berahle to the uplands came into effect, camels laden with heavy salt blocks had to function in altitudes and temperatures of extreme variations, including the steep narrow passages approaching the highlands. Outside of donkeys and mules, only the physically smaller but hardy Afar and Issa camels are capable of meeting the physical endurance necessary to traverse this route. Yet, due to the physical hardships they endure, camels serving on this route wear out very fast, requiring replacements every five to six years and sustaining a continuous demand for them by the salt trading community.

Camels transporting salt on this route survive on the bare minimum feed that they carry, when going to the mines (barley or wheat straw or *teff* chaff). The round trip to the mines takes various numbers of days, depending on the point of the initial departure. For example, a round trip takes one month from Kobo to Reged, three weeks from Mehoni, twelve days from Meqelle and six to seven days from Wukro. On the longer trips, camels endure with little or no feed at all for days. Because the camels become exhausted after each trip, they are allowed to rest and feed for a month or so to recover.



*The arduous transport of salt blocks by camels covers a route from below sea level in the Dankil Depression into the Ethiopian mountains at around 1,800 m.*

### 3.2 Recent developments in the salt trade

During the imperial regime, salt-transporting camels were owned by wealthy traders, who were largely concentrated in Wukro and Meqelle, and by a handful of wealthy farmers in southern and other parts of Tigray and northern Wollo (mainly Kobo). Such camels were not tasked to do anything else apart from transporting block salt—until 1983, when the use of camels for transporting other goods and commodities began due to the decimation of donkeys (and also mules) in the drought and the booming contraband business from Djibouti.<sup>4</sup> The salt caravans were managed by specialized drovers, who were hired by camel owners after producing guarantors. Up until the early nineties, drovers were hired for an average salary of 40 birr (~US\$20)<sup>5</sup>/month and provided with a ration of 40 cans of wheat flour<sup>6</sup> for the round trip. In other cases, a drover was paid 3 birr/camel, plus one bar of salt from each of the camels under his care. Salt trade was a lucrative business at the time, because each block was purchased for 25 cents (Ethiopian) at the mine and sold for 10 birr in the highlands. For example, a trader with 10 camels, each laden with 20 salt blocks, was

capable of realizing a gross profit of 1,900 birr (US\$238) per trip. Except for the rainy season, camels were required to make four to six trips per year, depending on the distance of origin.

The price of the salt block rose to 3 birr at the mines in the early nineties with retail prices rising subsequently to 15 and 20 birr per block. In mid-1995, drovers demanded a share of the profits in lieu of wages, to which the salt traders, having no other option, agreed. This was the normal practice until the salt block trade was impacted by the new salt mine at Afdera, which made loose salt (locally known as *ashabo*) available for transport by trucks. *Ashabo* is now commonly used, because of its affordability, and according to Feyissa Dereje (2011), 95% of the national demand is met by the Afdera salt mine, thus significantly reducing the market share of *amole* and relegating the latter solely for the use of livestock as mineral licks.

Recent developments have impacted (positively and negatively) on the businesses of farmer-cum-salt traders and drovers; the road from Agula to Berahle and Reged has been upgraded and the Afar regional government has decided that the salt

<sup>4</sup> Mainly electronic goods and second-hand clothes.

<sup>5</sup> Approximate exchange rate at the time was 1US\$ = 8 birr.

<sup>6</sup> Each can weigh between 750 grams and 1 kilogram.

blocks be transported by trucks for most of the journey from Berahle to the uplands. Subsequent to this decision, a central salt depot was set up by the government at Berahle, where traders now have to purchase the blocks. The price of salt blocks at the mines was also subsequently raised, and the use of camels for transporting salt is now limited between Reged (the production site) and Berahle, a distance of some 48 km.

The salt mining operation at the production site is carried out by Tigrean and Afar laborers, each group playing a specific role. The ground at Reged is encrusted with salt rock. Laborers harvest the rectangular salt blocks from a specific area, until the salt deposit is exhausted. They then move on to a new site, and the exhausted site remains unused until another harvest two years later. The production process takes place in two phases. The Tigrean laborers dislodge the salt blocks from the ground by inserting strong wooden poles in the cracks and pulling them from the other side with crowbars. Afars carve the irregular blocks into rectangular shapes. The carvers get paid 3 birr and the Tigrean laborers 1 birr for each rectangular block. A strong carver can realize 300 birr on a good day and around 170 birr on less-productive days. The total cost per block of 6 birr (including 2 birr tax per block)

is the price paid by the drovers who collect and transport the salt blocks to the central depot at Berahle. The drovers also pay a royalty tax of 21 birr for each camel they bring to the salt mines. The payload per camel for the short haul between Reged and Berahle varies between 25 and 40 blocks, depending on the size and age of the camel. The drovers sell each block to the finance bureau at Berahle at 12 birr and the finance bureau then sells to salt traders at 15 birr. Salt traders retail each block at around 24 birr in Meqelle. The drovers make three round trips between Berahle and Reged before they return home. Each round trip takes about three days. The camels are rested for two to three days between each trip. Each sojourn in the mining area may take between 15–20 days.

This arrangement has benefitted the salt miners, the drovers and, above all, the camels that return home unloaded.<sup>7</sup> The miners are now paid better than before, particularly the carvers. The drovers are engaged in trading salt with the finance bureau rather than operating on a profit-sharing basis with camel owners. These days, drovers hire a camel at the cost of 20 birr for each round trip they make between Berahle and Reged (a total of 60 birr for three round trips/camel). A drover with 10 hired-out camels could realize the



*Laborers lifting salt blocks*

<sup>7</sup> One or two camels in the caravan may be loaded with 8–10 salt blocks on the return trip as drovers are allowed to take some salt blocks for home use.

following gross profit in three round trips,  
assuming 30 blocks per camel load:

Camel hire cost<sup>8</sup> = 10 camels @ birr 20 x 3 trips = 600 (\$36)

Royalty fee = 21 birr/camel x 10 camels x 3 trips = 630 (\$38)

Purchase cost @ 6 birr/block x 30 blocks/camel x 10 camels x 3 trips = 5,400 (\$325)

Selling price @ 12 birr/block x 30 blocks/camel x 10 camels x 3 trips = 10,800 (\$651)

Gross profit = 4,170 birr (\$251)

This set-up has streamlined the salt trading business. Only wealthy traders capable of taking a truckload or more of salt are now engaged in trading salt in the uplands. Former itinerant salt traders, such as wealthy farmers, are no longer engaged in the salt trade, because they are not allowed to transport by camel to the uplands. Instead they hire out camels to drovers, mostly small farmers engaged in this business during the off-farm season.

Currently, the number of camels working on this route is on the decrease, due to the new directive that requires transporting salt by trucks from Berahle to the uplands, the direct competition from Afdera salt mines, and because of the escalating price of camels due to the booming domestic and export trade to Sudan. Many farmers are currently engaged in a number of ways in the camel trade as a result of the good prices offered by buyers (see section 4). Before the new directive took effect, Briggs (2005), in his guidebook to Ethiopia, estimated about one million round trips being made by camels between the salt mines and the uplands in a given year. If we assume an average of five trips per camel per year, this would amount to roughly 200,000 camels transporting salt between the mines and the uplands. During this field study, we counted (on October 23, 2010 at 8:30 A.M.) 1,210 camels assembled by the salt mine at Reged for the trip to Berahle. It is therefore reasonable to assume 1,000 camels operating on this route on a daily basis for some nine months of the year. As each camel is assigned to do three roundtrips per

sojourn, the annual number of camels assigned on this route amounts close to 100,000, which is 50% less than before.

The production of loose salt at Afdera is obviously undermining the importance of the rectangular salt block mine at Reged (Berahle). However, the caravan salt trade is still in operation and will be remembered for its significant role in the economic and political history of Ethiopia. It was the power base for polities in northern Ethiopia while contributing to the development of such towns as Meqelle and Wukro. It provided the basis for peaceful co-existence and commerce between the highlanders and the Afars; it put salt in the diet of most of northern, northwestern, and central Ethiopians for millennia; it doubled as currency, facilitating exchanges for other goods and commodities; it also introduced highlanders to the camel species to which they now seem to be increasingly attracted, for varied reasons.

<sup>8</sup> If rented; if not, gross profit adds up to 4,771 birr (\$287)

## 4. SHIFTING ATTITUDES: THE ADOPTION OF CAMELS IN MID-ALTITUDE REGIONS

### 4.1 Why are mid-altitude farmers using camels?

For millennia, farming communities living above the escarpments adjacent to the pastoral populations of Afars, Kereyus, and Issas have been using oxen, donkeys, and, to some extent, mules and horses as plough or pack animals. However, there appears to be an increasing shift towards the use of camels instead of donkeys and mules during the last three decades by farmers living in mid-altitudes above the escarpments. This shift heralds a break from age-old tradition. Its implications for the ecology, the animal husbandry system, and veterinary service requirements could be significant.

Three specific factors are attributable to the familiarization with and increased use of camels as pack animals by mid-altitude farmers.

- Close proximity to Afar, Kereyu, and Issa pastoralists has provided the farmers with the opportunity to observe close at hand the specific advantages of camels.
- Observation of the salt trade route has persuaded farmers to employ camels as pack animals.
- The invariable use of camels in transporting contraband goods from and to Djibouti (all along the length of the camel trade route) must have added to attitudinal shifts to increased acquisition and employment of camels for various services.

This attitudinal shift is observed along a vast expanse of central, northeastern, and northwestern mid-altitude regions, extending from Minjar (eastern Shoa) to Shire and Shiraro (northwest Tigray) and encompassing Oromia and Amhara Regions. Some areas like Setit and Shiraro have been using camels for a far longer period due to the dominant vegetation species composed of shrubs and browses and the cultural influences of Sudan. However, even as recently as thirty years ago, camels were not the pack animals of choice in places like Minjar, in the foothills of the Menz mountain ranges in Shewa Robit and Ataye, nor in Kemissie or Mersa. Similarly,

camels had always been associated with followers of the Muslim faith and were not preferred by Christians living in the mid-altitudes. However, this is all changing due to the following critical factors.

**Drought.** The recurrence of drought and its immediate impact on other livestock species—cattle, donkeys and mules—has been attributed by nearly all farmers and traders to the increasing shift in the preference of camels. Camels are not only drought-tolerant, they don't require grazing on pasture, which is increasingly lacking. They survive and flourish by browsing on available browses and shrubs (at least for the time being). Farmers agree that the one common denominator for acquiring camels is the discovery that such an economically important animal can thrive on the shrubs and cacti that they have always regarded to be of no use, and which require no effort to grow or harvest. The camel's ability to go for long periods of time without water is another comparative advantage, regarded by farmers not only in terms of the prevailing water shortage in nearly all the study area but also in reducing labor requirements. Camels need be watered less frequently than cattle or equines.

**Shrinkage of grazing areas.** Population pressure has resulted in the shrinkage and, in some cases, the total disappearance of communal pastureland in some mid-altitude areas, making it difficult for farmers to sustain grazing animals. In a few cases (for example, in Kobo and Alamata), this problem has been compounded by the allocation of relatively large tracts of land to investors. Camels have provided solutions to this problem by feeding on browses and shrubs and by not competing with grazing animals.

