



**EUROPEAN UNION**



## **Market-driven value chain for the livestock sector Turkana County Report**



### **Report Submitted to Oxfam GB and the Turkana County Livestock Production Office**

**Photo © courtesy George Matete, Lodwar Mobile Market**

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## EXECUTIVE SUMMARY

Turkana district's food security situation is unstable, deteriorates rapidly in face of covariant shocks such as droughts. The livestock is the most critical components for sustainable livelihoods and food security directly or indirectly. However, livestock off-take rates remain incredibly low in Turkana, donors and policymakers are keen to implement interventions market driven solutions that are likely to increase livestock marketing in order to increase pastoralists' incomes and wealth and their capacity to manage regular climatic shocks. The creation of Lomidat Abbattior as well as new livestock sale yards in feeder markets, with institutionalized market days, have stimulated livestock marketing from the county but more is yet to be done.

Oxfam GB together with the County Livestock Production Office financed a livestock marketing study combining the use of Rapid Participatory Rural Appraisal (RPRA) and Value Chain Analysis and Mapping (VCAM). The respondents were limited to key informants within various markets who were interviewed through Focus Group Discussions (FGDs) of between 5 to 8 persons in each market. The livestock populations estimated from this study were Goats 2,619,323 Sheep 931,323 Cattle 89,832 and Camels 175, 851. The new knowledge from these estimates is that the livestock population do not exceed the carrying capacity of the County. The study revealed that only 2% of the livestock offtake was exported out of the county. In the short term, the implication is that there is limited value of investing in extra county markets compared to intra-county markets.

In terms of the unique selling points meat from Turkana livestock is tender and succulent; very tasty due to the special salt licks and is natural due to limited use of chemicals/drugs. It is proposed that these can be used for branding Turkana livestock (Turkana County meat - Tru – meat) by creating a brand name, promoting the perceived quality position for differentiation; medicinal brand associations' strategy; use of fair trade strategy; County of Origin Labelling; and, concern for the environment. The Lomidat model was proposed as replicable only in Lodwar and Lokichar and expanded to include donkey slaughter for domestic consumption. This should be done with caution as the high abattoir investment cost is unsustainable. The most suitable model that should be adopted is the utilisation of housed slaughter slabs with improvements.

The study identified the main constraints to accessing the market as follows; high transport costs 25%; lack of markets 16%; long distances to markets 15%; livestock raids and insecurity 15%; low prices 11%, local theft 8%, mortalities on way to markets 5%, lack of market information 4% and lack of capital to expand business 2%. Based on this, the study recommended that bulk of investments should be in developing the markets within Turkana County while at the same time building the certification requirements and production quality standards of niche markets in Nairobi. Since drought is a constant in Turkana, the County should seek to invest in heavy infrastructure like roads, water pans and rangeland rehabilitation while at the same time working with research institution to produce a bigger and larger goat (>16kg carcass weight). By providing support to extension services through pastoral field schools, pastoralist communities may massively reduce the losses due to deaths of their livestock. Specifically the recommendations are as follows:-

- i. ***Implementing the Farmer Managed Natural Regeneration:*** increasing food security, resilience and climate change adaptation in poor, subsistence farming communities.
- ii. ***Establishment of long lasting aquifers, water pans or dams from the underground water reservoirs:*** Lack of water is a serious threat during drought yet Turkana has underground water three times the size of Lake Victoria. "Two aquifers – the Lotikipi Basin Aquifer and the Lodwar Basin Aquifer using the tank cascade system modeled from Sri Lanka.
- iii. ***Improving the quality of livestock through genetic characterisation:*** This is to characterise indigenous genetic resources of both forage and livestock, identify

- useful adaptive and productive traits for livestock production and promote utilisation of indigenous resources as part of a sustainable small holder production
- iv. **Women in business:** Women are very efficient in utilisation of the carcass of sheep and goats in the meat marketing chain.
  - v. **Introduce livestock insurance** Turkana County can support the implementation of livestock insurance schemes.
  - vi. **Lower the cost of livestock transportation:** There is a direct relationship between the high transport cost and the poor state of roads within Turkana county (Watson and Binsbergen, 2008). Investment in the road infrastructure, particularly the main road that connects the main Turkana markets of Lokichoggio, Kakuma, Lodwar and Lokichar with Kitale and Nairobi, and Lodwar with Kakuma and Lokichoggio is essential to reduce the cost of livestock marketing
  - vii. **Improve security:** Insecurity in the district is perceived as another important constraint to profitable livestock marketing in Turkana County. Improving security in hotspot areas in along the border between Turkana County with Ethiopia, South Sudan and Uganda as well in the volatile border between Turkana and West Pokot.
  - viii. **Reduce information assymetry:** The improvement of information flows would be another key improvement in livestock marketing systems in Turkana County.
  - ix. **Strengthen livestock marketing associations:** Through the LMA traders access accurate up-to-date prices and traded volumes of the livestock that they intend to both buy and sell from a system modelled on the Links system.
  - x. **Gender responsive strategy:** This should look at assisting women to develop the utilisation of skins and hides; meat offal; into viable and profitable micor-enterprises

## Policy recommendations

- The County and National Government should be lobbied to make significant improvements to the road infrastructure, provide enabling environment for livestock investment through community peace building, develop infrastructure, sensitize on environmental conservation, develop and implement disaster preparedness and mitigation, facilitate development of water harvesting structure (dams, pans, rock catchment, roof catchment ) and extraction (bore hole, reticulation) and tank cascade system.
- The county government should develop policy guidelines that strengthen community participation and public-private partnership in disease control programmes. These should include digital pen technology in real time disease surveillance and reporting. The county government should launch programmes that improve livestock productivity through improved animal breeds and use of superior genetics. Characterization and documentation of animal genetic resource and conservation intervention by community-based organizations should be done. NGOs, breed research stations and breeders should undertake relevant tasks related to establishing self sustaining breeding schemes in the county.
- The county government should support the enforcement of environment sustainability regulations, enhance conservation and management of resources, awareness creation and resource mobilization.
- National Government should be lobbied for a review and justification of current Contagious Bovine PleuroPneumonia (CBPP) and Contagious Caprine PleuroPneumonia (CCPP) quarantine restrictions in Turkana District.
- AU-IBAR should be lobbied to support cross boder improvement of security along the West Pokot, Ugandan, Sudanese and Ethiopian borders.
- A consultative review with stakeholders should be initiated to analyse and justify the proposed structure of county council livestock marketing fees.



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## ACRONYMS AND ABBREVIATIONS

BGB	
CBPP	Contagious Bovine PleuroPneumonia
CCPP	Contagious Caprine PleuroPneumonia
CIDP	County Integrated Development Plan
CLMC	County Livestock Marketing Council
CLPO	County Livestock Production Office
DP	Development Partners
FGD	Focused Group Discussion
ITDG	Intermediate Technology Development Group
KSh	Kenya Shillings
LMA	Livestock Marketing Association
LPMCS	Lomidat Pastoral Multipurpose Co-operation Society
NGO's	Non-Governmental Organisations
RPRA	Rapid Participatory Rural Appraisal
VCA	Value Chain Analysis
VCAM	Value Chain Analysis and Mapping

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## 1. BACKGROUND

### 1.1. Physical and Agro-climatic Conditions

Turkana is a uniquely situated county with both international borders (Ethiopia to the North; South Sudan to the North West, Uganda to the West) and internal county borders i.e. West Pokot to the South and South West, Samburu and Baringo to the South-East and Marsabit to the East respectively (Figure 1). Turkana has an estimated population of approximately 855,399 persons in 139,067 households living in a geographical area of about 77,000 km<sup>2</sup> (Population census-2009). These households are distributed within six sub-counties. These include Turkana Central, Turkana South, Loima, Turkana North, Turkana West and Turkana East.

The arid or very arid land within the county has mean temperature of 30°C (24°C - 38°C) and average rainfall of between 120 and 500 ml per year. This occurs in a bimodal pattern each year (long rainy season in April-May and a short rainy season October-November). However, the rains are erratic in distribution with the open lying central plains of Kalakata and Lotikipi receiving the lowest amounts. On the other hand, mountains at Turkana's eastern and southern extremes, the central plains of Namoruputh, Lokiriama, Lorengippi, upper Loima and the lowlands of Turkwel receive better amounts of rainfall. Vegetation comprises dwarf shrubs, annual, bushed and wooded grasslands.

The Turkana community is an egalitarian society, lacking centralized institutions of coercive authority. Boundaries between different clans are fluid and thus survival depends upon a web of cordial relationships, sharing of natural resources, collaboration and property claims during calamities (Storaas, 1989). Governance and the maintenance of social order is exercised through peer sanctions and rewards by either age mates or generation sets (*erisait*-leopard) and *emorut*-stone). The *awi* (nuclear family) and the *adakar* (group of families under a leader) have limited function in intra-communal communication. For the Turkana, ownership of livestock is an essential form of pastoral capital. Livestock are a key household asset in low-income, high-risk production settings. They are used to buffer consumption against income shocks (Kinsey et al. 1998). Sale of livestock is in response to urgent household needs such as food, medical or school fees, and shoes and clothing (ITDG 2005).

Livestock are also used for payment of dowry, compensation for offence/injuries, as a symbol of prosperity and prestige, store of wealth and security against drought, disease and other calamities. (Behnke 2008). 60% of the population practices pastoralism, 20% practise agro-pastoralism, 8% are fishermen and 12% depend on urban and peri-urban livelihoods respectively (County Livestock Production Report, 2012). Nomadic transhumance is the preferred form of pastoralism for the majority of Turkana livestock keepers. They graze mixed herds of goats, sheep, donkeys, cattle and camels to enable them better exploit the differing utilization of graze for cattle and sheep and browse for goats and camels. Herd mobility within the county and their split through mutual support networks are used as a means to off-set risks.

Supplementary incomes are derived from small-scale rain-fed sorghum cultivation, irrigation fishing, trading, and gathering of wild fruits. There is also an increase tendency towards wanton destruction of the vegetation cover through charcoal burning. (King et al. 2012).

Livestock markets pose significant inefficiencies seen in the high transaction costs, difficulties in contract enforcement, physical insecurity and poor infrastructure. Livestock off-take rates among ASAL pastoralists languish between 1.5 and 3.5 percent. This has exposed the communities to a stressed ecosystem by holding livestock in excess of the land carrying capacity, poor response to drought and loss of wealth through livestock mortality. Figure 1.1 below is the map of Turkana County:



## **1.2. Historical perspective of Turkana livestock trade**

In Turkana, blockade of external capitalist markets was largely enforced by the colonial administration: From the 1920's keep peace and order in its peripheral regions by setting restrictions on the nomadic pastoralists. International boundaries were drawn, taxes collected and grazing patterns controlled. In the extreme case, the colonial government sought to subjugate Turkana military during the 1920's, while at the same time excluding their cattle from markets through quarantine regulations. The government purchased livestock for less than the open market price (Snow, 1982). This subsequently evolved to barter with Somali livestock traders, who own shops throughout Turkana and ultimately to sale for Kenyan Shillings. The Turkana are still much less involved in the cash economy when compared to other pastoralists in Kenya.

These were designed primarily to protect European beef producers from competition. The Civil Administration took over, but their policy was mainly directed towards the avoidance of raiding and the restriction of stock grazing movements. Until 1940, large stock movements had to be reported to the British District Commissioner and fines were imposed by the authorities if the Turkana herded their livestock too close to certain forbidden areas.

## **1.3 Scoping livestock trade in Kenya**

In Kenya, the livestock sector contributes about 3.3% of the total GDP in Kenya. Despite this contribution, the sector has received commensurate less than 2% of the total recurrent agricultural budget. Annual red meat production is estimated at 362,815 MT in Kenya of which beef constitutes about 286,000MT. Pastoral areas supply two-thirds of the national beef demand with 46% coming from within Kenya and 26% supplied through cross-border trade. Supply outstrips demand, and livestock prices respond by dropping down during droughts and peak up during holidays (Christian, Muslim or other public). Meat, on the other hand has maintained a consistent price indicative of cartel like behaviour at the terminal markets. Butchers and Middlemen, who act as the interface between livestock traders and the consumers' control the price of livestock at major domestic markets and by extension the volume of the national red meat consumption.

In Kenya, the producer's share varies between 47 and 52% depending on the butchery outlet. This has been attributed to high cost of transport. Transport constitutes a major cost factor in livestock trading. In Kenya, 25 to 40% of the total cost of livestock brought to terminal markets from the Northern pastoral areas is accounted to transport, since truck owners charge more for livestock than consumer goods. Those traders with their own means of transport accrue the highest profit margin from high turn over volume and savings in transport costs. Traders who trek their animals either by choice (to save on transport costs) or by default (due to inaccessibility) tie their working capital for far too long on 'inventory on hoof' and may not be able to do more than few transactions in a year due to the long turn around time.

Available evidences indicate that cross border trade occurs due to because of proximity to the cross border rather than to the domestic markets. Livestock from pastoral areas, by and large squeezed out of the domestic markets, have to be sold at cross-border markets. The present status of the livestock markets in Turkana county necessitates a complete review of the situation in order to formulate goal-oriented strategies. The roles and responsibilities of governments, trade and producers associations, the private sector and other civic associations need to be reassessed with a view to hand over most of trade related activities to the private sector for sustainability while maintaining the regulatory and supervisory roles of governments. Governments should also take the courage to admit that the livestock sub-sector has been ignored for far too long and take new initiatives to promote the productivity of the livestock industry.

#### **1.4. Objectives of the assessment**

The specific objectives were to undertake a detailed Market Mapping and value chain analysis (VCA) of the Turkana Livestock sub sector by identifying:-

1. A detailed analysis of the market opportunities for the various sub sector products within the overall livestock industry.
2. Examination on whether the adoption and replication of the Lamidat Abattoir Market/Business Model in other sub counties in Turkana was possible; The Implications, Costs and possible benefits both in the short and long run.
3. The possible inter linkages between the Livestock sub sector and other business sectors and services e.g. the basket and mats making practices by Turkana women, the fish sub sector and the general retail trading in the larger Turkana social economic development. Where possible provide data that could be used to make decisions on future investment opportunities especially in regard to value addition opportunities in the Livestock Sub sector.
4. Outline clearly the role of women in the Turkana Livestock Value chain, and give indications as to what can be done to improve their role and contribution to the Turkana LVC development.
5. Delineated and examined diverse Market channels of Turkana key livestock value chain and their products, outlining opportunities for exploitation, additional investments, challenges and possible interventions. Market segmentation is expected with a possible examination and decision based on facts about the best sub sector to focus on especially by women and the youth.
6. An analysis of the basic business support services needed to strengthen the market system in support of the poor producers. Identification of possible service gaps existing that needs to be filled and an indication by whom.
7. An analysis of the competitors of Turkana Livestock Sub sector, identify their basis for the competition and outline existence for any Unique Selling Points (USP) for the competitors.
8. Further identify the perception of consumers on Turkana Livestock products. Advice on the benefits that can be accrued from branding of Turkana livestock products and advice on the branding modalities.
9. Based on the observed market conditions and opportunities, outline key future strategic interventions and development proposals to trigger and stimulate the development of the Livestock sub sector in the next ten years. The proposed strategic interventions were critically examined for their suitability and sustainability versus the results from the VCA. They should also be aligned to the CIDP (county Integrated development plan) of Turkana County.
10. Make recommendation(s) for a functional business model for Turkana Livestock Value products range.

This was provided in the detailed terms of reference (Annex 1).

## **2. METHODOLOGY FOR VALUE CHAIN ANALYSIS**

The methodology combined the use of Rapid Participatory Rural Appraisal (RPRA) and Value Chain Analysis and Mapping (VCAM). However, the respondents were limited to key informants for the specific study.

Initial, discussions were held with the office of County Director of Livestock Production, the Livestock Marketing Association, Oxfam GB and the Ruge Goshen. In addition to the introductions, the purpose was to plan the survey and to map out the geographical areas and livestock markets of interest. Areas with known insecurity incidents prevailing were excluded. The outcome was a clarification of the number of markets/areas to be assessed, their locations, and the logistics required to enable the survey team to access these markets. Based on these discussions, the survey checklist was revised to suit the prevailing circumstances.

Review of literature helped improve knowledge of the study area, placed the design process on a firm footing with reliable market data and at the same time, identified the key actors within the market chain. Subsequently, a theoretical map, including the market/sales points, information sources and types of persons to be interviewed and the numbers of planned interviews at each point in the market chain were detailed.

The livestock (goats and cattle) and meat value chains were selected based on the unmet market demand and opportunities, and the presence of market actors with incentives to invest in their market linkage and relationship. This, together with Oxfam GB decision to implement in a pro-poor and gender sensitive livelihood project, gave impetus to the need for more detailed analysis and targeting of these value chains.

**Value Chain Analysis Process** - The mapping of the value chain was done to understand and graphically represent both the characteristics of the chain actors and their relationships with each other. "Key informants" were interviewed to identify actors within the chain, constraints that limit market access at various levels, input supply, technology/product development, management and organization, policy, transaction features, infrastructure, flow of livestock/livestock products through the chain, and of the destination and volumes of intra county and extra county livestock sales. This was combined with an interrogation of value chain governance structures and methods of inter-firm cooperation. Secondary data from various sources was further used to collaborate these.

Finally, the study identified the constraints and limitations throughout the chain and proposed solutions to the problems identified. Points of intervention by government, donor agencies and private sector firms were identified. Areas of policy changes and reforms were established and recommendations made on what partners could do either for advocacy with government or policy development support. Throughout the chain, the consultants identified roles that development partners (DP) could play in the development of the Livestock sector from bottom up approach or a mix of bottom up approach with broader top down policy development/advocacy.

The nature of this assignment was participatory, iterative and interactive with all the stakeholders concerned with the producers at grass root level, as well as the different chain actors. A final workshop was held with stakeholders, where the consultants presented the preliminary findings to the Turkana County livestock sector development partners and stakeholders; for verification, and interrogation.

### **2.1. Stakeholder Mapping**

Partnership and collaboration with other donor agencies working in Turkana is very important. The study identified and mapped all stakeholders that were involved in the livestock value chain development processes.

### *2.1.1. Survey tools*

The team developed a questionnaire based on the knowledge of the study area and limitations of the respondents in terms of their literacy. Because of this a checklist of questions for use with the FDG's in each market was developed for use (Annex 2).

### *2.1.2. Scope (Numbers, locations covered)*

Based on the initial discussions, a total of 17 markets were assessed. These were; Kalokol, Kalimapus, Kataboi, Loarengak, Lokithaung, Kokuro, Kaikor, Kakuma, Lokichogio, Lokiriama, Namouroputh, Turkwel, Lorugum, Lodwar, Lokichar, Nakukulas and Kainuk. A number of markets were planned but not accessed including Kerio, Lokori and Kangatotha. These urban markets were divided into a number of different types or zones:

- Lodwar, Kakuma and Lokichar: Large or growing towns with NGOs (formal employment), livestock markets, transport businesses, and active airstrips. The two towns are quite different due to the presence of the refugee camp in Kakuma.
- Kainuk, Lokori, Lokichogio: Second level towns with small livestock markets and fewer NGOs.
- Kalokol, Kataboi and Lowarengak: Small lake side towns dominated by the fishing business and trade with Ethiopia and Marsabit.
- Kaaling, Kalemunyang, Letea, Kalemungorok, Turkwell, Lorugum, Lokiriama: The smallest towns with small livestock markets, but growing fast.

### *2.1.3. Sampling methodology applied*

Because value chain participants are very busy and are sometimes hard to locate, a snowball sampling method was used to locate respondents. Time spent sampling in each market was roughly equal. Using the snow ball as a sampling technique, between 5 and 8 key informants were interviewed in each market within a focused group discussion (FGD). Initial respondents directed the survey team to new respondents, thereby building the sample until it was considered saturated. This strategy took cognisance of the low level of literacy amongst the population. The FGD was separated to probe for individual data but through consensus building, a clear picture of the market was established. After the field visit, presentation of the key analysis and findings was presented at a stakeholder's workshop in order to assist in developing a strategy to increase competitiveness.

### *2.1.4. Community participation*

Key informants selected and interviewed at each market for the assessment were those stakeholders with a broad understanding and knowledge of all the various aspects of the livestock marketing. Other actors were representatives of government (County and National level), Non-Governmental Organisations, representatives of the private sector i.e. Chairman County Livestock Marketing Council and the Livestock Marketing Associations in the various auction yards. They were interviewed to provide pertinent information about the value chain.

### *2.1.5. Gender-responsiveness of the assessment*

Women in the rural communities face multiple burdens in terms of bearing responsibility of household work, child bearing and raising while lacking comparable authority over, and access to, productive resources and decision-making processes. Ensuring gender participation in market assessment surveys promotes and facilitates the participation of women in the ensuing project activities, and minimises gender neglect in programme design and in programming. The purpose of being gender responsive is that gender inequalities are often critical to understanding and addressing the 'weakest links' within value chains and market systems, and the most critical areas for upgrading quality and growth as well as poverty reduction. Gender analysis is however generally also the weakest point in most market and value chain analyses. Gender inequalities affect where power is located and where and how change can occur in order to translate chain upgrading into poverty reduction.



Gender issues were included in the market analysis to ensure the following: to identify cultural practices, and traditional norms, environmental factors that disable or enable pastoralist women from participation in, and economically benefiting from the livestock value chain; inclusion and prioritization of the needs of both men and women on an equitable basis; ensuring that gender mainstreaming is achieved at all stages and levels of the process from initial design, analysis, action learning and implementation; included women at all levels and give the women a voice or freedom to communicate their needs and ideas. Women were provided a platform to express themselves and to articulate how they view development – articulate their dreams, constraints and point out where they need assistance. To ensure that the external contractor was gender aware and sensitive, one of the consultants was a gender expert whereas the other was female to build rapport. As much as possible, gender-disaggregated data was collected and analysed while seeking for potential opportunities for women.

1. Gender disaggregation of all data is essential to identify areas of gender difference, and investigating areas of gender difference to identify whether this is due to gender inequalities of opportunity or differences in free choice,
2. Gender equitable planning which mainstreams equality of opportunity and identifies supportive strategies needed to enable women to realize these opportunities, and to promote the support of men for the necessary changes,
3. Gender-accountable implementation and learning processes, which involve women as well as men in implementation, and incorporates gender indicators in monitoring.

In order to achieve all the above gender analysis requirements in the market survey; the team took the following measures;

- a) designed tools that address gender issues,
- b) ensured that our tools facilitate gender aggregation of data and facilitate the generation of gender aggregated analyses,
- c) Enumerators were trained and during the training session the team emphasised that the enumerators make deliberate efforts to identify and interview women,
- d) Sensitized our enumerators on the need for collecting data from women as well as men,
- e) Each enumerator was required to interview both men and women in a 50:50 proportion of men to women, as far as it was possible.

During the execution of the survey, the team constantly checked with the enumerators and reminded them to deliberately interview women. Some enumerators reported that they had difficulties finding women, especially in the market places, as women in the localities are not allowed to operate businesses in public. It was thus a challenge to interview and include women in the quantitative survey, especially in the host communities. Quantitative data in the table below shows that the majority of interviewed respondents in the host communities were male 84% and only 16% were female; and in the refugee camps 55% of total respondents interviewed were male and 45 % were female. This could be attributed to the fact that refugees are accustomed to surveys and interviews and women do not shy away from interviewers, in comparison to women in the host communities.

### 3. FINDINGS OF THE STUDY

Overall market opportunities for the various sub sector products within the overall livestock sub sectors that can potentially be exploited; locations, quantities, quality and other product requirements.