**Euphorbia, Euphorbia and Euphorbia.** A major push factor for increasing preference of camels over grazing animals seems to be the availability of Euphorbia species in all the mid-altitude regions, and on which camels are largely fed. The most common Euphorbia type that is found nearly everywhere in the mid-altitude range is *Euphorbia tirucalli* (locally known as *kinchib*), which is normally planted as a fence for



*Euphorbia tirucalli* is a common food for camels in mid-altitude areas.

homesteads or farm plots. *E. tirucalli* is also commonly seen along roadsides in farming areas. This plant produces a milky substance and is not eaten by any livestock except the camel.

The other important camel feed is the cacti *Opuntia ficus indica* (spined in most cases, and commonly known as the prickly pear cactus in English) that are found in abundance in most parts of Tigray and northern Wollo, though it is less common in northern and eastern Shoa. By and large, these two plant species seem to provide most of the feed required for value addition of camels. More importantly, they are freely available, compared to feedlot operations where the daily feed provision costs between 18 and 30 birr per head of cattle. Camels are also fed on crop residues (maize or sorghum stalks) during the harvest season and on other local shrubs such as *mewata*, *sebensea*, *gurubi*, *uwacho*, *bedena*, and *gmaro*.

**Comparative economic advantage.** Although initially considered because of the drought, the comparative economic advantage of camels over donkeys or mules remains the major driving factor for the acquisition of camels during the last few years. This is easily understood by the label given to those owning camels, as “*behal*” or “*bale g’mel*” (a camel owner), indicating a better-off



The commonly seen spiny cactus is browsed by camels.

status in wealth ranking. Further details on the comparative economic advantages of camels, as stated by farmers and also traders, are provided below.

### **Income from transport/rental services.**

Increased payload (three to four times more than donkeys) is enabling farmers to realize better economic returns through the hiring of camels for transporting various goods. In effect, farmers are doubling as transporters and maintain that income from transport activities picks up during the harvest season. During the off-season, owners hire out their camels for transporting firewood, charcoal, water, building materials, and other commodities to various destinations. In general, transport/rental services provide substantial household income. In some cases, this income exceeds what is earned from farming activities.

- As stated earlier, those engaged in transporting salt blocks between Reged and Berahle earn as much as 4,000 birr (\$251) in less than a month/trip using their own or rented camels. The income from this activity could be substantially higher, subject to the number of trips made per year to the salt mine.
- In Kobo and Alamata, farmers on average realize a monthly income of 1,500 birr (\$90)



*Hiring of pack camels is a lucrative source of income for farmers.*

from camel rental services during the harvest season and a little less at other times.

Transporting a camel load of hay from the field to town, for example, costs around 160 birr (\$10) in Kobo, and the hay itself fetches some 800 birr (\$50). Renting a camel for a round trip to Djibouti brings in 500 birr (\$30), although this trade route has been declining because of stringent controls on contraband businesses. Similarly, camels are used for transporting contraband goods from Shiraro and Humera to Eritrea, although no one dares to admit how much is earned from such activities.

- In Hara, farmers are reported to earn between 2,000–3,000 birr/month (\$125–\$225) in transporting the personal effects of visitors to rural areas.<sup>9</sup>
- In Senbete, Kemissie, and Shewa Robit, a camel is reported to bring in an average income of between 750–1,000 birr/month (\$45–\$60), including the transport of irrigated vegetables during the off-farming season.
- In Dulecha, where some 10 truckloads of charcoal are produced per day, hundreds of camels are used for transporting this commodity over a short distance to the main road. Five trips per day enable a farmer to realize a monthly income of 1,200 birr (\$72).

In Minjar, a farmer realizes a monthly income of about 1,000 birr (\$60) during the harvest season.

Farmers state that it is most difficult initially to acquire the capital to buy the first camel. Thereafter, they reckon it is easy to add another one or two or even more through income from transport and/or rental services.

**Ploughing and cultivation.** Camels, singly or in pairs, are increasingly used for ploughing in Shiraro and Humera and for cultivation and planting in Kobo and Alamata. Through time, this practice is likely to expand to southern Wollo and Shoa, further raising the preference of camels even above that of oxen in lighter soils.

**Ease of loading.** Farmers also regard the ease of loading camels as an additional advantage over mules and donkeys. Whereas it requires two persons to load a donkey or a mule (or a horse, for that matter), camels only require one person to load and to manage a caravan, eliminating the need to seek help from others.

**Value addition and camel trading.** The value addition of camels for profit is the ultimate motive for their acquisition. The initial purpose

<sup>9</sup> For some historical reason, many people from Hara reside in Saudi Arabia and return once every few years to visit family.

was to supply sturdy mature camels for the salt trade route, to transport contraband to Djibouti, and to sell camels at a profit in high-value chain markets, particularly in Raya and Shiraro. This pursuit allowed farmers to raise income from transport rental services in the interim and to make a significant return from the final disposal of camels after value addition. With the increasing engagement of farmers in camel trade as value adders, part-time traders, middlemen, speculators, and drovers, this practice has, during the last three years, turned into a profitable enterprise for the export trade to Sudan, subsequently raising the price of camels by 70% and upwards. This move has transformed camels into transitory commodities, readily disposable at an opportune time (unlike donkeys or mules, which are retained by farmers until they die or become too old to provide services). The commercialization of camels has begun in earnest.

The value addition process takes place in a variety of ways. Most farmers buy immature camels, known as *sosas* or *birkos*, (one to two years old), since they are affordable for cash-strapped farmers. They break the camels at about age three to generate income through rental services. The camels are raised on *kinchib*, cacti, crop stalks, and other feeds for about three to four years, before being sold as mature animals for a profit level that ranges between 3000–6,000 birr (\$180–\$360). Within this group, the most prized camels come from Girana, in Mersa woreda, and Harbu. Farmers from these areas have the reputation of finishing *sosas* of Afar type to the highest standard in about four to five years. Mature camels from Girana and Harbu are reputed not to lose weight when travelling long distances, even when provided with minimum feed. They, therefore, command higher prices in the market. In fact, they are easily identifiable by their shiny skin and alertness.

Farmers with the means also buy young and mature males in September/October, just before the harvest season, and use them for transporting their own and other farm produce (on hire) and resell them around February, when the harvest season is over. Such farmers may buy two to five

camels at a time and may earn a profit of up to 1,000 birr per camel.

There are also farmers-cum-small-scale traders. Such farmers may buy camels in one market to sell for profit in another within a few months or weeks of purchase. For example, a farmer who bought a young camel for 3,900 birr (\$235) in Kukuftu six months ago was trying to sell it for 5,900 (\$355) on December 17, 2010 in Kobo. There are also itinerant farmers-cum-traders who travel long distances in the off-farm season, usually in groups, to purchase camels from production areas and then to sell them for profit at high-end markets after value addition. Such farmers-cum-traders reside in or operate from mid-altitude regions.

## 4.2 Camel populations in the mid-altitude regions

Estimating the camel population over such a vast region is difficult for two main reasons: most agricultural offices (except for Shiraro, Kobo, Alamata, and Senbete) do not keep records of the camel population in their respective areas; and the transitory nature of camel ownership makes it difficult to keep adequate records, as camels are bought and sold on continuous bases. Regardless, the growing trend in camel acquisition can be figured out from the following indicators.

- According to the woreda agricultural office in Kobo, there are 41 rural kebeles<sup>10</sup> with 53,450 households. A census in 2009 established the existence of 9,538 camels. Current estimates are around 15,000 camels, due to the increased export demand. This implies that close to one in three households own a camel.
- In Alamata, the woreda agricultural office estimates 12% of the 17,940 farming households own camels; or 15% of the population, if small-scale traders are included (2,690 camels).
- In Mehoni, the woreda agricultural office estimates 20% of the 29,000 households own camels (4,800 camels).
- In Shiraro, estimates of camel ownership by farming and trading communities vary

<sup>10</sup> In Ethiopia, a kebele is the next administrative unit under a woreda.

between 20% and 25%. There are 41,217 rural households in the woreda, suggesting a population of 9,270 camels.

- In Senbete, a census taken this year indicates the existence of 1,893 camels amongst 17,000 households (a little over 10% of the population own camels).
- In Shewa Robit, 5% of the farming population is estimated to own camels. There are 48,764 households in the woreda (or 2,440 camels).
- Hara is comprised of 10 rural kebeles scattered in three woredas, with 29,585 households in total. Here, the chairmen of the kebeles insist that 40% of the households own camels and usually more than one, which implies that there are, at least, 11,834 camels in this woreda.

The above estimates indicate the existence of close to 50,000 camels in seven mid-altitude woredas (since some farmers own more than one camel). We can reasonably assume that the camel population in the mid-altitude range could be over 200,000 if other woredas in the trade belt are included—Minjar, Jeweha, Ataye, Karakore, Kemissie, Harbu, Kombolcha, Haik, Wuchale, Mersa, Bati, Bokoksa, Hara, Chercher, and Minjar.

Another way of estimating the camel population along the mid-altitude range is by comparing the average number of camels offered in source and value-adding markets in the trade route (see Table 3). Source markets include Melka Oda, Miesso, Metehara, Sabure, Dulecha, Rasa, Senbete, Dawe, Chifra, Yalo, Abala and, in some part, Shewa Robit, Bati, and Hara. Informed estimates suggest that 81,952 camels were offered for sale in 2009/10 in these markets against a total of 243,372<sup>11</sup> in the whole chain. In other words, some 161,420 camels were offered for sale from mid-altitude “value-adding” markets, where farmers and traders dominate as the major and, in some cases, the sole suppliers. This suggests the existence of more than 200,000 camels in mid-altitude regions at any given time, even without considering those serving on the salt trade route.

### 4.3 Camel breeding in the mid-altitude regions

Nearly all the camels owned by mid-altitude farmers and traders are male, essentially because of the market demand and, more importantly, since female camels are never used for loading. Secondly, most pastoralists do not sell female camels except in rare cases<sup>12</sup> when they are under pressure. Even when they are forced to do so, they prefer to sell female camels to other pastoralists rather than to any one else whom they consider to be unfamiliar with camel breeding. The only aberrations are Kereyu pastoralists, known for selling female camels of breeding age in Metehara market. A few old female camels are also sold in Miesso and Bati markets but only for slaughtering purposes. Afar pastoralists have been known to bring a few female camels in Chifra and Yalo markets, when they are hard pressed.

Meanwhile, some daring farmers in mid-altitude regions have gone one step further by engaging in camel breeding.

#### *Case 1. Abdu Hamdi Yimam, Gadamayu kebele, Kobo.*

Abdu’s father was one of the wealthy farmers in Gadamayu kebele in Kobo who, during the imperial regime, got involved in the *amole* trade in addition to farming. He had ten male camels used solely for transporting salt bars from Berahle through hired drovers. Abdu grew up close to his father’s camels.

Abdu lived in Saudi Arabia for some years. Upon his return in 2002, he decided to buy female camels for breeding and went to Chifra market in Afar to buy some. By chance, there were a few female camels in the market, but the Afars were not keen to sell them to him (a non-pastoralist), whom they considered to have no idea about camel husbandry.<sup>13</sup> Upon his insistence, they asked him questions about his understanding of camel husbandry. Surprised by his knowledge (acquired in Saudi Arabia), the

<sup>11</sup> Some 13,780 camels were added to the “source markets” from “value-adding” markets in this calculation to account for the number of camels brought to Bati, Hara, and Robit by producers.