#### 3.1. Production Dynamics

##### 3.1.1. Major sources of household income and livelihoods

Livestock production in Turkana County is in the hands of nomadic pastoralists who are scattered within the county. The analysis looked at the following key determinants of production; major sources of household income and livelihoods, household herd sizes, ranking of livestock types according to socio-economic value, major opportunities and major constraints of production. The major sources of household income and livelihoods is shown below (Figure 3.1)

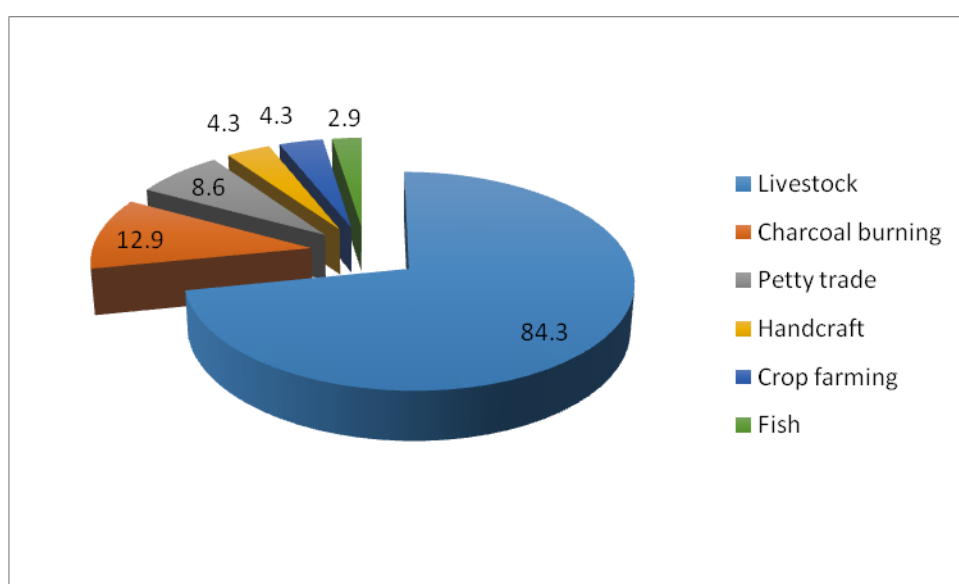


Figure 3.1: Source of Household Income and Livelihoods in Turkana

Figure 3.1 above is based on the field survey data collected during the study. The field data shows that livestock is the main source of household income for over 85% of the respondents interviewed. Raw data is in Annexure 1. People around Lake Turkana in Kalokol, Kataboi, Lowarengk, Nakulupas and other villages get household income from selling fish and livestock. People close to perennial rivers like the Turkwel River grow crops and raise household incomes through selling crop produce. Petty trade is common in Turkana especially close to borders with neighbouring countries where they import clothing and sell in Turkana.

#### 3.2. Estimating the livestock population

Based on the 2009 livestock census in Turkana, and extrapolation of the data collected from respondents in each market sampled, the population of livestock was estimated and subsequently adjusted based on the fact that pastoralist plus agro-pastoralists' are 73% of the populations the livestock figures were also adjusted using expert knowledge of the district livestock and veterinary officers based on expert knowledge of the area to reflect growth or mortalities. The research team believes that these estimates could still be an over exaggeration as the respondents realized that we were on an evaluation mission that would inform the design of future interventions.

### 3.2.1. Estimating livestock ownership per household

Average herd size per 'livestock keeping' household in the district was estimated in the following manner. Estimates of the number of households in Turkana (139,067) in 2014 were based on extrapolation of the 2009 census. As the estimation of livestock ownership in urban centres was problematic (as some households owned livestock and others did not), so the estimate from the urban population of 14% of Turkana county was excluded. Table 3.1 shows the average livestock holdings in Turkana County.

**Table 3.1: Average livestock household herd size**

Market	Goats	Sheep	Cattle	Camel	Donkey	Poultry
Kalimapus	55	18				
Lokithaung	61	12	0	1	1	0
Kokuro	28	9				
Kaikor	18	5	5		2	
Kakuma	4	5	0	0	2	
Logichogio	4	4	1	0	2	2
Turkwel	18	7				
Lodwar	40	17	2	4	3	
Lokichar	7	3	0	2	1	
Nakukulas	62	19	0	2		
Kainuk	18	11	5	4	2	3

The table above shows clearly that goats dominate the Turkana household herds followed by sheep. There are very small numbers of cattle in the households that were interviewed during this study. Lokichar and Kakuma shows very small herd sizes for all animals. Tullow oil changing dynamics around Lokichar with aggressive sales of land, preference for rental properties. A potential high value market inside the county Kakuma fuelled by refugees from South Sudan

Spreading the assessment livestock figures over these 'livestock keeping' households, the average number of livestock kept is: 29 goats, 10 sheep, 1 cattle, 1 camel, and 1 donkey. This is a big drop compared to 2009 census data 43 goats, 25 sheep 11 cattle, and 6 camels, and 4 donkey. When discussing this with the feedback forum in the validation workshop, they agreed more or less with regards to the sheep, goats and camels, but added that cattle are only found in a few areas (mainly in the north) where most owners have 'an average' amount of cattle and only a few individuals own very large herds of cattle. The estimates of Turkana livestock house holdings population at sub-county (Table 3.2).

**Table 3.2: Estimates of Turkana livestock house holdings population at sub-county**

Sub County	Households	Sub County Household livestock holding size					Sub county Livestock population				
		Goats	Sheep	Cattle	Camel	Donkey	Goats	Sheep	Cattle	Camel	Donkey
Central	21,357	48	13	1	2	2	1,025,121	277,637	21,357	42,713	42713
Loima	30,263	18	7				544,737	211,842			
South	19,650	87	33	5	8	3	1,709,571	648,458		157,202	58951
North	17,815	45	11	5			801,686	195,968	89076	98,251	
West	34,129	4	5	1		2	136,515	170,644	34,129		
East	15,853	29	10	1	1	1	459,732	158,528	15,853	15,853	15853
	139,067						4,677,362	1,663,077	160,415	314,019	117,517
<b>Moderated Total Livestock Population Turkana County</b>							<b>2,619,323</b>	<b>931,323</b>	<b>89,832</b>	<b>175,851</b>	<b>65,809</b>

For each of the households within Turkana sub country keeping livestock, shoats are more popular as they are cheaper to accumulate and keep; for every one head of cattle, camel or donkey kept, there are about 39 shoats. Goats were perceived as being fast breeding and easy to sell. Respondents indicate a trend towards lower numbers of cattle from the 1980's when severe and cyclic droughts and the increased use of small arms in livestock raids became a common phenomenon. In Table 3.3, the study adopted the livestock carrying capacity done of 2008 (Watson and Binsbergen, 2008). The differentials between estimates of Country livestock population and the carrying capacity are shown below.

**Table 3.3: Differentials between estimates of Country livestock population and the carrying capacity**

<b>Livestock population estimates Oxfam 2014</b>	<b>Goats</b>	<b>Sheep</b>	<b>Cattle</b>	<b>Camels</b>
	<b>2,619,323</b>	<b>931,323</b>	<b>89,832</b>	<b>175,851</b>
Carrying Capacity*	2,503,255	2,374,749	293,789	159,602
Difference	116,068	-1,443,426	-203,957	16,249
<b>2012</b>	<b>5,994,881</b>	3,517,148	1,534,612	832,462
<b>2005</b>	<b>2,021,000</b>	<b>1,054,400</b>	<b>197,900</b>	<b>172,400</b>
<b>DALEO 2002</b>	2,439,027	813,000	175,815	138,000
Excess over Carrying capacity in 2014	5%	-61%	-69%	10%

\*Watson and Binsbergen, 2008

Based on our calculation there is a trend towards exceeding the Carrying Capacity for goats and camels and a reduction for sheep and cattle. The implication is that as the Turkana responds to the changing climate situation by keeping less and less grazers and moving towards keeping more browsers as a coping strategy in response to climate change. The Turkana, therefore, maintain proportions of stock in their herds appropriate to the local environmental conditions and local patterns of drought risk (AGSEC, 2000, Bett et al., 2008).

This situation of the rangeland is being made worse by the charcoal burning that is increasingly a new livelihood strategy. We conclude that Turkana country is marginally overstocked and likely to seed into rangeland and environmental degradation in the near future unless drastic choices are made.

### **3.2. Off-take rate**

In general, pastoralists in Turkana are predominantly subsistence based and rarely sell their livestock. The respondents were asked how many goats they sell per month and under what circumstances do they sell their livestock. The response was that households sell their livestock only when there is a financial need in the household, otherwise they do not sell but would rather enlarge their herd size. Livestock are not kept for commercial reasons but primarily for social reasons particularly the need to accumulate livestock assets to act as a dowry or as a drought coping strategy (maintaining sufficient breeding stock to rebuild their herd). However, household needs abound – school fees, medical needs and many other needs that require money in pastoralist households. They are forced to sell on average 1 goat or sheep per household every alternative month.

Turkana people, tend to sell out of the county castrate or entire male goats to provide disposable incomes to the families. Fewer females are sold except during droughts. This is

because they are retained for breeding (herd expansion as well as to provide milk. Unproductive females are sold for domestic consumption.

### **3.3. The central role of the Lomidat Abattoir in the Turkana Livestock Industry**

In this section, the potential for adoption and replication of The Lomidat<sup>1</sup> Abattoir Market/Business Model in other sub counties of Turkana was examined, by assessing the implications, costs and possible benefits both in the short and long run.

Lomidat was built in 2006 at a cost of KSH 60 Million by AMREF Italy and Terra Nuova with funding from the Italian Government. It is managed by Lomidat Pastoral Multipurpose Co-operation Society (LPMCS)<sup>2</sup> a community managed and owned abattoir about 9 km from the town of Lokichoggio that serves the needs of pastoralists in the County. Lomidat is the only abattoir in the whole Turkana County designed to slaughter meat for export. The other numerous slaughter slabs in Turkana cannot slaughter meat for export. Its current capacity are 50 cattle and 200 shoats per day, but with a potential target to slaughter 300 bulls and 600 small livestock every month. However, it is only managing 50 bulls and 300 shoats every two months. Thus, currently the abattoir is underutilized.

The Lomidat Abattoir seeks to meet the socio-economic needs of the pastoralist livestock farmers by linking the livestock markets to the abattoir. It produces produce high integrity export quality meat and meat products sustainably.

#### **3.3.1. The benefits and opportunities offered by the Lomidat abattoir operational model**

**Slaughter facilities:** As a meat producing facility, Lomidat abattoir aims to change the business processes within the meat value chain from selling off the hoof (live animals), to selling slaughtered animals for increased profitability and market share. The Lomidat abattoir in Turkana, northern Kenya has modern slaughter facilities and well-trained personnel. It is a state-of-the-art facility that provides pastoralists with ready markets for their produce. Prime cuts of meat, sausages and striped meat are among the Lomidat abattoir's products.

**Cottage industries:** Lomidat abattoir utilises bones, horns, hides and skins to make valuable products and artifacts; and makes soap from waste fat.

**Biltong** is traditional dried meat known as *ngatosa* among the Turkana community is also produced at Lomidat Abattoir.

**Satellite market centres:** Lomidat has built five satellite market centres equipped with weighing scales to buy and collect animals for the abattoir in these areas: iKanakurudio, Letea, Lokangae, Lokori and Namouroputh. A sales yard at Kakuma has been rehabilitated. Each of these have minor infrastructure such loading ramps and scales. There are set auction days in order to create a permanent market linkage. These are being transformed into live animal markets established and operated by the cooperative. Through this, Lomidat abattoir aims to ensure a regular supply of animals for slaughter, become a centre for grading and testing animals, while the market is an alternative source of income.

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<sup>1</sup> At conception, consultative meetings have been held with the Turkana pastoralists, local traders, Turkana County Council, Turkana District Steering Committee, the Ministry of Livestock Development, Arid Lands Resource Management Program (ALRMP II), Ministry of Co-operative Development and other local and regional NGOs. Other partners include the University of Nairobi (UoN), Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya Medical Research Institute (KEMRI), and International Livestock Research Institute (ILRI). In 2007, the slaughterhouse was handed over to and is now owned by Lomidat Pastoral Multipurpose Co-operative Society Ltd. The Co-operative Society has 1600 members of which 900 are active. Members paid a fee of KSh 500 (\$5.75), and also bought shares in the cooperative: the minimum shareholding is KSh 2,000 (\$23). The members earn dividends based on their shareholdings.

<sup>2</sup> Lomidat Pastoral Multipurpose Co-operation Society (LPMCS) was registered on 8<sup>th</sup> June 2005 under the Co-operative Societies Act (*cap. 490, section 6(3)*).

**Drought response facilities:** The original purpose of Lomidat Abattoir construction was to help the pastoralists slaughter their animals and not suffer losses during the drought periods. The facility was established as a not-for-profit venture. It acts as a facility for early and immediate drought response by slaughter destocking through mobilising livestock through the peripheral buying centres at Letea, Lokangae, Kakuma, Kanakurudio, Lokori and Namouruputh. The original purpose has now been expanded into a profit-making organisation.

**Extending reach by mobilizing suppliers:** The Lomidat Pastoral Multipurpose Co-operative Society Ltd raises awareness on market opportunities for livestock in livestock holding-grounds and pastoralists' kraals to identify potential sellers and sensitize them on prices and purchase runs by the abattoir truck.

**Promoting fodder banks:** Terra Nuova and Vétérinaires Sans Frontières-Belgium worked with the Lomidat abattoir to promote through farmer field school fodder production of various native grasses: *Cenchrus ciliaris*, *Chrysopogon plumulosus*, *Cymbopogon* sp., *Enteropogon macrostachyus*, *Sehima nervosum* and *Eragrostis superba* in Naweregai, Kapelbok, Lorus, Riokomor, Pokot Central, Amolem and Termach. Fodder seeds are harvested and propagated to new areas whilst the harvest grasses are transformed into hay bales.