<sup>12</sup> In a few cases, pastoralists bring female camels to the market for breeding purposes.

<sup>13</sup> Even after bringing female camels to the market for sale on rare occasions, pastoralists want to make sure that the female camels they have decided to part with are not likely to suffer by falling into the wrong hands.

Afars reluctantly sold him six female camels for an average price of 2,250 birr. Since then, he has been combining camel breeding with farming in his kebele.

Abdu's current assets include:

- 18 adult females, worth 180,000 birr (not for sale);
- 5 young females, worth 30,000 birr (not for sale);
- 1 adult male, worth 13,000 birr;
- 3 young males, worth 33,000 birr;
- 8 ten-month-old males, worth 48,000 birr;

Worth a total cash value of 304,000 birr (some US\$20,000)

Abdu sells male camels only and keeps the females for breeding. In June 2010, he was about to sell 13 year-and-a-half-old males for 81,000 birr, but the deal did not go through. Since then, he has lost five males and eight female camels worth 103,000 birr. Abdi attributes the deaths to certain insect bites with symptoms that included uncontrollable body shaking, twisting, and stiffening of the neck. He stated that three of the camels died in one day. Knee wounds and related infections and abscesses are another disease of concern. Like other camel-owning farmers in the area, his remedial action includes taking the camels to drink and roll over in a nearby hot spring. He believes that the hot spring is good for removing internal and external parasites, and maintaining clean skin.

## **Case 2. Yimer Ibrahim, Selen Wuha kebele, Alamata**

Yimer's father had an Afar friend, whose son became a dear friend to Yimer. This friend taught Yimer about camel husbandry and gave him one female camel in 1992, as a gift. To cement his relationship, Yimer also took an Afar woman as a second wife. In 18 years, Yimer has sold many male camels, whose numbers he does not remember. However, the income from the camels has seen two sons through university and a third one is now in high school. Yimer sells the male camels at six months of age (for 4,000 birr each) or when they are one year old (for 6–8,000 birr), because he has not enough space to keep them. On average, he sells six or seven



*Yimer Ibrahim with one of his newly born camels, in the mid-altitude location of Selen Wuha, Alamata*

male camels a year and earns something between 24,000 and 48,000 birr (\$1,445–\$2,890). His current stock includes 30 female camels (worth 260,000 birr or US\$15,600), which are not for sale, and two young male camels.

## **Case 3. Senbete, Jile Timuga woreda**

The famous Senbete market was seriously disrupted for about five years (2006–2010) following the conflict between Afars and Oromos. During this period, the Afars withdrew from the Senbete market, resulting in a significant drop in the camel supply. This prompted Oromo farmers, living close to the

Afars, to become engaged in camel breeding, but the Afars refused to sell them female camels. The Oromo farmers requested the support of the woreda agricultural office.

The woreda agricultural office organized an exchange visit with Kereyu Oromos of Metehara, following which agreements were made to purchase female camels from them. Eventually, 250 female camels were bought from the Kereyus and brought to the woreda, using the food security fund. The camels were distributed in six kebeles. Currently, some farmers are reported to own up to 40 female camels and, according to the agricultural office, Jile Timuga is the only woreda in the Amhara Region with so many female camels. The head of the agricultural office further added that farmers sell cattle and sheep in order to buy camels because of the increasing intensity of the drought.

### ***Other cases***

There are a number of other cases in which farmers have ventured into camel breeding. In Mehoni, for example, some ten individuals are said to be owners of female camels; in Hara, some farmers are said to have as many as 30 female camels. Similar cases were also reported in Girana, indicating a budding trend that fosters camel production outside of the pastoral areas. Erobo farmers at the northern tip of Tigray have also been reported to collude with Afar traders in acquiring female camels for breeding purposes.

## **4.4 Resource limitations**

Under the current scenario, camel ownership equates with a better-off wealth status and substantial household income. However, increases in the camel population in the mid-altitude region may reach a point where the species could become a liability rather than an asset, as resources are not infinite. To begin with, camels tolerate drought better than other species, but they are not drought-proof. For example, two-thirds of the 500 households that used to own camels in Selen Wuha kebele in Alamata have seen their

stock reduced by one-third because of the impacts of drought on the camels.

Feed could be a major constraint as the available *Euphorbia* species may not sustain the increasing population of camels forever. At some point in the future, *Euphorbia* may not even be available freely, as commercialization expands. Farmers are already concerned about the decline in browse and shrubs in a number of localities due to population pressure, expansion of small farms, and the clearing away of what is left of communal or reserve forest sites by investors.<sup>14</sup> Camel breeders, in particular, are being forced to trek their camels for three to four hours a day in search of palatable shrubs and browses. As *Euphorbia*, browses, and shrub resources diminish, camels may be forced to become grazers in areas where grazing is no longer available.

Disease is of particular concern, when camels are forced to live outside of their natural habitat and in confined spaces. For example, Abdu lost 13 young camels over a four-month period. Not many farmers can afford such financial losses. In Kobo, camels are being pushed up to rocky altitudes of some 2,200 m (at Dino, for example), resulting in foot wounds and, possibly, gangrene. The veterinary service for camels at the woreda clinics on market days was limited to spraying against ecto-parasites and treating wounds. It seemed that veterinary staff were reluctant to vaccinate camels, although pneumonia (possibly due to pasteurellosis) and anthrax were reported. Other reported health problems included mange, plant poisoning, tick infestation and an unidentified type of pneumonia, reported to cause high mortality.

Labor is a serious constraint, particularly for those owning a number of camels or those involved in breeding. Child labor is no longer available, as nearly all children now attend one of the expanding numbers of schools. Still, camels need to be taken on a daily basis for feeding and watering, often to distant areas.

Social problems are another issue of concern. Camels have become the cause of tension not

<sup>14</sup> For example, four investors in Alamata have cleared a reserved forest site.

only out of envy (as camel owners are considered to be better-off) but also because of the camels treading on the properties of others (particularly *tirucalli* fences). Hundreds of camels have been reported to sustain injuries inflicted either out of sheer resentment or because of the damage caused to someone's *tirucalli* fence or crop stalks, as owners let adult camels (which can't be attacked by hyenas), browse through the night. Camel theft is reportedly becoming an organized crime through chain arrangements. Branding no longer makes the camel theft-proof because of the tempting price of camels, which has been escalating. Even in cases where thieves are not able to move stolen camels far away, they are said to extort some money from owners by revealing the location of the hideout. This problem is more pronounced in Girana, Woldiya, Hara, Kobo, Alamata, Mehoni, and Chercher, where camels fetch the highest prices (outside of the terminal Shiraro market). Recently, a reputed camel thief was given a 15-year prison sentence as a warning to others in Hara. Tension is likely to intensify, if the camel population in such areas increases in significant numbers. Safeguarding one's camels has become a major occupation, despite labor shortages.

Apparently, the extent to which additional camels can be brought in differs from place to place, depending on resource potential, camel and human population density, available household labor forces, and veterinary service provision. The rising price of camels does not mean that an unlimited number of camels can be accommodated. The mid-altitude regions are not particularly suited to camel breeding from a host of perspectives.

## 5. THE CAMEL MARKET CHAIN



*Camels at Miesso source market, eastern Ethiopia*

### 5.1 Market network

For a long time, the camel market chain to northern and northwestern Ethiopia began at the Miesso market, some 300 km east of Addis Ababa. The last six months, however, saw the extension of the chain to Melka Oda market in southeastern Ethiopia (Bale) in response to the growing domestic and export demand.

The chain consists of some 24 markets in Oromia, Afar, Amhara, and Tigray Regions, in which camels are either the dominant species or supplied in significant or reasonable numbers. The chain stretches approximately 1,200 km from Miesso to the terminal market of Shiraro. The crossing point into Sudan (Humera) is another 160 km from Shiraro. With the recent inclusion of the Melka Oda market in Bale, the total length of the market chain extends more than 1,600 km up to the exit point to Sudan.

In general terms, the markets in the chain can be classified into three broad categories.

**Source markets.** These are markets located in or close to production areas where pastoralists dominate as the major suppliers. The markets consist of Melka Oda, Miesso, and Metehara in

Oromia; Sabure, Dulecha, Rasa, Dawe, Chifra, Yalo, and Abala in Afar; and Senbete in Amhara Region. Shewa Robit, Bati, and Hara, all in Amhara Region, can be considered as partial source markets, because they are also accessed directly by Afar producers (the latter in peaceful times). These markets are the principal sources of supplies to the mid-altitude regions and nearly all camels found in farming and trading communities above the escarpments originate from them. The source markets supply a combination of immature, young, and adult camels. Farmers from mid-altitude regions generally buy immature or young camels from source markets in order to benefit from transport rental services in the interim and subsequently from natural growth and the value addition process during the final disposal. Traders, on the other hand, prefer to buy young or adult camels to which they may add value through the provision of cacti-based feed for a short period (three months) or else to sell them directly for profit in mid-altitude markets.

**Value-adding markets.** These markets are located in the mid-altitude region between Minjar and Raya Plains outside of production areas and southeast of the terminal Shiraro market, where conditioners (farmers and traders)



*The large camel market in Waja, Alamata (Tigray Region)*

dominate as the major suppliers. These markets consist of Minjar, Shewa Robit, Kemissie, Harbu, Bokksa, Girana, Hara, and Kobo in Amhara Region; Waja, Mehoni, Kukuftu, and Chercher in Tigray Region. Shewa Robit, Bati, and Hara partially fit into this category since Afar producers also access these markets along with farmers and traders. Occasionally, Afar producers also access Kemissie and Harbu markets in times of drought, when they vertically migrate to the Chefa Plains. In any case, immature and young camels bought from source markets undergo a natural growth and value addition process in this mid-altitude region—hence the name “value-adding markets.” These markets can further be classified into two groups consisting of the southern and the northern half.

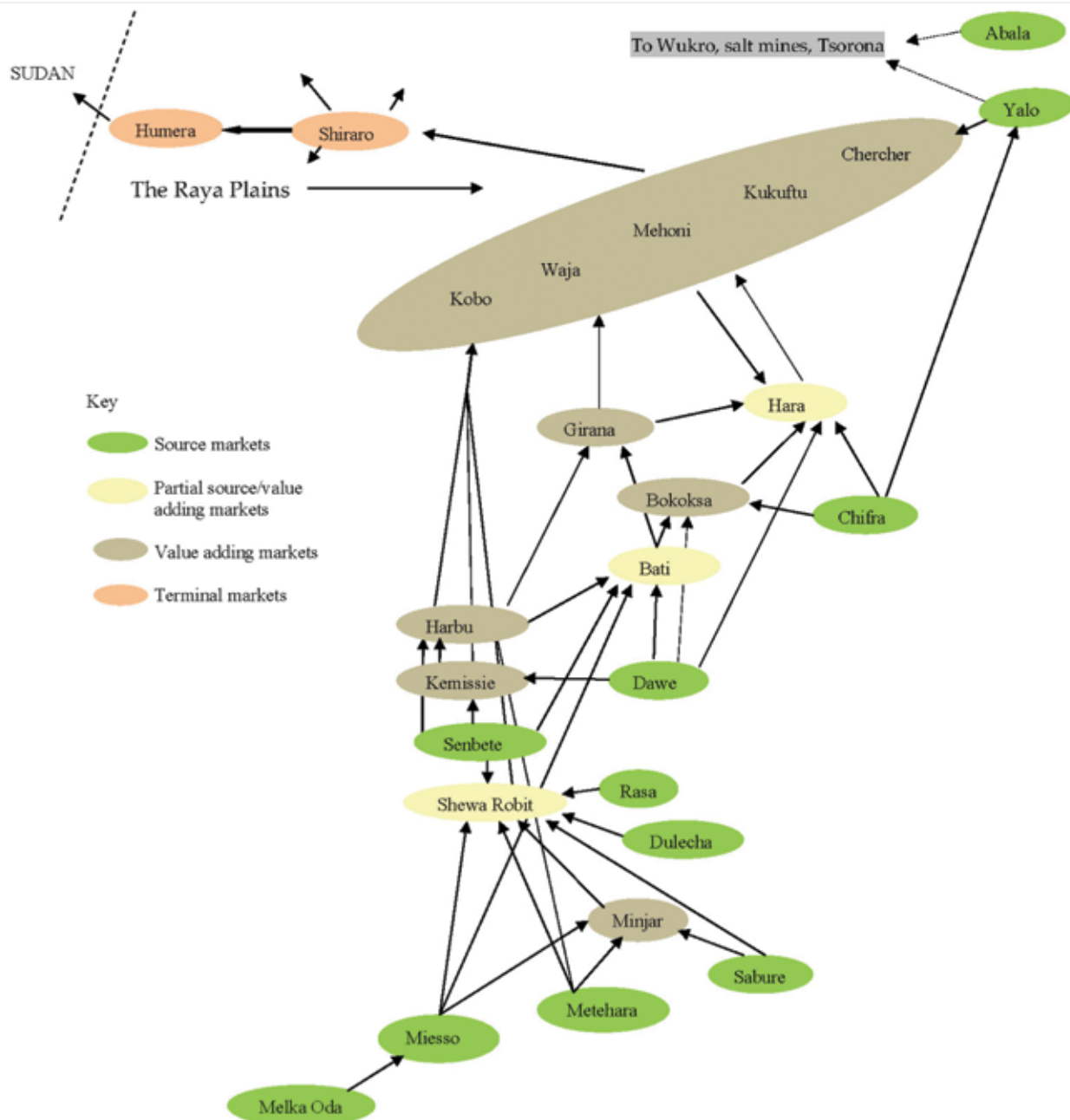
- The southern half, consisting of Minjar, Shewa Robit, Kemissie, Harbu, Bati, Bokksa, and Girana markets, is essentially a supplier of value-added camels to the northern half—Hara, Waja, Mehoni, and Kukuftu markets.
- The northern half plays two roles: it is the main supplier to the terminal market of Shiraro; it also acts as a terminal market for camels destined to the salt mines or required in the Raya Plains for various purposes.

Obviously, camel prices are higher in the northern than in the southern half. Major buyers in the northern half are made up of large-scale traders and exporters from northern and northwestern Tigray. In parallel, major buyers in the southern half are traders and farmers from the northern half. The northern half, consisting mostly of the Raya Plains, demarcates the finishing line for the value addition process in the whole chain.

**The terminal market.** Shiraro, located in northwestern Tigray, is the main terminal market for the chain that begins at Melka Oda in Bale, where value-added camels are transacted for local use in the vast area stretching between Eritrea in the north and Humera in the west. Camels that have not gone through the intensive value addition process or been brought directly from source markets are exported from here to Sudan. Such camels are bulked around Shiraro for a few months and then trekked to Humera, some 160 km west. Some camels originating from Chifra and Yalo markets are reported to end up in Tsorona, along the Ethio-Eritrean border.

The supply network of the chain is presented in Figure 2.

Figure 2. The camel market network



## 5.2 Market actors

Outside of producers and farmers-cum-traders, direct market actors in the chain include traders, agents, brokers, guarantors, trekkers, truckers and watchmen, and loaders.

There are four groups of traders operating in the chain.

**Part-time traders.** These are opportunistic traders operating on an irregular basis at any of the chain markets. They operate on a low financial capital basis, buying between one and three camels at a time. They don't travel long distances, preferring to sell for profit within the same or in the next nearest markets. Such traders are common in nearly all markets, particularly in the Raya Plains and in Miesso, where every adult is said to make a living out of the camel trade business in one or another way.

**Small-scale traders.** These traders operate in groups by pulling resources together and purchasing camels mainly from source markets and by travelling long distances to Miesso, Metehara, Shewa Robit, Chifra, and Yalo. They purchase between 25 and 50 camels at a time through pooled resources and operate in turns. This group is credited for initiating the sourcing of camels from such distant markets as Senbete, Metehara, and Miesso (a distance of 900 km, in the latter case, from Raya) and for stimulating the camel trade in general. They are credited with pioneering and charting the trekking route from Miesso and Metehara to the Raya Plains and beyond. Of this group, the famous Raya traders were known to have operated along this chain for about four decades, but with increasing involvement in the last decade. They are also noted for colluding in the market, when it comes to regulating prices in their favor. Other traders in this group include those from Bati, Shewa Robit, and, recently, from Minjar. This group also involves Miesso-based traders, who recently ventured into and added the Melka Oda market to the chain, including the charting of the trekking route to Miesso. Their numbers are reportedly increasing in the Melka Oda market. Unlike farmers, this group buys young or mature camels.



*Mobile phones are important for medium-level camel traders.*

**Medium-level traders.** These traders operate individually with financial capital that allows them to buy as many as 50 camels or more at a time. They operate largely through agents located in mid-altitude markets to the south of the Raya Plains, who purchase and assemble camels on their behalf. In recent days, their operations seem to be enhanced by the advent of mobile phones. These traders mainly buy value-added camels in mid-altitude markets to sell directly to large-scale traders that come from northwestern Tigray.

**Large-scale traders.** These traders are based in northwestern Tigray (Shiraro and Humera) and are the main camel buyers from Raya and also from source markets through agents. Some of these traders transfer funds to agents with instructions to buy certain camels at capped prices, which enables them to determine their profit in advance in the terminal or the export market. Such large-scale traders are known to buy as many as 400 camels, in most cases in cash, and, in a few cases, through a combination of cash payment and credit arrangement with medium-level traders operating in Raya markets.

**Brokers.** Brokers are not common in most of these markets, with the only exception being Mieso (and perhaps Melka Oda, which was not visited). Mieso is a broker-dominated market and buyers usually pay 50 birr for each camel they buy. Brokers in Mieso also demand similar payments from sellers, prompting the Mieso council to publicly announce in the market that brokers should receive commission only from buyers.

**Guarantors.** In nearly all the markets (excepting Mieso, Metehara, Minjar, Dulecha, Shewa Robit, and Senbete), each seller is required to produce a guarantor to prove that the camel/s he is selling actually belongs to him. Guarantors are usually paid 5 to 30 birr/camel, depending on how close the guarantor is to the seller. The deal is spelled out on a paper bearing the signature of both. Drovers are required to show the guarantee paper and tax receipts at check points to prove that the camels under their care are not stolen.

**Drovers.** Drovers are an indispensable part of the camel trade business. Although a few traders have started trucking camels from Mieso to Raya through Mille and Chifra, most of the camels purchased in the chain are trekked to various destinations. Trekking costs differ slightly, depending on the length of the trek, but are usually around 10 birr per camel per day. Long-distance trekking (say from Mieso to Raya) requires the employment of different ethnic groups of drovers for certain sections of the trek to ensure the safe delivery of the camels. Drovers are usually recommended by tribal chiefs or respected community leaders from source markets.

**Watchmen and loaders.** Traders hire watchmen until they have purchased and bulked enough camels for trekking or trucking. These watchmen also double as loaders, if the camels are to be trucked. In cases that involve loading,



*A camel buyer and guarantor at Chifra market, Afar Region*

watchmen are paid 30 birr/camel. Otherwise, payment is around 10 birr/camel.

### 5.3 Markets and security

One particular feature of the camel market chain is that, despite transitory and, in some cases, long-standing conflicts between the parties involved (particularly at the lower ends of the chain), the markets operate without serious interruptions, albeit with necessary rearrangements sometimes required. For example, the Issa were the major suppliers of camels before they withdrew some three to four years ago from the Mieso market following a conflict with the Oromos. Their dominant position has now been taken over by Hawiyas and Oromos (consisting of Ittu, Alla, and Wobera clans). Yet, although the Issas are not attending the market, their camels are still brought to Mieso market through traders who buy them at Beke market (some 30 km further east) or sell them on their behalf.

Similarly, the Afar have been conspicuously absent from the Senbete market for some five years. In the interim, they used the alternate markets of Shewa Robit and Dawe, until they reappeared in Senbete, following a recent peace agreement. Meanwhile, some Afar camels were sold in the Senbete market through

intermediaries. Until recently, the Afars were also forced to withdraw from Hara market for some years due to a conflict with the Oromos and Amharas. They chose the alternate market at Chifra for the duration of the conflict. Afars have also stopped attending the market at Metehara, because of the prevailing conflict with the Kereyus, and travel instead to the smaller markets of Sabure and Dulecha.

Generally, intermittent inter-ethnic conflicts are more common around “source markets” but are rare in the mid-altitude markets dominated by farmers and small-scale traders. Regardless, the impact of such conflicts does not seem to affect the supply level of the chain in significant terms. Nevertheless, the parties that are prevented from participating in preferred or nearby markets could be affected, as they deal through third parties or because they choose to attend alternative markets. These factors can translate into lost income.

The supply chain management must also take into account the prevailing security situation with regard to the delivery of purchased camels trekked to distant destinations. For example, during this field study, camels purchased in Mieso were trekked up to Bordede (some 60 km away) by Alla Oromos. At this point, Hawiyas took over and drove the camels from Bordede to Awash. Afar drovers then continued on to Dulecha. From there, Amhara or Argoba drovers continued moving the camels to Shewa Robit. Amhara or Tigrean drovers accepted the shipment at Shewa Robit and protected it through to its final destinations further north. Minjar traders, on the other hand, used a combination of trucking and trekking to safely deliver purchased camels to various terminals. They first trucked purchased camels from Mieso to Wolenchiti (to bypass Kereyu herdsman), where Amhara drovers took over and moved the camels to Minjar. Similar trekking arrangements have been accomplished by employing appropriate ethnic drovers from other source markets to ensure the safe delivery of the camels.

## 5.4 Trekking routes

Camels purchased at Melka Oda, Mieso, Metehara, or in the other source markets are kept in the vicinity until they are bulked for trekking.

Local watchmen are hired to look after them and are paid 10 birr a week for each camel, until the traders assemble and bulk them for trekking. Camels belonging to different traders are identified by individual symbols (through blade incisions). Camels are then trekked from Melka Oda to Mieso through Mechara for about 15 days. The journey from Mieso to Bordede and Awash takes another two days (the last leg is covered by the Hawiyas). Afar drovers take over from Awash and drive the camels through Kesem to Dulecha. Amharas or Argobas then trek the camels to Shewa Robit. The trip from Mieso to Shewa Robit takes about ten days (see Figure 2).