**Refrigerated trucks for meat transport:** Meat is a highly perishable product with a short shelf life. Lomidat has cooling facilities and a refrigerated truck to transport meat to distant and secure extra county markets in Nairobi and Juba. Maintaining this cold chain has opened up new markets for the pastoralists of Turkana, allowing them to compete on product quality and safety in the cities. This has the advantage of having the full value of the animal in terms of by-products within the county.

**Reducing the distance to be covered:** The distance from the Turkana pastoralist to the market has been reduced by establishing markets or processing facilities closer to the producers. The Lomidat abattoir provides a market close to the district's producers through the five satellite market centres.

**Foci of youth training:** Lomidat has been a centre of transition of training of youth in skills at meat training institute as well as in handicraft manufacture amongst others. Butchers and flayers (who do the slaughtering and cut the carcass into halves) recruited from the local community have attended training at the Meat Training Institute and the Kenya Meat Commission. Other training has covered hygiene, occupational safety, first aid, animal health, HIV/AIDS, and craftwork using bone.

**Conferring ownership on local people and encouraging investment and commitment by local people:** The Lomidat Pastoral Multipurpose Co-operative Society, which runs the Lomidat abattoir, is a hybrid of a cooperative and a company. While it was established with donor funds, it is owned by the 1,600 cooperative members who have bought shares and who earn dividends when it earns a profit. The cooperatives have the possibility of raising capital from their members by charging membership fees and through sales of shares. This has helped the pastoralists get organized and to retain them occupy a key position in the marketing chain.

**Improving gender equity:** Pastoralist women are often ignored in development. Lomidat is unique in the sense that women are three-fifths of the members of the Lomidat Pastoral Multipurpose Co-operative, which supplies animals to the Lomidat abattoir in Kenya.

**Local government participation:** The Turkana county government and The Turkana County Council have played a very constructive role in providing about 1,000 hectares of land to the cooperative. The county government is keen on providing KSh10 million to the abattoir to support the project.

### **3.3.2. Constraints to the Lomidat model**

Supply of live animals is a major challenge for Lomidat and currently animals are sourced from Lokangai, and Kibish. A low offtake level per household among the livestock producers is a problem because livestock are not kept as commercial produce but as investment and wealth. In order to get the required volumes Lomidat has to go to many places to build the bulk by collecting a few animals at a time. Lomidat requires 300 steers and 600 goats per day to be viable. Currently Lomidat is working with a trader in Lokanga who collects 50-60 goats and sells to Lomidat. Lomidat sends a vehicle to collect the animals for slaughter from the production areas. Lomidat is looking for such agents in Oropoi and other areas. Lomidat is working with LMA and VSF Germany in Lorugum. Referral centres have been constructed in these areas where livestock are weighed and traders paid according to live weight. This system is not functional because the producers and traders are not happy with the live weight payment system.

In November 2013 the abattoir was closed due to a conflict between the abattoir management and the community. The conflict centred on (i) the price that Lomidat offered for livestock that was considered by the community to be lower than that in the live animal market, and (ii) Lomidat was not paying cash to producers. In February 2014, PALFINGER from Austria invested KSh 11mil to support procurement of livestock on a cash basis. This was the situation as at May 2014.

In the stakeholder workshop the Lomidat manager explained how the abattoir seeks to ensure that producers get the best price for their livestock and not sell their animals in barter trade. In Lokangai pastoralists use barter trade for their animals and get very little value from such trade. Lomidat believes that the livestock prices that producers get from traders are not competitive, and that the traders are the people benefiting from the livestock trading business at the expense of producers.

Producers and traders need to be trained in the weight system slowly but surely and carefully for them to accept it and adopt it. The problem is that as long as the live weight price is lower than the visual price traders and producers will not use the system; because they will incur losses.

### **3.3.3. Analysis of the Lomidat Business Model**

Lomidat's major clients are Tullow Oil; BGB Kenya: big and smaller hotels in Lokichogio; Nairobi market; Muthaiga and Alfafine Foods; Sudan Juba market; the Nairobi Market and the Lodwar market. Lomidat is currently transporting 500 kg/week slaughtered animals to Sudan. The Sudan market is attractive to Lomidat because the price mark-up is higher although the volume is small. There is too much competition in the Nairobi market which is discouraging for Lomidat. Lomidat has plans to build a depot at the Lodwar market as their expansion program and strategy.

Lomidat could play a very significant and central role in the Turkana livestock industry with proper coordination structures and linkages with the LMA and CMLC. Being the only abattoir capable of slaughtering for export, this can be utilised and many animals could be collected and sent to Lomidat for slaughter and freezing. There is great potential and possibilities of airfreighting frozen meat to Nairobi, Kampala and Juba. This could resolve the livestock raid problems that have almost crippled the Turkana livestock industry.

Based on the above, the study examined whether the adoption and replication of the Lomidat Abattoir Market/Business Model in other sub counties in Turkana is possible; The Implications, Costs and possible benefits both in the short and long run.

Kakuma has a population just over 125,000. Kakuma Refugee Camp serves refugees who have been forcibly displaced from their home countries due to war or persecution. It was established in 1992 to serve Sudanese refugees, and has since expanded to serve refugees from Somalia, Ethiopia, Burundi, the Democratic Republic of Congo, Eritrea, Uganda, and



Rwanda. Kakuma camp, in Turkana County, is receiving record numbers of refugees for the second consecutive year. Over 14,000 new arrivals had registered as asylum-seekers by the end of August 2013, joining another 21,000 who arrived in 2012. These refugees are coming mainly from South Sudan. With its total population approaching **125,000**, Kakuma meat consumption and demand has increased drastically. There exist two livestock markets in Kakuma, the formal market conducted at the Kakuma livestock sale yard under the Livestock Marketing Association (LMA) and the informal Livestock Market conducted at the Kakuma Refugee Camp. Large numbers of livestock are sold and slaughtered at the Kakuma refugee Camp compared to the Kakuma Livestock sale yard.

Lodwar has a population of approximately **48,316**. These two towns have the most important ingredient for establishing an abattoir i.e. a fairly large population therefore meat market.

Lokichar with a population of **44,233** is the third likely town due to its likely growth with the high income earning staff at Tullow oil.

However, the very high cost of building high end abattoirs (KSh 60 million) is not sustainable. In addition, the model combines cattle and goat slaughter whereas Turkana is a goat country, and should focus goat. The study recommends evaluation of the government slaughter-slabs and houses by improving hygiene and inspection, construction meat cutting facilities for butchers, skin bulking, and ornament making. Lomida should open an on the job training component for retaining of local slaughter men, flayers and meat handlers.

There are proposals to construct additional abattoirs in Turkana, but these are likely to be white elephants without a sizable market. Three abattoirs are to be constructed through the economic stimulus programme Lokichar, Lokitaung and Lorgum. We should avoid “*we want a big one like Lomida syndrome*”. The Lomida abattoir is currently underutilised and the process should allow this abattoir to operate to full capacity before establishing another abattoir.

### **3.4. Turkana livestock value chain and marketing channels**

This section sought to delineate and examine diverse Market channels of Turkana livestock and livestock products value chain, outlining opportunities for exploitation, additional investments, challenges and possible interventions. Market segmentation was done in order to identify the best sub sector to focus on particularly in support of women and the youth. An analysis of the basic business support services needed to strengthen the market system in support of the poor producers was done and possible service gaps that exist identified as well as indications provided of who could address them.

#### **3.4.1 Livestock Value Ranking traditional use/marketing systems in Turkana**

The pastoralists' households would only slaughter a shoa (sheep or goat) once or twice a year during births or initiations. However, it must be understood that meat is shared amongst the neighbouring households. Livestock are largely kept as mobile bank to buffer consumption against income shocks. The demand for meat rises in major urban centres like Lodwar, Kakuma, Lokichogio and Lokichar (Tullow) where livestock is changed against household cash needs.

Figure 3.2 below shows how the respondents ranked livestock types in Turkana. Goats are ranked number one followed by sheep. Cattle are ranked number three and camel's number 4. This came as a surprise and so the study went to probe further as to why the respondents ranked livestock types in this way. The data used to get this figure is in Annexure 3.

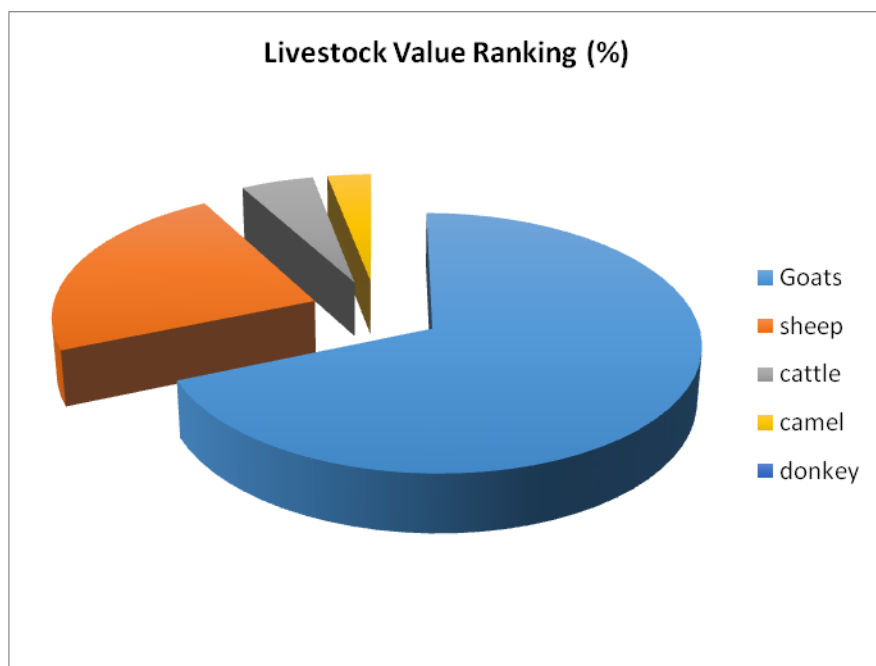


Figure 2.2: Livestock Value Ranking

Reasons for this ranking given by respondents:

- Goats are very valuable in all Turkana primarily because goats are drought resistant due to its dependence on browse. Goats are easy to sell at the market to solve immediate household problems. Cattle and camels are more difficult to sell due to their higher price. The Turkana people prefer goat meat to other meat types. Ownership of goats is a sign of wealth in Turkana, and with goats it is easy to convert goats to cattle, camels, or donkeys.
- Of the livestock species kept, goats and camels were always ranked as the most important species for a family's survival. In order of importance, the participants ranked the benefits of keeping goats as food, dowry and money. Camels were mainly kept for food (milk, blood and rarely meat) and paying dowry.
- Larger stock, and particularly cattle, have a cultural social capital and are thus not sold except in extreme need. The Turkana people used to prefer cattle, but over time they come to realise that cattle are susceptible to drought, require too much pasture and water. These resources are not available in most of Turkana County but in the insecure neighbouring areas of Pokot, Sudan, Uganda, Ethiopia borders.
- Sheep were not sold because to their low numbers due to the effect of environment and their use in traditional ceremonies. Sheep are occasionally used for home slaughter (mutton is considered a delicacy for lactating mothers) and also in shaving ceremonies. Its fats are used as a 'treatment' for some human ailments, used for some traditional rituals or given as gifts. They are a good source of fat for family use, its skin used for making women clothing, it is a customary delicacy for in-laws during courtship and wedding ceremonies, used to pay penalties and for cleansing wrong doers.
- Sheep and goats have different but complementary feeding habits. Sheep are grazers and amenable to herding, hence a species of choice in mixed cropping areas where cereal production dominates. On the other hand, goats are browsers and highly selective feeders – a strategy that enables them to thrive and produce even when feed resources, except bushes and shrubs, appear to be non-existent. Thus, the presence of goats in mixed species grazing systems can lead to a more efficient

use of the natural resource base and add flexibility to the management of livestock. This characteristic is especially desirable in fragile environments

- Sheep and goats have higher survival rates under drought conditions compared to cattle. Moreover, because of their reproductive rates, flock numbers can be restored more rapidly. With regard to goats, water economy is also an important biological feature. It is common for goats to be watered every four days and still provide a reasonable amount of production.
- In the subsistence sector, farmers and pastoralists depend on small ruminants for much of their livelihood, often to a greater extent than on cattle, because sheep and goats are generally owned by the poorer sectors of the community. Any intervention that improves the productivity of sheep and goats is important in creating wealth and improving the standard of living of resource-poor farmers. The short generation interval of sheep and goats coupled with high frequency of multiple births allow for rapid increases in animal numbers. This builds financial capital and allows the sale of surplus animals for cash that can be used for other agricultural enterprises, school fees, medical bills, etc.
- Very often, there are no banking facilities in rural areas and an easy way to store cash for future needs is through the purchase of sheep and goats. In fact, in some areas, small ruminants have been described as the 'village bank'. It has to be noted that this is beyond the cash value of the animal. Small ruminants represent only 7% of the average total capital invested in livestock in the mixed crop-livestock production system, but they account on average for 40% of the cash income and 19% of the total value of subsistence food derived from all livestock production.
- Sale of donkeys was restricted by their use for transport, medicinal value and low numbers kept.