Camels purchased at Metehara are moved up to Kesem by Kereyu drovers. From there, Afars take over, duplicating the route from Mieso up to Dulecha and finally to Shewa Robit (by Amhara or Argoba drovers). It takes eight days to trek the camels from Metehara to Shewa Robit.

From Shewa Robit, Amhara, Argoba, or Raya, drovers trek the camels along the main road to Kombolcha. Here they divert from the main road and take the eastern route, traveling through the valleys (to avoid the mountain peaks and the cold), continuing on the main road at Sulula. From there, they head in the direction of Haik Monastery and Upper Mille along the main road and travel to Gatet, Limo, and Girana, emerging at Woldiya or Hulahula and reaching Raya through Hara. It takes fifteen days to trek the camels from Shewa Robit to Raya.

Camels purchased at Dulecha, Shewa Robit, Kemissie, and Harbu follow the same route to Raya, only with shorter trekking days. From Bati, they travel to Worebabo (two days) and then on to Hara (two days). From Chifra, they are trekked through Hara (a day and a half) and Doro Gibir to Raya (another day and a half). From Raya, the camels are moved through the lowlands to Meqelle (a day and a half) and then by Raya drovers through Adwa and Seleklaka to Shiraro for a total of nine days. Camels purchased for the salt mines at Waja, Kukuftu, or Mehoni markets are kept within the area and trekked to Berahle through Agula as and when required. Camels destined for export to Sudan or for local use around Humera are driven from Shiraro along the main road for five to six days.

In total, it takes between 46 and 52 days to trek the camels from the farthest source market, Melka Oda, to the exit point in Humera. This happens in stages, as the camels go through a reconditioning process that lasts from three months to a few years. Some drovers carry oxytetracycline (an antibiotic injection) for treating camels, should they become ill.

## 5.5 Trucking

A recent development that could potentially undermine the livelihood of drovers, while at the same time improving market efficiency, is the new trend of trucking camels to destinations that include Melka Oda to Mieso, Mieso to Bati and Raya, and Mieso to Wolenchiti (for Minjar-destined camels).

As a result of the construction of alternative new roads that bypass the difficult terrains in the highlands, trucking is likely to affect the age-old tradition of trekking, directly impacting the

livelihood of drovers. Those routes likely to be compromised by the upgrading of existing roads or the construction of new alternative roads include those from Raya to Meqelle, from Adwa to Shiraro and Humera, and from Shewa Robit-Senbete-Kemissie-Harbu to Raya. While farmer-cum-traders may still opt for trekking due to financial limitations, traders have already begun using routes now easily accessible by trucks. This trend is likely to increase as competition intensifies. Of note, the high cost of trucking (in comparison to trekking) is more than offset by shorter turnaround times.

A rather recent trend involves trucking camels directly from source markets (Mieso and Metehara) to the border town of Metema, through Bahir Dar and Gondar, and this trend is likely to threaten the importance of Humera as an exit point. If traders can gain some financial advantage through this new route, source markets, such as Metehara and Mieso (and including Borana), may be inclined to re-direct

**Table 1. Trekking costs for camels**

From	To	No. of trekking days	Trekking cost/camel
Bati	Bokoksa	1 day	10 birr
Bati	Hara	4-5 days	40 birr
Bati	Girana	2 days	20 birr
Bokoksa	Hara	3 days	30 birr
Chifra	Hara	2 days	20 birr
Chifra	Bokoksa	1 day	10 birr
Chifra	Yalo	3 days	30 birr
Dawe	Hara	5 days	40 birr
Girana	Waja	2 days	20 birr
Melka Oda (Bale)	Mieso	15 days	150 birr
Metehara	Shewa Robit	5 days	40 birr
Mieso	Shewa Robit	7 days	50 birr
Senbete	Bati	4 days	50 birr
Senbete	Hara	7 days	50 birr
Shewa Robit	Waja	9 days	50 birr
Shiraro	Humera	5-6 days	50 birr
Waja/Kobo/Mehoni, Kukuftu	Shiraro	10-15 days	70 birr
Shiraro	Humera	5-6 days	50 birr
Melka Oda	Humera	46-52 days	370 birr

**Table 2. Trucking costs for camels**

From	To	No. of camels/truck	Travel time	Transport cost
Melka Oda	Miesso	15 medium or 9 adult camels	24 hours	7,000 birr (rough road)
Miesso	Wolenchiti	8-10 young camels	3 hours	1,200-1,400 birr (tarmac)
Miesso	Bati	19-20 immatures or 16 medium or 14 adult camels (on a 6-ton truck) or 14 immatures or 12 medium or 9-10 adult camels (on a 4-ton truck).	1 day	300 birr/camel (tarmac)
Miesso	Raya	19-20 immatures or 16 medium or 14 adult camels (on a 6 ton truck) or 14 immatures or 12 medium or 9-10 adult camels (on a 4-ton truck).	2 days	7,000 birr (tarmac)  5,000 birr (tarmac)

supplies to Metema rather than to Raya and Humera. Other source markets in Afar may not be too attractive for Metema because of the distance and the difficult terrain that exists between Woldiya and Woreta.

## 5.6 Trade volume

Nearly all the markets in the chain operate one day a week.<sup>15</sup> In general, demand for camels peaks during the harvest and the export seasons and, in Shiraro and Humera, specifically during land preparation and planting times. The supply level of camels drops to half or less during the main rainy season, owing to the migration of pastoralists to wet season grazing areas, the engagement of farmers in land preparation, the difficulties in crossing rivers, and the dangers of flash floods. The drop in the supply level lasts for a maximum of ten to twelve weeks of the year.

The figures in Table 3 show the estimated volume and value of trade for the year July 2009 to June 2010,<sup>16</sup> a year marked by rising supply levels and significant price increases compared to the previous years. These changes are due to the export demand in Sudan. Generally, market data

collectors in Oromia, Tigray, and Afar Regions keep track of weekly price changes from a sample population of camels. In addition, the respective agricultural offices in Shiraro, Waja, Mehoni, Bati, and Chifra collect weekly market data on supplies and sales volume. As such, the figures provided for these markets in Table 3 were obtained from records of the respective agricultural offices. Supply and sales levels for the other twelve markets were derived by converging informed estimates from finance<sup>17</sup> and agricultural office staff, and traders and brokers in the respective woredas. Estimates for seven of the markets that were not visited during this field study were made by traders operating in those markets.



*Camels in Kobo market, Amhara Region*

<sup>15</sup> Exceptions are Bati, where transactions begin on Sunday afternoon before the main market day, Monday, and Shiraro, where the main market day, Saturday, has been recently extended into Sunday to accommodate increasing transaction levels.

<sup>16</sup> Of note, the volume of this trade route to some extent and the associated value in particular are likely to be impacted by the expansion or contraction of the export trade to Sudan, depending on the circumstances.

<sup>17</sup> Responsible for collecting taxes from livestock markets.

**Table 3. Estimated volume and value of camel transactions (2009/10)**

Region	Market	Average weekly supply level	Peak supply level	Weekly sales volume	Average price (US\$)	Weekly value of average supplies	Weekly value of average sales
Oromia	Melka Oda*	180	300	75	180	32,400	13,500
	Miesso**	450	635	170	270	121,500	45,900
	Metehara**	150	275	100	270	40,500	27,000
Afar	Sabure*	52*	100	25	210	10,920	5,250
	Dulecha**	58	150	30	180	10,440	5,400
	Rasa*	25	50	15	210	5,250	3,150
	Dawe*	75	125	40	270	20,250	10,800
	Chifra***	175	275	75	456	79,800	34,200
	Yalo*	100	175	50	420	42,000	21,000
	Abala**	50	75	21	390	19,500	8,190
Amhara	Minjar** Shewa	30	70	15	331	9,930	4,965
	Robit**	75	150	40	337	25,275	13,480
	Senbete**	228	350	140	343	78,204	48,020
	Kemissie**	100	200	58	301	30,100	17,458
	Harbu**	100	200	45	391	39,100	17,595
	Bati***	335	400	98	316	105,860	30,968
	Bokoksa*	125	275	62	325	40,625	20,150
	Girana*	180	225	85	421	75,780	35,785
	Hara**	150	200	60	451	67,650	27,060
	Kobo**	50	75	30	481	24,050	14,430
Tigray	Waja***	820	1790	390	547	448,540	213,330
	Mehoni***	500	710	291	520	260,000	151,320
	Kukuftu**	400	525	280	520	208,000	145,600
	Chercher**	50	100	30	511	25,550	15,330
	Shiraro***	520	800	340	710	369,200	241,400
Estimated annual volume of supplies							<b>256,152</b>
Estimated annual sales volume							<b>133,380</b>
Estimated annual sales value							<b>\$60,907,000</b>

Notes: US\$1 = 16.64 Ethiopian birr at the time of writing this report.

- \* = markets not visited; estimates on supplies, sales, and prices made by traders operating in these markets
- \*\* = supply estimates made by woreda MoARD staff, traders, brokers, and tax office; prices from records of sample population
- \*\*\* = data on supplies and prices from woreda MoARD data collected for the period July 2009–June 2010

While acknowledging that even informed estimates are not as reliable as actual records, the economic and livelihood significance of this market chain, as presented in the table above, is enormous. Obviously, trade has been stimulated throughout the chain in 2009/10 by sharp increases in prices and, to some extent, in supply levels. These benefits are due mainly to the export demands to Sudan and also the engagement of various additional actors, who wish to take advantage of rising prices in the camel trade. Yet, this trade route has been in existence for over half a century, absorbing new markets in the chain as they emerge<sup>18</sup> in the process of growth and expansion. But what is intriguing is that a trade of this magnitude has largely gone unnoticed at the policy level, perhaps because it has operated without any external support and with considerable efficiency.

The estimates indicate an annual supply level of some 256,000 camels in the chain in 2009/10, of which a little over 50% were sold for a total value of around US\$61 million. Obviously, the economic significance of this trade is much higher if multiplier effects<sup>19</sup> and trickle-down benefits are included. The figures in the table support some information stated earlier. Outside of the terminal Shiraro market, in the northern half of the value-adding markets, we observe higher prices and supply levels, followed by the southern half. Source markets closely located to the northern half of the value-adding markets (Chifra, Yalo, and Abala) also command higher prices than do other markets further south.

Of note, the annual supply level in this chain suggests that the camel population in Ethiopia has likely been grossly underestimated. Understandably, the exact annual supply level along the northern trade route should be less than 256,000, because camels not sold in a given market day could be brought again on another day, resulting in double counting. Similarly, the same camels are sold and re-sold in a number of markets along the chain, further reducing the

annual supply level from what is shown in Table 3.

However, there are also other significant camel trade routes in Ethiopia. For example, the Babile terminal market is said to attract a supply level of 10,000 camels in eight market days/month (more than Shiraro), servicing the trade route that stretches from Chireti and Afder in the southern Somali Region (Aklilu and Catley, 2011, citing the data collector in Babile market). Some 79,000 camels were also officially exported from Ethiopia in 2009/10, most of which were sourced from Borana markets.<sup>20</sup> Given the fact that nearly all the camels brought for sale are males, the camel population in the country must be disproportionately dominated by the female sex.

In any case, we can assume that nationally, over 250,000 camels were sold in 2009/10, based on the following assumptions:

- 133,000 camels through the northern trade route;
- 50,000 camels in Babile;
- 64,000 camels exported through or to Djibouti (this figure is minus the 15,000 exported through Humera to Sudan).
- Of note, 90% of the camels sold are males.

It then becomes questionable if this level of sales can be achieved from the official camel population figure of 2.5 million head (of which females constitute the highest proportion). This implies a 10% off-take rate in a country where camel meat consumption is so minimal that it has never been estimated. This suggests that the camel population in Ethiopia has been grossly underestimated, and its economic significance, with all its implications, under-rated.

The northern camel trade route is perhaps the largest in the country in terms of volume of supplies, value of transaction, and, also, in the numbers of market networks. This has been reinforced during the last two years in response to

<sup>18</sup> Chifra market was set up some 25 years ago; Rasa, Sabure, Dulecha, and Dawe markets are less than 20 years old; Melka Oda became part of the chain about six months ago.

<sup>19</sup> Transit and market taxes; payments for drovers, truckers, watchmen, and loaders; payments for other service providers (hotels, restaurants, transport, telephone, etc).

<sup>20</sup> Of the 79,000 camels exported in 2009/10, 15,000 were exported through Humera to Sudan and these are already accounted for in the calculation for the northern trade route.

the export-driven demand and the subsequent price escalation that attracted large numbers of farmers and traders to become engaged in camel trade in one or another way.

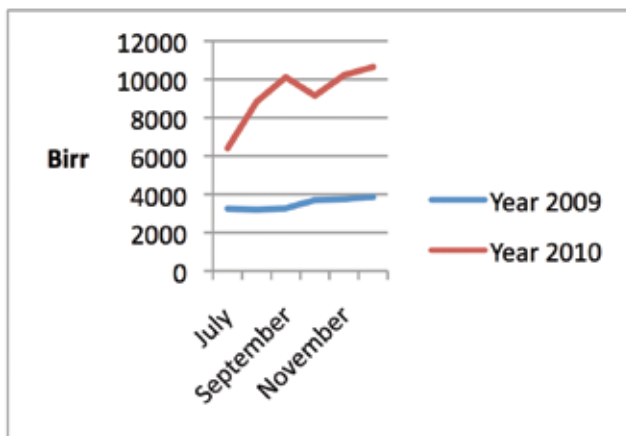
Of the value-adding markets, Waja, Mehoni, and Kukuftu attract the largest number of supplies on a weekly basis, because large-scale traders and exporters operating at the terminal Shiraro market and beyond source supplies from these markets. These markets also absorb supplies from the southern half markets in the chain, as the last transit points for Shiraro. Most of the camels that undergo a reconditioning process are also located in this region due to the availability of Euphorbia browse. Equally significant is the terminal market of Shiraro, which, after Waja, furnishes the highest level of supplies, amounting to an average

of over 500 camels per market day (2009–mid 2010).

## 5.7 Rising camel prices

The last two years (2009–mid-2010) were marked by price increases throughout the chain, although the increase was substantially higher for finished camels in value-adding and terminal markets. Price increases were also substantial in three of the source markets closely located to the transitional markets (Chifra, Yalo, and Abala). Generally, prices increased by more than 100% in nearly all markets in 2010 when compared to 2009. The following charts indicate price movements between 2009 and 2010 for some selected markets for which records were available.

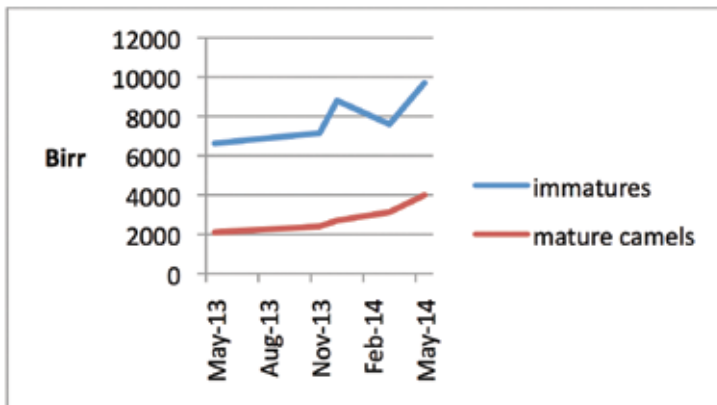
**Figure 3. Peak camel prices in Mehoni market, Tigray Region, July–December, 2009 and 2010**



Source: Mehoni agricultural office

**Mehoni** – average camel prices increased by 100% in July 2010 compared to July 2009, rising to over 125% by December 2010 relative to the same month in 2009.

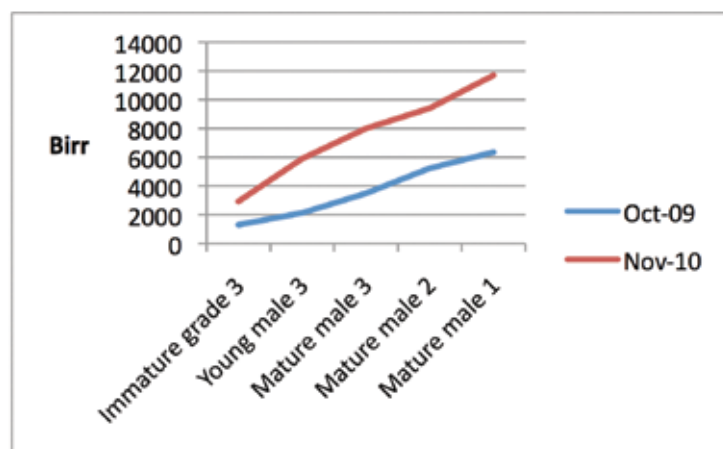
**Figure 4. Peak camel prices in Bati market, Amhara Region, May 2009 to May 2010**



Source: Bati agricultural office

**Bati** – prices for immature camels doubled between May 2009 and May 2010, from 2,000 to 4,000 birr. The price for an adult camel was 6,500 birr in May 2009, then peaked to 8,500 birr in January 2010, dipped to less than 8,000 birr in March and rose again to 9,500 birr in May 2010.

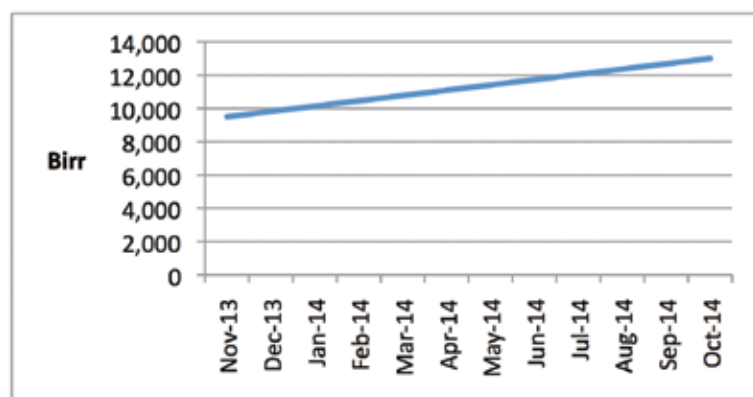
**Figure 5. Camel prices by grade in Chifra market, Afar Region, October 2009 and December 2010**



Source: Chifra agricultural office

**Chifra** – the agricultural office records prices on a grade basis. Price movements over a period of one year (October 2009–November 2010) indicate substantial price increases of 177% for young male (grade 3), 129% for mature male (grade 3), and 125% for immature males (grade 3 types). All these three types of camels are preferred by Worebabo and Hara farmers-cum-conditioners for finishing. The respective prices of mature male grade 2 and 1 types were up by 79% and 84% respectively in November 2010 compared to October 2009.

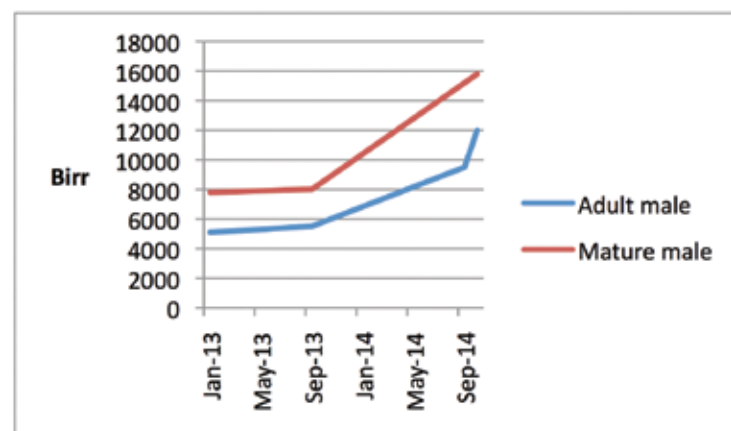
**Figure 6. Price of adult camels in Waja market, Tigray Region, November 2009 to October 2010**



Source: Alamata agricultural office

**Waja** – between November 2009 and October 2010, Waja exhibited a lower level of price increase (about 36%) compared to the other markets. This was because the price for adult camels was already higher than all other value-adding markets in November 2009 (about 9,500 birr) and was still the highest in October 2010, relative to all other markets except Shiraro. Waja market attracts the largest volume of supplies in the whole chain.

**Figure 7. Peak camel prices in Shiraro market, Tigray Region, January 2009 to September 2010**



Source: Shiraro agricultural office

**Shiraro** – between January 2009 and September 2010, prices rose by 100% for mature camels and by 135% for adult camels. The peak price in the whole chain is recorded in Shiraro at 16,000 birr and at 12,000 birr for mature and adult camels, respectively (a “mature” camel is older and larger than an “adult” camel, using the local market definitions).

In general, the price of camels began rising steadily in 2009 and then increased sharply until mid-2010. It then reached a point above which no increments could be made due to the possibility that prices might fall from their peak levels in late 2010. While Ethiopian exporters were advantaged by the depreciation of birr against the dollar, the ever-rising domestic price of camels is making it difficult for them to realize profits. Export records for July–December 2010 already show a 22.97% decline when compared to the same period in the previous year. Exporters attribute this decline to the escalating domestic price of camels.

### 5.8 Taxation

Transit and market taxes are applied along the whole chain. The total transit taxes, levied in 11 towns from Miesso up to Raya, add up to 60 birr per camel and are comprised of:

- 10 birr at Dulecha
- 5 birr each at Shewa Robit, Ataye, Karakore, Kombolcha, Haik, Woldiya, Gobiye, Kobo, and Waja.

No transit tax is applied north of Waja.

Transit taxes are also paid at Mille and Kobo, when camels are trucked from Miesso to Raya. At each of the two taxation points, a six-ton truck is charged 350 birr and a four-ton truck, 250 birr. Depending on the types of camels loaded, this translates into a transit tax of 35 birr for an

immature camel, 43 birr for a young camel, and 50 birr for an adult camel.

Market taxes are usually collected from the seller upon entering the market. According to the respective market finance officers, this is due to the difficulty of distinguishing sold camels from unsold ones. Buyers pay tax in some but not in all markets. In general, the level of taxation seems reasonable given the prevailing price of camels.