### 3.4.2. Market dynamics

Pastoralists have developed a marketing system that caters for the nomadic nature of the pastoralist livestock production. The various players/stakeholders are in the livestock chain.

Stakeholder	Quantity of livestock handled
Producers (Ereyokon Angibearen)	
Petty traders (Engienchurutak Angibaren abadakarin)	Luchuli 2-5 animals
LMA traders in primary market	10-20 animals
LMA Agents in secondary markets	50 animals
Agents for Nairobi traders/Exporter	1500-3000

- At village level, pastoralists sell directly to butchers and shops/kiosk owners in exchange for cash (butchers) or goods and cash (shops/kiosk owners). There is one livestock trader who buys livestock from the village pastoralists. The village trader does some form of livestock bulking until he has more than 15-20 animals. The village traders take the livestock that they have bought from the village to the nearest local town livestock market, and sells to other traders. The village traders are primary traders and the traders who buy livestock from the local town markets are secondary traders.
- Livestock traders from other towns can also procure livestock from this primary trader the village traders and producers and buy livestock. The village traders take the livestock that they have bought from the village to the nearest local town livestock

- market, and sells to other traders. The village traders are primary traders and the traders who buy livestock from the local town markets are secondary traders.
- iii. Mobile traders venture into the production areas and barter shoats for goods (mainly food stuffs). The livestock are kept between 2 and 6 months to gain weight and to await when market prices differentials are good. They then trek the livestock for sale in secondary markets to butchers or large traders who then sell them outside the district. It is much cheaper for livestock traders from other towns to buy livestock directly from the villages as they buy at lower prices than buying from other traders.
  - iv. The secondary traders travel long distances to the major towns markets with large markets like Lodwar, Kakuma, and Lokichar. From these major towns tertiary traders buy livestock and sell outside the country through border towns and markets; Lokirama, Lokichogio, and Kainuk; to places outside of Turkana – Nairobi, West Pokot, Sudan, Uganda and Ethiopia. Pastoralists also sell directly to middle level traders or butchers at the secondary market of Kakuma, Lokichogio, Lokichar and Lodwar. Butchers are the principal buyers of shoats especially in the main urban centres. Women butchers play a prominent role.
  - v. The mobile market in Lodwar: this is a unique cartel and protectionist operation by petty traders based in the town. Such traders waylay pastoralist close to the market and badger them into selling to them before reaching the market. When some pastoralists opt for and insist to bring their own livestock to Lodwar in order to procure better livestock pricing, they are often prevented from effective trade through the machinations intrigues of trader cartels. Such traders await them on the trekking route close to the market but before reaching, or on arrival at, the market and badger livestock owners into selling the livestock to them before reaching the market. Failure of the pastoralist to sell stimulates the ‘cartel of traders within the LMA’ to spread the word at the local market that the animal is probably stolen and the buyer were will be arrested by the police. They producer finds himself isolated and without a buyer. This forces him them to sell cheap. This way the cartel protects the market for themselves.
  - vi. Pastoralists and small-scale traders sell to out-of-district traders, primarily Burji Somalis and Borans, Kikuyu who visit principal livestock markets of Lodwar, Lorugum, Lokichar, Kerio and Kakuma, and purchase lorryloads of livestock that are transported to Nairobi. Others procure livestock from border towns and markets; Lokirama, Lokichogio, and Kainuk; to places outside of Turkana – West Pokot, Sudan, Uganda and Ethiopia.
  - vii. The Lomidat Abattoir marketing chain sale procures livestock by weight from the procurement centres spread within the county, Terra Nuova sponsored collection centres Lokori, Namurupus and Turkwel respectively. These are bought and transported by lorry to Lomidat.
  - viii. Direct sales to butchers and shop/kiosk owners who deal with a range of consumer goods. In this marketing mode, pastoralists deliver their livestock directly to butchers and shops in exchange for cash or barter goods. Butchers tend to be the main local buyers of livestock (mainly shoats).

The flow of livestock along the market system is represented in Figures 3.3 and 3.4 respectively.

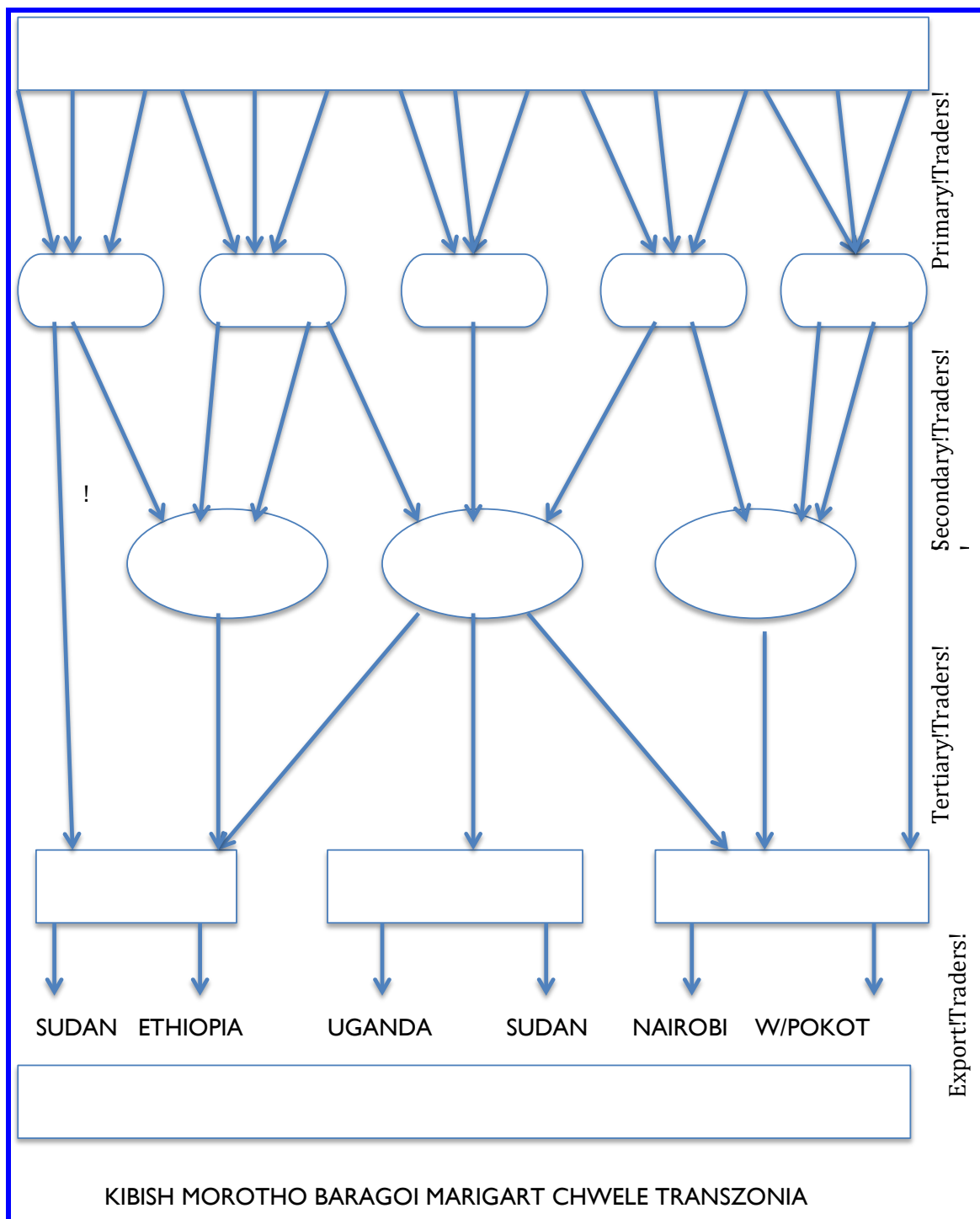


Figure 3.3: The Turkana Livestock Marketing System/Flow



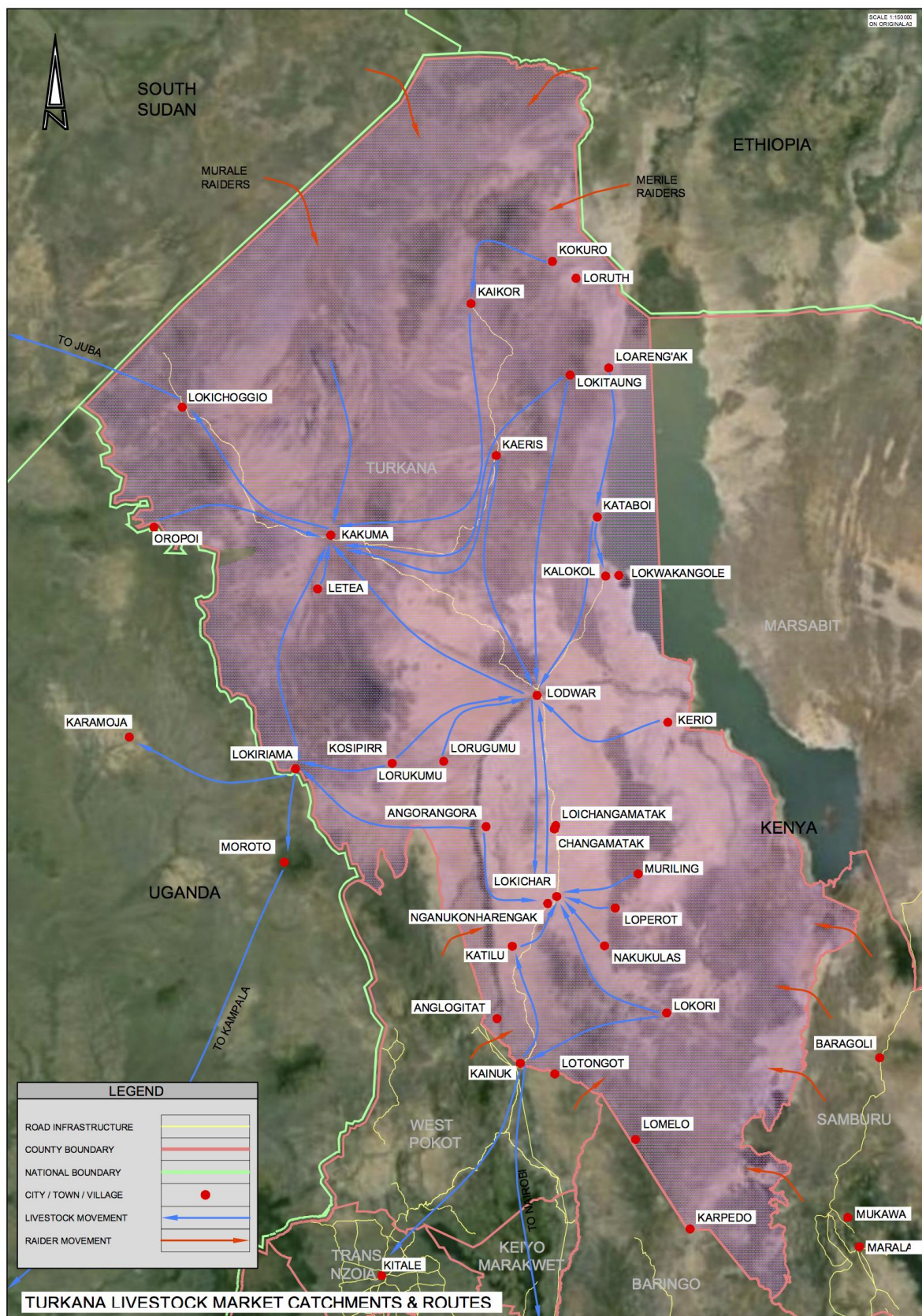


Figure 3.4: Turkana livestock market catchments and routes

### 3.5. Local and export price comparisons

Prices of sheep and goats are relatively low at producer level in the villages. The traders buy at these low prices and add value by transporting them to more lucrative markets in the bigger towns of Lodwar, Lokichar and Kakuma. The trader bears the risk of losing the animals on the way due to theft, loss of condition or livestock raids. When the animals reach the urban markets the trader adds a mark-up of about KSh 500 per animal.