### 5.9 Camel exports to Sudan

The emerging cross-border trade through Humera to Sudan is marked by a steady growth in the volume of camel exports (and also, cattle exports). Between July 2009 and June 2010, the number of camels exported to Sudan rose by nearly 100%, compared with the same period in the previous year. To this trend must be added an estimated 500–1,000 camels, exported through the official Metema border point and perhaps a few thousand more through unofficial cross-border operations. While official customs records show 15,020 camels being exported between July 2009 and June 2010, exporters insist that no fewer than 20,000 camels were exported in that year through the Humera exit point. The discrepancy may be attributed to export permits being issued from customs offices in various locations (Gondar, Humera, Metema, and recently, Bahir Dar), resulting in the disaggregation of records.

**Table 4. Taxation levels/camel in selected markets**

Market	Seller	Buyer	Remark
Miesso	2 birr	10 birr	Buyer also pays 50 birr/camel for middlemen
Chifra		5 birr	Seller pays guarantor fee as appropriate (5–30 birr)
Hara	5 birr	–	"
Kobo	5 birr	–	"
Mehoni	4 birr	6 birr	"
Girana	3 birr	3 birr	"
Waja		10 birr	"
Shewa Robit	5 birr	–	"
Shiraro		10 birr	"
Kukuftu	3 birr	–	"

**Table 5. Volume and value of camel exports to Sudan**

<b>Year</b>	<b>No of camels</b>	<b>Value in USD</b>
July 2008–June 2009	7,765	3,205,464
July 2009–June 2010	15,020	6,124,800
July 2010–December 2010	3,380	1,757,700

Source: Gondar and Humera customs offices

On the other hand, export figures for the last six months of 2010 (July to December) show a 22.97% decline, compared to the same period in the previous year, according to customs records. Exporters ascribe the decline to the escalating domestic price of camels. Since then, exporters have taken a collective action to slow operations until domestic prices come down. Subsequently, local agents have been directed to stop buying camels on the grounds of Sudanese importers temporarily banning camel purchases from Ethiopia. This measure is already felt throughout the chain and prices are likely to drop, following which exports may peak once again. Supply levels in Shiraro dropped to some 300 camels on 16 January 2011.

In the interim, traders have switched to exporting cattle in increasing numbers. For example, in July 2010, only 147 head of cattle were officially exported through Humera to Sudan. In October, the figure rose to 430, in November to 2,130 and in December to 3,148. A similar trend has been seen in the number of sheep exported across the border, although the figures are lower than those of cattle. Cattle prices have now gone up by an average of 2,000 birr in the local Shiraro market. Further price increases of cattle are likely to persuade exporters to collude once again from operating in the camel markets. In all likelihood, exporters, influenced by regulating prices, will keep on switching between camels and cattle through temporary withdrawals from markets.

A puzzling aspect of this trade is how exporters managed to realize a profit, given the domestic price of camels and the price at which they sold in Sudan at the time. The export price hovered

around US\$460 for camels and US\$500 for cattle (this minimum export price is said to be fixed by the National Bank of Ethiopia, to which exporters must adhere).<sup>21</sup> This implies that the average value of camels exported to Sudan must have been worth less than US\$420 by the time they reached Humera. This could be understood if camels bought from some of the source markets were brought directly to Humera. Not surprisingly, none of the exporters was willing to delve into this issue in depth.

There are six traders licensed to export camels, cattle, and sheep, based in Shiraro and Humera. These exporters are licensed to deal with other export commodities as well. The export process involves bulking camels for three to four months<sup>22</sup> in the lowlands of Humera, until an arrangement has been made with the customs office to initiate the physical crossing of the camels into Sudan. The camels are then trekked to Hamdai, where there is a customs post on the Ethiopian side of the Takeze River. From there, camels are driven across the Takeze River into Sudan (with the assistance of swimmers, particularly during the rainy season). On the Sudan side, the Ethiopian exporters hand over the camels and collect their dollars (in cash) from the importers. Transactions in most of the domestic chain markets are handled through cash payments. A few exceptions involve partial cash and partial credit arrangements between large-scale Raya traders and exporters. Defaults are said to be rare, unlike live animal exports to or through Djibouti.

One apparent problem is the lack of a bridge at the crossing point over the Takeze River. The crossing operation becomes difficult particularly

<sup>21</sup> The minimum export price set by the National Bank of Ethiopia, while ensuring that this minimum price is obtained in hard currency, may also tempt or encourage exporters not to declare any amount they obtain above the minimum price. Rather interesting is how the National Bank set the minimum price of cattle (\$500) above that of camel (\$460).

<sup>22</sup> Exporters stated incurring an average cost of 100 birr/camel during this process.

during the rainy season, when the river floods. For example, during the last rainy season in which the Humera customs office arranged for the crossing of 1,500 camels in a single day, some 30 camels were drowned, 19 of them belonging to one exporter. Exporters insist that the loss they incurred on this particular date can be attributed to the local customs office's single-mindedness in allowing too many camels to cross the river in flooded conditions despite the suggestion from them to use an alternative safe crossing point. They added that the swimmers directing the camels in the river were too tired to handle so many animals on that day. Exporters admit that the rainy season is good for business as livestock conditions improve due to the regeneration of shrubs and browse, but they also incur losses during this season from the drowning of livestock. Generally, the export process slows down between the cold months of December and March, as the weather is not suitable for trekking camels.

On the other hand, the customs office complains about the practices of exporters whom they insist must follow standard regulations to process formal exports. For example, the customs directive states that only male and castrated animals be exported; the office has caught female camels among those brought for export. The office also complains that a number of "the-so-called-exporters" are not actually engaged in exporting camels. They simply hire out their license at 50 birr/camel to small-scale traders who neither have export licenses nor are familiar with the simple process of export documentation. The customs office views this as pure exploitation. Growing tension has become evident between the customs and the local agricultural offices, arising from export procedures.

Animals exported through Humera to Sudan do not undergo quarantine observation, since there is no facility available for prolonged scrutiny. Also, the lack of livestock feed would make it difficult to quarantine animals, even if there were such a facility. As a result, quarantine procedures are limited to visual inspections by the local vet office. More importantly, quarantine certification

is not required by the Sudanese. In any case, this is a simple cross-border operation similar to the one to Somalia, Kenya, and Djibouti, with the exception that exports from Humera follow formal customs procedure involving hard currencies.

Exporters agree that the numbers of contraband camels exported had decreased significantly because of two major factors. Firstly, the Ethiopian government has put tighter controls over potential exit routes; secondly, the government seems interested primarily in accessing US dollars. Since the official and the black market exchange rates are similar in this area, exporters see no reason to go to the trouble of exporting illegally, only to face stiff penalties if caught. The local customs office concurs that the number of illegally exported livestock is not that significant. For example, in 2010, the customs police caught only three camels in October, 20 camels and 55 head of cattle in November, and 73 camels and 1,452 cattle in December, all trying to cross unofficially into Sudan. One can never be certain if the increase in the absolute numbers of these animals is also reflected in proportional terms.

However, the customs office maintains that unofficial exports are not driven by additional financial gains but because many livestock traders are unfamiliar with the customs export procedures of the customs office, and therefore try to avoid it. This might be understandable for small-scale traders, exporting five to ten camels or some 25 head of cattle at a time. The customs office is concerned about the increasing use of camels in ferrying contraband goods to Eritrea, since farmers, traders, and drovers invariably use camels for smuggling commodities such as *teff*, coffee, sesame, etc. into that country. Distinguishing between those taking laden camels to their own homesteads and those delivering contraband goods across the border into Eritrea seems to be a rather difficult task. Regardless, the financially rewarding smuggling business remains, for the inhabitants, one of the incentives for owning camels in this area.<sup>23</sup>

<sup>23</sup> North of Humera in Eritrea in 1994, returnees from Sudan received support from a large-scale restocking project. Some of the returnees requested camels from the project, knowing that they could use them to transport contraband goods from Sudan into Eritrea (AC personal observation).

Camels exported to Sudan go to Kassala, and Ethiopian exporters suspect that they may eventually end up in Egypt, although they are not certain. In any case, Sudan is likely to be one of the major destinations for Ethiopian livestock, consisting mainly of cattle and camels, but also some small ruminants; live animal exports from Sudan is showing an upward trend. For example, camel exports from Sudan to Egypt rose from 141,000 in 2008 to 150,000 in 2009 and to 172,169 in 2010.<sup>24</sup> Camel exports from Ethiopia to Sudan may later go to Egypt, are smuggled across the Red Sea to Saudi Arabia by Rashaida pastoralist traders, or are consumed in Port Sudan where camel meat is popular. Regardless, Sudanese authorities in Khartoum are not even aware of camel imports from Ethiopia as the Humera exit point is far away from major settlement centers.<sup>25</sup> There needs to be verification about this from the other side.

Meanwhile, Humera's lead position as the major exit point for camels has recently been challenged by the Metema border post, which has been the main exit route for cattle to Sudan. Recent trends show that exporters have started trucking camels directly from source markets (Miesso and Metehara) through Bahir Dar and Gondar to Metema. The newly-completed tarmac road to Metema may, in the future, also attract supplies from as far away as Borana, if exporters see more profit in Sudan than in Djibouti. It remains to be seen which of the two exit points will take the lead position in camel exports. In all likelihood, however, live animal exports to Sudan will increase and expand through these two border exits.

<sup>24</sup> Camels are exported on the hoof from Darfur and Kordofan to Wadi Halfa for a price range of US\$900–\$1,100. Data on export figures was provided by Sudan Chamber of Commerce.

<sup>25</sup> This became clear during recent meetings with officials of the Ministry of Agriculture and Sudan Chamber of Commerce in Khartoum.

## 6. DISCUSSION

The northern Ethiopia camel trade route is an economically significant trade network, benefitting a multitude of pastoralists, farmers, domestic traders, and exporters, drovers, and middlemen, as well as others in the chain. It provides essential market outlets for Oromo, Issa, Hawiya, and particularly for Afar herdsman, who probably sell more camels than other types of livestock. At the national level, its economic significance is expressed in rising export revenues. Therefore, the trade is good example of how pastoralists contribute to both domestic and formal export markets, and how they have responded to market demands without external assistance from government or aid programs. This finding is further evidence of the increasing market orientation of pastoralists and contrasts with the often-held and incorrect view that pastoralists are inherently resistant to the idea of livestock sales. In terms of the primary production system for camels, mobile pastoralist systems in dryland areas are ideal for camel rearing and can respond to variations in rainfall and other factors. Therefore, there are direct links between strengthening the camel trade and supporting extensive pastoral livestock production. Essentially, this camel trade is a vital trade route in both economic and livelihood terms. Intervention attempts, if made at all, need to be carefully designed to facilitate transactions along this trade route that has been operating fairly efficiently without any external assistance. To this effect, some discussion points are raised below.

### ***Is there a need for a quarantine center in Humera?***

The exporters' greatest fear was the news that a functional quarantine center will be set up in the near future in Humera. They expressed concerns about keeping hundreds or thousands of camels in a confined space for three weeks or more, and stated that the behavior of camels is not suited to confinement, and there is no feed in the area near the quarantine center. Under the current scenario, exporters incur mortality losses of about 2%, due to lack of feed, diseases, and other causes. Keeping camels in quarantine centers, they reason, would only force them to incur additional costs, even if

feed becomes available "by some miracle." At worse, it will drive them out of business, due to the likely escalation of mortality rates. Their strongest point of argument is "if Sudan is willing to accept our animals as they are, why should a quarantine system be needed?" They further add that the millions of animals exported through cross-border operations to Somalia, Kenya, and Djibouti do not pass through such a quarantine process or bring any foreign currency into the country. On the contrary, the cross-border livestock export to Sudan through Humera, they insist, "is not only legal, but it brings much-needed hard currency into Ethiopia."