Both traders and producers in Turkana use visual assessment and palpation of specific body parts to classify livestock into three grades i.e. – Grade 1, Grade 2, and Grade 3 based on size. Grade 1 is the best animal and grade 3 is the smallest animal that fetches the lowest price on the market. This grading system is apparently standard throughout the county. A comparison of the prices at producer level, at trader level shows that the prices are reasonable and controlled (Table 3.4).

**Table 3.4: Local and export prices in Lokirima (KSh)**

Sheep & Goats	Local Buying Price	Local Selling Price	Uganda Price	Sudan Prices
Grade 1	3500-4000	4500-5000	5500-7000	9000-10000
Grade 2	2500-3000	3500-3800	4000-4500	7000-8000
Grade 3	1500-1800	2000-2200	2800-3000	5000-6000
Cattle	28000-30000	35000	40000	

Local sheep and goat prices are at KSh 3500-4000 and increase to KSh 7000 in Uganda and KSh 10000 in Sudan. The prices in Sudan are comparable to the prices given from Lokichogio shown in Table 3.5 below.

**Table 3.5: Local and export prices in Lokichogio (KSh)**

Sheep & Goats	Local Buying	Local Selling	Sudan Price
Grade 1	4000	6000	10000
Grade 2	3500	4000	8000
Grade 3	3000	3000	6000

Kainuk is a border town that exits into West Pokot. Here, the team found that the local prices are identical to the prices of the West Pokot traders – KSh 4500 to 5000 for Grade 1. Nairobi traders who buy from Kainuk at local prices and sell in Nairobi at KSh 7000-8000. Table 3.6 below shows the prices in Kainuk.

<b>Table 3.6: Local and export prices in Kainuk (KSh)</b>				
Sheep & Goats	Local Buying Price	Local Selling Price	Nairobi Traders	Pokot Traders
Grade 1	4000	4500-5000	7000-8000	4500-5000
Grade 2	3500	3700-4000	5000-6000	4300-4500
Grade 3	2500	2800-3000	3000-3500	2800-3000

Kakuma<sup>3</sup> is one of the three major internal markets in Turkana. The town has different market and population dynamics that affect the market and marketing of livestock. There is a high refugee population of Somali people, people from Sudan, people from Uganda and from Ethiopia. The presence of this high concentration of people has increased the demand for meat and has made Kakuma the largest meat and livestock market in Turkana County. This market is likely to prevail for a very long time since this is one of the official UNHCR camp within the Kenya. The fact that they are supported with funds by the UN implies the refugees are financial capable of affording a high animal protein diet. In addition, some of the communities within the camp like the South Sudanese and the Somali prefer a stable rich in animal protein. Therefore, a suggested strategy is to ensure that infrastructure is well developed to capture the current favourable market situation.

Evidence of increased demand and favourable market and price situation in Kakuma is that local prices are higher than in the other towns (Table 3.7). Local traders sell their animals at prices comparable to that of Nairobi (up to KSh 7000) yet without the attendant transaction costs to Nairobi. Table 4 below shows the price dynamics in Kakuma. Prices in Turkana internal markets are higher when compared to neighbouring counties and hence trader finds no point in looking for lucrative markets other than Nairobi.

<b>Table 3.7: Local and export prices in Kakuma (KSh)</b>			
Sheep & Goats	Local Buying	Local Selling	Nairobi
Grade 1	5500-6000	6500-7000	7500-8000
Grade 2	4500-5000	5000-5300	5500-6000
Grade 3	3500-4000	4000-4500	4500-5000

Surprisingly, Tables 3.8 and 3.9 shows that prices in Lodwar and Lokichar are similar and are lower than prices in Kakuma due to the high demand for meat by the refugee population.

<sup>3</sup> Kakuma has a population just over 125,000. Kakuma Refugee Camp serves refugees who have been forcibly displaced from their home countries due to war or persecution. It was established in 1992 to serve Sudanese refugees, and has since expanded to serve refugees from Somalia, Ethiopia, Burundi, the Democratic Republic of Congo, Eritrea, Uganda, and Rwanda.



**Table 3.8: Local & export prices Lodwar & Lokichar (KSh)**

<b>Sheep &amp; Goats</b>	<b>Local Buying</b>	<b>Local Selling</b>	<b>Nairobi</b>
<b>Grade 1</b>	5000	6000	6500
<b>Grade 2</b>	4000	5000	6000
<b>Grade 3</b>	3500	4000	4500

### **3.6: The Lomidat Pricing System**

Table 3.9 below shows the Lomidat pricing system that uses weight instead of visual assessment. During the visit to Lomidat the team was told that the abattoir was closed and has just reopened in February 2014. The reason for the closure was that local livestock traders and producers refused to sell their animals to Lomidat because they were not happy with Lomidat's weight based pricing system and the prices thereof. The traders and producers felt that the Lomidat prices were too low.

**Table 3.9: The Lomidat Pricing System**

	<b>Weight (Kg)</b>	<b>Price/Kg</b>	<b>Price equivalent</b>
<b>Grade 1</b>	35-38	130 KSh/Kg	4550-4940
<b>Grade 2</b>	25-32	130 KSh/Kg	3250-4160
<b>3. Grade 3</b>	<25	130 KSh/Kg	<3250

In the stakeholder workshop held in Lodwar the Lomidat manager explained that Lomidat sends a vehicle to the production areas in the different pastoralist areas and collects the animals and brings them to the abattoir. This means that the pastoralist does not have to pay for transport cost and does not have to bear the risks of losing his animals on the way to long distant markets or local bandits. The risk of loss of condition, livestock raids, and local theft is removed. Lomidat pays the producers and traders immediately also cutting the costs of delayed payments and credit costs. At the end of the day the producer or trader who sells through Lomidat has a lot to gain than the one who treks his animals to the distant markets.

However, it would appear that both the traders and pastoralist producers of livestock do not look at it this way. They look at the price of KSh 4550-4940 for a Grade 1 animal and in their minds compare that to the possible KSh 10000 from Sudan or KSh 8000 in Uganda and KSh 7000 in Nairobi and opt for the traditional visual assessment method of selling and pricing their animals.

### 3.7. Slaughtering and Meat Processing

#### 3.7.1. The slaughter slabs

The government through the Ministry of Livestock and Fisheries has sponsored and built the housed and un-housed slaughter slabs in the different towns as shown in Table 3.10 below. An individual person has built one slaughter slab and she owns it. The community has built their own slaughter slab – Nakualele and Lorikipi private slaughter slabs. The slaughter slabs are well managed and inspected daily by the veterinary doctors to ensure that health meat is sold to consumers. Slaughtering is done hygienically and meat-handling principles are strictly observed during slaughtering process throughout the county.

**Table 3.10: Slaughter slabs and abattoirs in Turkana County**

Town	Slab (no house)	Slab (house)	Abattoir
Lodwar	2	3	0
Lokichar	1	1	0
Kainuk	1	0	0
Kakuma	5	1	0
Lokichogio	0	1	1
Lokirama	0	0	0
Turkwel	0	0	0
Lokitaung	0	1	0
Nakukulas	1	0	0
<b>Totals</b>	<b>10</b>	<b>7</b>	<b>1</b>

There are more slaughter slabs that are not housed than those housed. The next stage should be to increase the number of housed and larger abattoirs and reduce the number of open slabs. There places like Lokirama and Turkwel and others not mentioned here where there are neither open slabs not housed slabs. For these areas slaughter slabs should be constructed to facilitate hygienic slaughter and handling of meat.

### 3.8. The unique selling points for livestock from Turkana County

This section describes an analysis of the competitors of Turkana Livestock Sub sector, and identifies the basis of their competition. It summaries the existing unique selling Points (USP) of meat from Turkana livestock. It further identifies the perception of consumers on Turkana

Livestock products. Advice on the benefits that can be accrued from branding of Turkana livestock products and advice on the branding modalities.

The study identified the following unique selling points of Turkana goat meat:-

- I. Meat from Turkana livestock is tender and succulent
- II. Meat of livestock from Turkana is very tasty due to the special salt licks
- III. Meat of livestock from Turkana is natural due to limited use of chemicals/drugs
- IV. Consumers in the Middle East prefer 8 – 13 kg carcass weight and Turkana goats and sheep meet this requirement. A smaller carcass is perceived to be young and this market prefers light and lean goats and sheep. These are considered to be the highest quality and consequently receive the highest prices in the market.

The feeling of consumers is summed up that the meat is tender (due to limited movement) and salty endowing the meat with a very unique taste. These characteristics can be exploited by breeding for size and for adapting to the harsh climate through genetic characterisation.

Supply to Nairobi is synergistic with those from Marsabit and the North Eastern Garissa due to the shifting rainfall pattern. Livestock from Turkana are in [prime condition 2-3 months before those from Marsabit and North Eastern. However, since meat is sold per kilogram, traders in Nairobi prefer the larger/heavier Galla goat as first choice, followed by goats from Marsabit for size and therefore profit differential. It was reported that goats from Turkana are smaller in size reaching a maximum of 32Kg live weight hence (16kg carcass weight). The consumers who have tasted the Turkana goat, however, prefer and ask for the Turkana goat meat by name. Beef is also preferred due to its salty taste although the profit is incomparable due to the realance of the trader networks. On the other hand, there is a perception of diseased meat due to the quarantine and for slaughter cordon blanket that has been in effect since colonial times. This is made worse by the porous border that is an entry point for livestock diseases including PPR,CCPP and CBPP.

### 3.8.1 Livestock and Livestock products branding strategies

The prime product from Turkana is goat and this is what can be focused upon and through branding and labelling it can be promoted for niche markets. Brands generally serve as a tool to provide consumers with a possibility of distinguishing among products that do otherwise not differ in their visual appearance. Branding as a strategy should have a long term perspective and be done gradually. Strong brands outlive generations but take time to be built. Branding Turkana meat and meat products requires a three pronged approach

1. Branding Turkana County as the ideal meat producer and exporter
2. Branding the Lomidat as a meat business.
3. Branding of the specific products being offered to the markets.

Branding strategies for both the Livestock and meat products can be done through:-

- **Brand name creation strategy:** A name is the basic core indicator of a brand. It is the basis for both awareness and communication efforts that reinforces the Livestock brand in the consumers mind. A brand name should be unique, easy to recall and with useful associations. In this case, the Turkana County livestock industry may choose to craft a name that uniquely identifies and position the Livestock and meat products from the rest of the competitors. One such suggestion is Turkana County meat (Tru - meat) similar to AUSTMEAT for Australian Meat.
- **Perceived product Quality Positioning strategy:** Product quality positioning as a strategy has a direct impact on the products performance: thus, it is closely linked to customer value and satisfaction. In the narrowest sense, quality can be looked at as "freedom from defects" i.e. an animal without any blemish whatsoever. "Quality is when our Livestock customers come back but not the animals." Quality differentiation can be achievable through adoption of globally recognized Total Quality

Management<sup>4</sup> (TQM) Standards by the entire Turkana County Livestock industry with traceability as the key overriding platform.

- **Brand associations' strategy:** This strategy aims to establish a relationship between the Livestock and meat brand and the customer by generating a value proposition involving functional and/or emotional benefits. For instance there is a widespread belief in the goats browse on medicinal herbs and naturally confers immune to many pests and diseases. As such, consuming their livestock will also impart to the consumer such added functional and emotional benefits of good health not easily associated with other livestock brands from other countries.
- **Use of Trademarks and Symbols strategy:** Most livestock and meat products are fairly similar. In such cases, the symbol becomes the key differentiator characteristic of the brand. Adoption of Fair trade standards and the subsequent use of their trademarks and logos need to be considered as a branding strategy on meat products packaging.
- **Country of Origin as a branding strategy:** This strategy aims to associate the specific livestock or meat brand with the County or region of origin, Turkana County in this case. This linkage serves to add credibility to the Quality and value propositions and brand associations already advanced in the product communication strategy. This may be due to the fact that the region has an inherent heritage of producing the best livestock and meat product classes.
- **Concern for the environment as a branding strategy** The green livestock production techniques need to be emphasized in the brand positioning and communication strategy. Turkana livestock are produced under natural forage and pasture with no synthetic additives for boosting production.

For effective branding of meat, the market has to be mapped to identify the main actors, how the meat market chain is organized, who are the major competitors (national and international). Second, an understanding of the existing consumer segments in terms of their wants recharging concrete product attributes in terms of their wants (positive products attributes), their major purchase motives (values) and desired benefits and the way these are linked in a means end structure. Third, it is imperative that the county investigates how the meat could be differentiated in a consumer led way with the consumer demand translated into objective, measurable product characteristics, which can then be used for product development or product differentiation based on their biological qualities. Fourth, the market chain must be geared to handle differentiation and branding which requires greater cooperation.

### 3.9. Major production problems and constraints

Figure 3.5 below shows that there are 5 major challenges to livestock production in pastoralist areas of Turkana that are of more less equal and significance; disease, drought, lack of water, lack of pasture and livestock raids. Addressing these problems would unlock the livestock production potential in Turkana. The data used to get this Figure is in Annexure 4.

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<sup>4</sup> The Total Food Quality Model (TFQM), originally proposed by Grunert, Larsen, Madsen, and Baadsgaard (1996), integrates a number of approaches to analysing consumer quality perception and decision-making and the explanation of consumer satisfaction as the discrepancy between expected and experienced quality (Oliver, 1993).

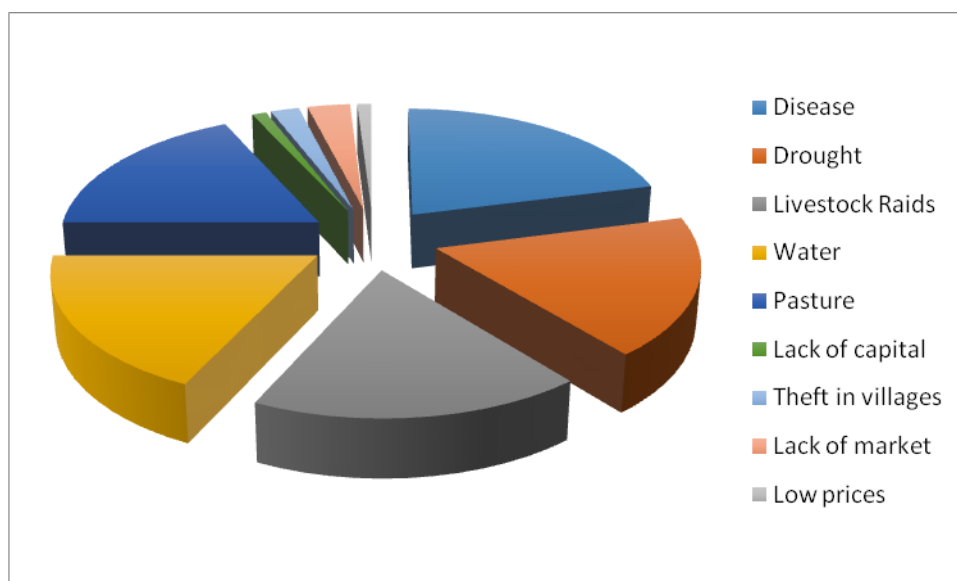


Figure 3.5: Major production constraints and challenges

Livestock movements, limited access to veterinary services and sometimes insecurity are considered as the predisposing factors contributing to occurrence of high prevalence and persistence of livestock diseases. The diseases that were perceived to be prevalent in goats included mange, PPR and CCPP while in camels, mange, diarrhoea and pneumonia were said to be prevalent. Many of the major disease diseases such as PPR, CCPP, CBPP and LSD are spread during livestock raids. Drought also makes animals' congregate and thus spread diseases.

### 3.10. Constraints and inefficiencies within the Turkana livestock marketing system

Structural inefficiencies and high transaction costs within the Turkana livestock marketing system include: high transport costs 25%; lack of markets 16%; long distances to markets 15%; livestock raids and insecurity 15%; low prices 11%, local theft 8%, mortalities on way to markets 5%, lack of market information 4% and lack of capital to expand business 2%. This is illustrated in Figure 3.6 below.

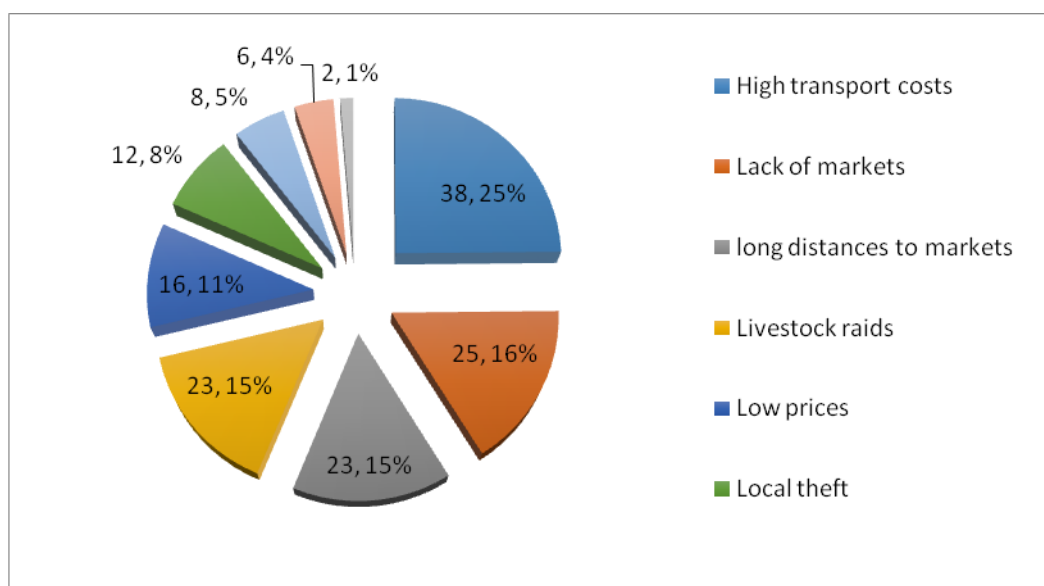


Figure 3.6: Major marketing problems

Respondents mentioned 5 major problems;

### 3.10.1. High transport costs

According to the tertiary traders in Nairobi, livestock trade from Turkana is no longer as lucrative due to the extremely high transport and transaction costs associated with transportation. It can account for as much as 70% of market transaction costs and significantly affect market performance and efficiency. The high transport costs trucking livestock from Turkana to Nairobi costs on average KSh 80,000-100,000 per lorry capable of transporting 220 - 350 goats or 35-40 cattle. Larger trucks and rising demand can see the costs escalate to between KSh 110,000 and 180,000. High transportation costs remains the biggest impediment to livestock market development in the county since transporters depend nearly entirely on return trip from contract delivery of relief food to Lokichogio and other areas are returning to Nairobi empty.

According to the respondents in this study from Nairobi, Lodwar and Lokichogio, it costs between KSh 350 and 400 per animal from the markets in the north eastern Turkana to Nairobi. During the long journeys, the traders include additional costs such as *Harrass* (caretakers), bribes, feed, cleaning of trucks, may also incur higher livestock losses, both mortalities and loss of condition, loading and unloading fees. Based on this study, the Turkana prefer to market their in local markets rather than get engaged in the long distance market with all its inherent risks.

LMA members from Kalemnarok also quoted the cost of hiring transport to move livestock to markets in Kenya's Western Province. Accessing Bungoma and Chwele cost the LMA KES 40 thousand, while accessing Bomala and Busia cost KES 50 thousand/lorry. Both Kerio and Kalemnarok LMAs were insistent when indicating that transportation costs swallowed the largest share of the profit. Ultimately, traders associations do not have the savings or access to credit to buy a truck of their own.

In addition to the movement of livestock both within, and primarily outside, Turkana by lorry, livestock, particularly goats, are also transported by 'bush taxi' was KSh 100. Ultimately, only 1-2 trucks of livestock leave Turkana for Nairobi. In attempts to keep out of pocket transaction costs low, trekking is still a preferred mode of transport, especially to secondary and primary markets.

### 3.10.2. Lack of markets

The Livestock raids at strategic livestock export exit points from Turkana leave Turkana hemmed in and suffocated within the county. With the natural flow of livestock outside the border towns blocked by the hostile and violent livestock raids, it leaves the livestock markets forced to rely only on internal local markets. The laws of supply and demand dictate that excess livestock from within Turkana County be exported outside into the neighbouring countries and Kenyan Counties.

Livestock raids have thus hampered cross-border livestock trade between Turkana and her neighbours. It is not clear why these markets are blocked; is there a very lucrative market beyond the borders that is being protected by the raiders? What exactly is motivating these raids all around Turkana? Is it because the raiders find something valuable in Turkana livestock that the Turkana people do not see? Or is there a lucrative market out there that the Turkana people are not aware of and hence are susceptible to being robbed of potential trade benefits? All these and many more questions should be answered by a detailed analysis of the terminal markets. Data collected from that analysis should answer these questions and will be incorporated here in the report. We acknowledge that there is a gap here and hence this area requires further research and analysis.

### 3.10.3. Long distance to market

The external markets for Turkana livestock include Nairobi, Nakuru, Kitale, Chwele, Bumala, Baringo, Marigat, Amakuriat market in West Pokot District of Kenya, Moroto market in Uganda and Juja (south Sudan). Access to these markets is constrained by poor road

infrastructure. The road infrastructure within Turkana County is largely wanting. Only the Lodwar and Lokichoggio road is good whereas all others are in poor state. Livestock destined for Nairobi markets takes between two and three days on the road. In particular, the road stretch from Marich Pass to Kainuk a stretch of 30 km in a complete state of disrepair and near impassable during the rains. Where the trucks have to access interior towns to collect stock such as Lokitaung and Kaaleng, among others, the roads are generally in poor state and the wear and tear increases hence forcing the transport owners to impose high charges (ITDG 2005).

An ESIA has been done and plans are in place to rehabilitate it under the Northern Corridor to Juba South Sudan and it is hoped that this were implemented soon. Roads and means of transportation are essential to diffusing knowledge and technology, which facilitate the development of communities (either rural or urban). Banditry is associated with inaccessibility and remoteness of the road and slow speeds of transport. In addition, poor road infrastructure also impedes the control of livestock diseases and livestock raids (Ajele 2005). Key security concerns along the stretch include livestock raids and inter- and intra-community clashes, and sporadic insurgency from Uganda and internal conflicts between the Turkana and Pokot communities. Improving the road would allow (i) rapid deployment of security forces to areas with security concerns; and, (ii) fully integrate the Turkana region in the Kenya economy.

Locally, there are efforts to reduce the distance to be covered by the animals. This is being done in several ways: i.e. by establishing markets or processing facilities closer to the producers. The Lomidat abattoir is an example of establishing a market close to the producers. It has since established collection centres in collection centres Lokori, Namurupus and Turkwel and buying centres. Five satellite market centres to source animals for the abattoir were built on livestock migration routes in Kanakurudio, Letea, Lokangae, Lokori and Namouroputh and a sales yard at Kakuma has been rehabilitated. By organizing collection points where individual producers can deliver their animals, the animals or products are bulked before they are loaded onto a vehicle for transport to Lomidat.

#### 3.10.4. Livestock raids<sup>5</sup> and Insecurity

The practice of livestock raids, rampant amongst pastoralist communities in Kenya and sometimes occurs across borders, influences pastoralists' decision to migrate and also their herd sizes. It destabilizes communities and undermines their normal livelihood strategies, thus contributing to increased poverty.

Traditionally, livestock raids were precipitated by the need for payment of dowry and accumulation of general wealth, retaliation against past attacks, tribal-based politics from the late 1970's to date. Today livestock raids are caused by cultural pressures to respond to climate change-related and unrelated resource degradation, competition and scarcity of resources in the form of water, pasture, land resources and livestock assets for the Turkana. The proliferation of small arms, as well as the rise of the commercial trader networks play a key role in the conflicts between the Turkana and her neighbours<sup>6</sup> (Figure 3.7).

- a. The Pokot from Kenya in the south of Turkana through Kainuk
- b. The Tepeth from Uganda in the Western border
- c. The Morotho from Uganda in the north west border
- d. The Toposa and Murule from Sudan in the North West border
- e. The Samburu and the Baringo from the Eastern border
- f. The Merile from Ethiopia in the Northern border

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<sup>5</sup> Cattle rustling" means the stealing or planning, organising, attempting, aiding or abetting the stealing of livestock by any person from one country or community to another, where the theft is accompanied by dangerous weapons and violence.