From a veterinary viewpoint, camels are not so affected by many of the transboundary cattle, sheep, and goat diseases for which quarantine observation is usually required. The main exception may be Rift Valley Fever, but a camel with this disease would probably die (or recover) before reaching Humera, and the disease is associated with unusually high rainfall in specific areas and occurs very infrequently. Surveillance could be enhanced should rainfall patterns indicate a high risk of RVE, rather than impose an unnecessary quarantine system. Crucially, the economic logic of establishing quarantine for camels is difficult to define, and Sudan is not requesting a quarantine system. Of note, cross-border livestock trade thrives in the absence of such a system and there seem to be no reports of livestock disease outbreaks in Sudan that were associated with Ethiopian camel exports. Also, there is no quarantine system in place when Sudan exports camels to Egypt.

### ***A bridge over the Takeze River***

Perhaps what is more critical to stimulate trade across the Ethiopia-Sudan border is the construction of a bridge over the Takeze River to minimize the drowning of camels and cattle and to facilitate the movement of livestock into Sudan, particularly during the rainy season. This perhaps requires a bilateral agreement between the two countries.

## ***Market and camel population data***

Market data are not collected regularly or systematically in most of the markets, particularly in Amhara Region, where camels are considered to be nonexistent and of no significant economic value (despite evidence to the contrary). Regular and systematic collection of market data would seem essential in order to determine the economic significance of transactions and the impacts on livelihoods for appropriate planning of interventions. However, this could be costly and, if a proper *analysis* system were not also put in place, the data collection exercise would be meaningless. Data records from a sample population should suffice in the interim.

Similarly, camels have been marginalized as a species due to factors that include the underestimation of the population size, the under-rating of their economic significance, and the fact that they are disproportionately owned by marginalized pastoralists. These perceptions have to change for valid reasons. This change could be started by re-assessing the true camel population in the country (through a reliable census) and by conducting an evaluation of the existing and potential economic contribution (such as milk, meat, hides, and transport) of the species at the household and the national level.

## ***Training camel specialists***

The marginalization of camels in the country is reflected in the dearth of camel specialists in the fields of veterinary medicine, production, feed, and other camel husbandry disciplines. This apparent gap has led to camel mortalities from both known and unidentified diseases, and the under-utilization of camel-based resources (meat, milk, and hides, for example). The potential for commercial camel production has been constrained by the evident lack of specially formulated processed feed for camels. It is time for veterinary and agricultural schools (particularly those located in the pastoral regions) to fill this gap by developing special curricula on camels.

The research on camel disease and production in Ethiopia needs to be expanded to include more research on camel trade systems, and the livelihoods benefits of camel ownership. The

Camel Forum for Ethiopia is a forum that warrants further support as a means to raise awareness of camel health, production, and marketing issues, to encourage relevant professional training in camel-related topics, and to engage in policy dialogue on appropriate camel development programs and policies.

## ***Limitations of the mid-altitude regions***

Recurrent droughts, comparative economic advantage, and access to free shrubs and browses have been and remain the driving factors for the increasing adoption of camels in mid-altitude regions. While potentials may differ from place to place, resource (particularly shrubs and browses) and space limitations may not allow the accommodation of increasing numbers of additional camels in the future. A significant increase in camel population in mid-altitude areas would result in the shortage of browses (including cacti and *E. tirucalli*). This could lead to the gradual incursion of farmers into adjacent pastoral areas, resulting in heightened levels of tension between and among farmers and between farmers and pastoralists. An inventory of resource capacity is essential before the situation gets out of hand.

## ***Camel milk production***

That the camel population in Ethiopia is disproportionately dominated by females indicates another largely untapped potential involving camel milk production and processing, if appropriate systems could be put in place. Although traditionally, high- and mid-altitude Orthodox Christians do not consume camel products, attitudes may change now that camels are increasingly being owned and used in these areas. Ultimately, camels are superbly adapted to producing relatively large quantities of highly nutritious milk, even in extremely dry conditions. Given the food security challenges facing Ethiopia, the opportunities for supporting camel milk production and marketing need to be further examined.

## ***Conclusion***

There is a need to recognize the limitations of resources and the potential risks associated with additional acquisition of large numbers of camels

in mid-altitude regions. Meanwhile, existing trade practices along the northern route should be allowed to continue without any interruption. The rising domestic demand for camels coupled with growing export opportunities to Sudan and Egypt should be viewed as an opportunity for poverty alleviation for those who are involved in camel production, value addition, and trade. In this regard, the economic importance of camels need not be measured from the narrow scope of foreign exchange revenue generation alone. Providing appropriate support for the sector has to begin by extending the due recognition producers deserve for caring and nurturing a species that has been inadvertently ignored by policy makers for so long.

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## ANNEX 1

### List of Informants

#### December 6 and 7, 2010 (Miesso)

Awol Hassan – *Finance Bureau*  
Tewfik Mohamed – *Pastoral Development Office*  
Amin Ali – *Miesso-based livestock trader*  
Adem Ahmed – *Miesso-based livestock trader*  
Mustafa Jemal – *Miesso-based livestock trader*  
Humed Momin – *middleman/livestock trader*  
Said Hussien – *middleman/livestock trader*  
Sharif Abdi – *taxman*  
Tefera Minda – *camel trader from Minjar*  
Tesfa Asmare – *camel trader from Minjar*  
Nigus Hailu – *camel trader from Raya*  
Mohamed Adem – *camel trader from Raya*  
Shambel Kiros – *camel trader from Raya*  
Zeru Kassa – *camel trader from Raya*  
Ahmed Said – *camel trader from Bati*  
Belew Ali – *camel trader from Bati*  
Adem Ibrahim – *camel trader from Bati*

#### December 15 and 16, 2010 (Hara)

Molla Hailu – *veterinary assistant*  
Adem Teiru – *Afar pastoralist*  
Gudele Mahe – *Afar pastoralist*  
Mohamed Siraj – *itinerant trader*  
Kassa Hailu – *itinerant trader*  
Said Abdul – *itinerant trader*  
Jemal Kafo – *Oromo agro-pastoralist*  
Said Ali – *farmer*  
Abdu Omar – *farmer*  
Suhib Jami – *farmer*  
Kahsai Abdi – *Raya trader*  
Adem Sule – *Raya trader*

#### December 15 and 19, 2010 (Chifra)

Zeinu Arba – *Woreda Administrator*  
Wogris Arba – *Woreda Agricultural Office Head*  
Wogris Gudele – *Livestock Coordinator*  
Wondimu Kelelew – *Livestock Market Data Collector*  
Ali Mirah Gudele – *guarantor*  
Deto Ibrahim – *pastoralist*  
Fokole Melo – *pastoralist*  
Teiru Mahe – *pastoralist*  
Adem Haji, Abdi Dane, and Yimam Ahmed – *Bokoksa-based camel traders*  
Ibrahim Surur – *Yalo-based trader*  
Hussien Said and Asfaw Basha – *Hara-based traders*  
No Raya traders were observed in this market on December 19, 2010

**December 17, 18, and 20, 2010 (Kobo)**

Alemu Mekete – *Livestock Coordinator*  
Kiflu Alemyehu – *veterinary assistant*  
Haile Negussie – *Extension Agent*  
Hamdi Yimam – *camel breeder (Gadamayu kebele)*  
Surum Abdallah – *camel-owning farmer*  
Shambel Assefa – *camel-owning farmer*  
Muleta Goraw – *camel-owning farmer*  
Kedir Ijigu – *camel-owning farmer*  
Abegazu Molla – *camel-owning farmer*  
Ashagre Belew – *camel trader*  
Demlew Robele – *camel trader*  
Ababu Aliyo – *camel trader*

**December 17 and 18, 2010 (Alamata, MoA)**

Genet – *Deputy Head of the Woreda Agricultural Bureau*  
Hailu Mengiste – *Livestock Expert*

**December 21, 2010 (Waja Timuga)**

Mamo Hunde – *camel trader/middleman*  
Hamday Woynu – *camel trader*  
Mohamed Shifa – *camel drover*  
Berhan Wolday – *camel trader*  
Desu Shinkur – *farmer/itinerant camel trader*  
Mekonen Alem – *farmer/itinerant camel trader*  
Belay Haile – *camel trader*  
Segid Gizan – *camel trader*

**December 21, 2010 (Mehoni)**

Zenebu Molla – *Livestock Coordinator/Data Collector*  
Lul Geretsadik – *drover to Afdera salt mine*  
Tsegay Geresellasie – *camel-owning farmer*  
Abdi Kedir – *camel trader/middleman*  
Mohamed Negash – *camel trader*  
Said Mohamed – *camel trader*

**December 22 and 23, 2010 (Afdera – Reged salt mines)**

Ali Nur – *Administrator at Ahmadela/Reged*  
Zeinu Adem – *salt carver*  
Zerai Tesfu – *salt mine laborer*  
Mohamed Abdilla – *salt carver*

**December 25, 2010 (Abala)**

Nigdu Adem – *camel trader*  
Abdu Teiru – *tax collector*  
Gudele Humed – *camel trader*

**December 27, 2010 (Bati)**

Kebir Kebede – *Livestock Expert/Market Data Collector*  
Dr. Zerihun Mesfin – *veterinarian*  
Said Abdul – *farmer/camel trader*  
Mohamed Hassan – *farmer/camel trader*  
Abdalla Mohammed – *Afar pastoralist*  
Hussien Kode – *camel trader*  
Mamush Bitew – *camel trader*

**December 28, 2010 (Kemissie)**

Mekonen Fanta – *Livestock Expert/Market Data Collector*  
Aliyom Dawd – *livestock trader*

**December 28, 2010 (Shewa Robit)**

Humed Ali – *Afar pastoralist*  
Abdilla Salah – *Afar pastoralist*  
Shenkor Hapte – *camel-owning farmer*  
Sileshi Shumet – *camel-owning farmer*  
Haji Ahmad – *camel trader*  
Bushra Hussien – *camel trader*  
Aden Bulto – *middleman*

**December 29, 2010 (Senbete)**

Gemechis Itana – *Deputy Head, Woreda Agricultural Office*

**January 13, 2011 (Gondar Customs Office)**

Shemsu Jemal – *Customs Head*

**January 14, 2011 (Humera Customs Office)**

Tsegay Tesfay – *Customs Office Coordinator*  
Assefa Haile Chamo – *Operations Officer*  
Aklilu Lemma Wolde – *Customs Officer*

**January 15, 2011 (Indasellasie MoA office)**

Desalegn Gebresellasie – *Livestock Expert*

**January 15, 2011 (Shiraro MoA office)**

Gezahegn Telele – *Deputy Office Head*  
Goshu Gerelul – *Livestock Expert and Data Collector*

**January 15 and 16, 2011 (Shiraro)**

Ibrah Taame – *camel exporter*  
Desbele Wolde Mehret – *camel exporter*  
Lul Gereziaher – *camel exporter*  
Solomon Amare – *camel exporter*  
Geregiorgis Tekla – *camel exporter*  
Tsegay Tewolde Berhan – *camel exporter*  
Mamay – *camel exporter*





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