<sup>6</sup> The access to and control of land and valuable land based resources including productive pastures, water and farming land is crucial in the occurrence of violent conflicts across the continent of Africa.

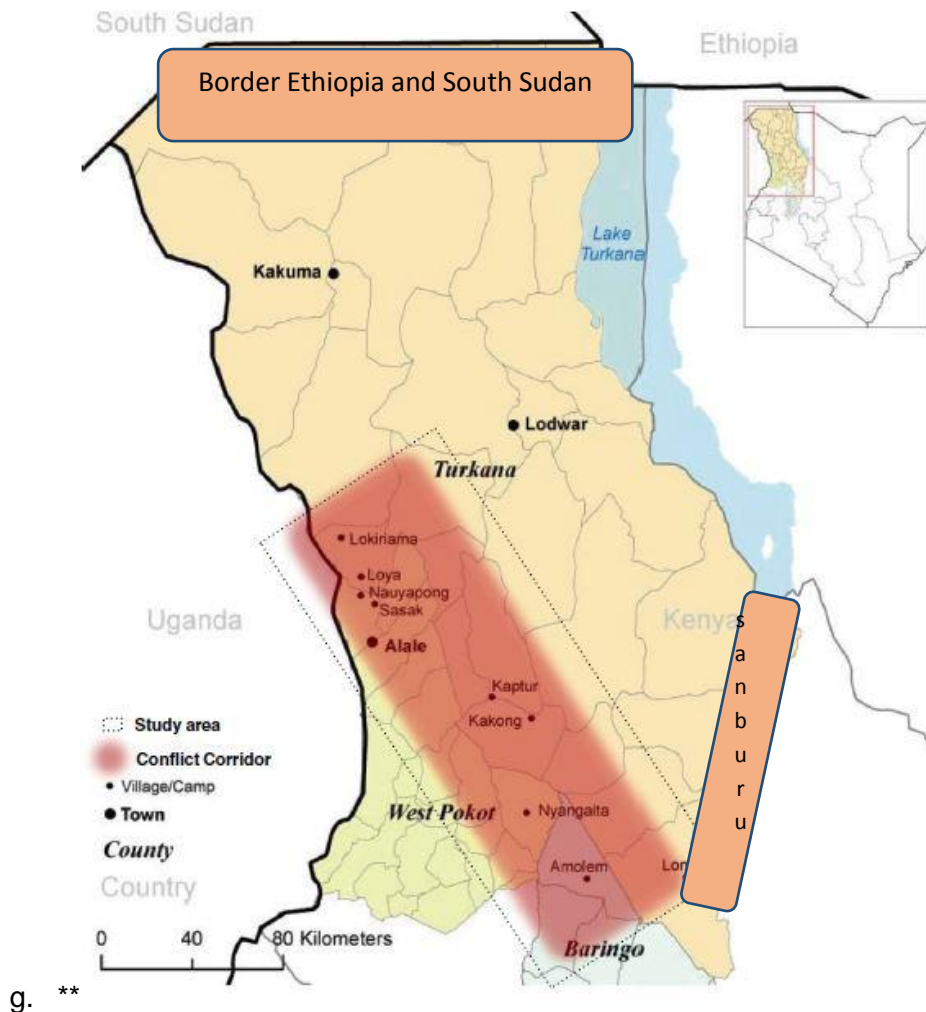


Figure 3.7: The security corridors in Turkana County (Source: adapted from Schilling et al 2012)

From the above it is evident that there are livestock raiders from all the borders of the Turkana County except the Lokiriama and Lokichogio borders with Uganda and Sudan respectively. Cross border livestock trade from Turkana into these two countries is going on relatively well.

Presently, the most common type of livestock raids are when marauding bands of a handful to less than 15 participating raiders attack isolated or small, unprotected *adakers* or a group of animals which is only accompanied by few herders. The small bands of raiders immediately sell few animals at throw away prices thus depressing market price for legitimate vendors. The proceeds are split and use for drunkenness and debauchery. In pursuit of profit, this has stimulated the urge to buy more guns from the weapon markets. The presence of powerful business owners and politicians complicates efforts to control weapons flows and disarm civilian populations. A number of our informants, indicated that politicians in all countries of the region who arm warriors to carry out commercial raids while at the same time publicly—and hypocritically—professing their determination to disarmament.

Commercialised/profit seeking raiding is facilitated by improved access to markets, rising demand for meat as part of strong growth of urban populations. 'Traiders', or livestock traders procure the stolen animals cheaply immediately after an attack and sell in Lodwar, Nairobi Nakuru, Eldama ravine or Moroto in Uganda.



#### 3.10.4.1 *Reasons for livestock raids*

The survey team sought to understand the underlying reasons for the livestock raids in Turkana borders primarily because the raids are blocking the livestock market systems and routes within Turkana and therefore interfering with the Value Chain flow of livestock from producers to terminal markets. Another motivation for seeking to understand the underlying causes of the livestock raids was to be able to design lasting solutions to the problem as it is affecting the economic development efforts of Turkana County. The underlying reasons for the raids are listed below:

1. Livestock raids are ignited by competition over scarce natural resources i.e. land, pasture and water between neighbouring pastoral communities;
2. Drought makes the pastoralist to move into other peoples' grazing areas across the borders, and there they are raided of their livestock.
3. When the Turkana pastoralists are raided, they retaliate and the process is perpetuated.
4. Livestock is a sign of wealth and is used to marry many wives. Wealthy Turkana pastoralist can marry up to 20 wives. A young man ready to marry is given a gun to go and raid neighbouring countries and bring livestock to marry his bride. Men who do not have livestock you do not marry.
5. The raiders out of Turkana raid livestock to sell in Nairobi and other places to get money to buy good houses in the cities. This is the case with the Pokot people.
6. There is a growing trend towards local thefts/banditry within Turkana County. Local people with information of the day and time when traders are taking the livestock to other town markets will inform local thieves to rob them and then they share the proceeds. Local people believe that these local thefts are politically motivated and that the solution lies with the policy makers.
7. The Pokots have been observed to raid the Turkana people of their livestock and immediately sell the stolen livestock within Kenya and those livestock cannot be traced. It has been observed that while the Pokots are raiding the Turkana people of their livestock, the trucks and buyers are already waiting on standby to take the stolen livestock immediately to markets in Nairobi and Kampala, Uganda. A FDG indicate that in spite of having a small population of livestock the Pokot rustle livestock for immediate sale whereas the Turkana do it to replace livestock that they have lost due to drought. Those male stock stolen and taken to Pokot land are sold in other outlets e.g. Chwele, Baringo, Mogotio, and Nairobi (Njiru market and Dagoretti). The livestock are distributed either 1 or 2 animals per person to ensure collective responsibilities and shared criminality/blame. Small stock are immediately slaughtered at the backyard of behind restaurants, butcheries and hotels after being laundered with a few animals purchased at the local markets i.e. buy 5 but slaughter 20 and collision with veterinary department for permits. The milk goats given to individual families.
8. The Turkana people have been observed to raid in retaliation and keep the stolen livestock only to be raided again of the same livestock by the Pokots. Upon further probing the reasons why they keep the stolen livestock only to be raided again, the Turkana traders explained that they keep the stolen or raided livestock because of lack of markets within Turkana, and the need to revitalise their diminishing herds. The Turkana traders also keep the raided livestock for the purpose of marrying more wives and for social reasons. It would appear that livestock in Turkana has more social value than economic value and this explains why they keep stolen livestock instead of selling.

#### 3.10.4.2. *Human mortalities during livestock raids*

An important aspect of all livestock raids that seems to be ignored is the fact that for every raid human lives are lost. Raiders are fully armed with live ammunition against livestock herder. In both Kokuro and in Kainuk key informants interviewed indicated that 5-10 people

are killed per week. Respondents indicated that sometime 50 people are killed per raid in Kainuk. On average 50 people are killed per month in the dangerous areas.

During the Lodwar stakeholder workshop there was mixed reactions to these human mortality figures and some participants felt that these figures were too high and unrealistic. Other participants confirmed the validity of the mortality figures and mentioned that in Kaptil 6 people were killed; in Lokoye 9 people were killed and 27 people were killed in Turkana South this year. These figures however need to be confirmed with government officials.

The livestock raiders “kill women and children indiscriminately and death happens every day. Women coming from fetching water and firewood are shot dead. Day and night they kill us” said Christine Ikai Ewoton, a key informant in Kokuro. Such hostility and violence has serious negative impact on livestock trade and markets in Turkana. Livestock traders are forced to market internally because of the hostile environment in the markets.

#### 3.10.5. Low livestock prices for producers

The number of terminal market traders operating in Turkana are minimal. When they do venture into Turkana, they generally offer low prices, as they have to shoulder security-related risks. When the risks are high, traders are unwilling to pay good prices for livestock (ITDG 2005). Pastoralists are also deterred from trekking to distant markets, such as Kakuma and Lodwar, where they would expect to receive higher prices. Interestingly, it is not just the main difficulties associated with transporting livestock in Turkana is theft. The elite traders forming the LMAS have coalesced into broker cartels. They operate by shielding the auction yard from producers. Such traders await them on the trekking route close to the market but before reaching, or on arrival at, the market and badger livestock owners into selling the livestock to them before reaching the market. Once at the market, livestock change hands between such traders 5-7 times (within the sale yard) increasing the cost between KSh50 and Ksh100 and thus the transaction cost but up to Ksh1000 before it reaches the final buyer (butcher or export trader).

### **4.11. The Role of Women in the Turkana Livestock Value Chain**

#### 4.11.1. The Traders

The number of traders depend on the size of the market towns and the larger the town the larger the number of traders. Men dominate the livestock trader business ranging from 65% to 100% in different markets. Women currently play a less significant role in this section of the chain. In some towns like Kainuk and Lokirama there are no women traders. The proportion of women among traders is markedly small ranging from 0% to 10%. Nakukulas is exceptional where the proportion of women is 38%. This indicates that there are very few women traders in Turkana but this can increase with proper incentives and financial support and promotion of women engagement in the livestock trading business. Figure 3.8 below shows the proportion of women traders to men traders in Turkana. Detailed data is in Annexure 6.

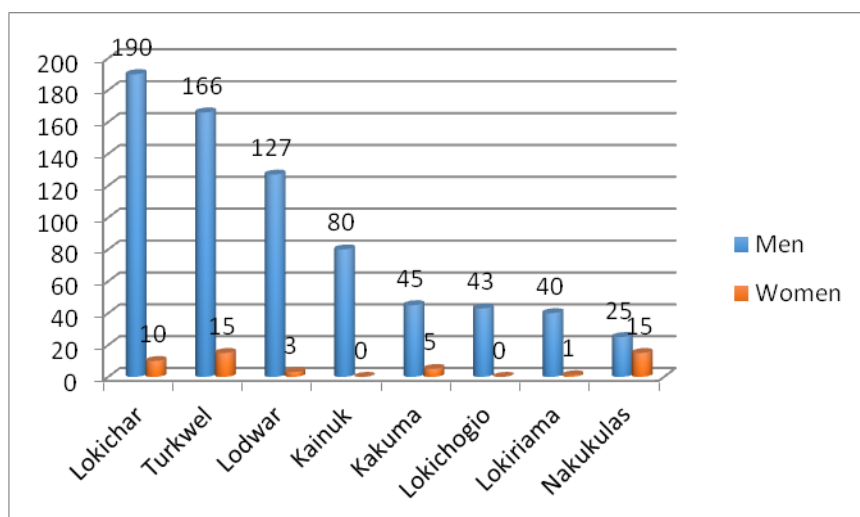


Figure 3.8: Number of male and female traders per town market

### 3.11.2 The Butcheries

The butcheries are women dominated with 76% of butcheries being owned by women and only 24% owned by men. While there has been some significant investment in sale yards and slaughterhouses, the team observed that there has been no investment in butcheries. The butcheries are open places where meat is placed and sold, and lack basic infrastructure for meat handling and hygiene. Meat handling and hygiene rules and regulations are not observed or enforced. Table 3.11 below shows the number of butcheries disaggregated by gender.

Table 3.11: Butcheries owned by men and women

Butcheries			
Town	Number	Women	Men
Lodwar	30	25	5
Lokichar	30	20	10
Kainuk	20	18	2
Kakuma	40	30	10
Lokichogio	20	16	4
Lokirama	2	0	2
Turkwel	8	5	3
Lokitaung	9	7	2
Nakukulas	7	5	2

<b>Totals</b>	<b>166</b>	<b>126</b>	<b>40</b>
<b>Percentage</b>		<b>76%</b>	<b>24%</b>

Turkana people prefer the hot-chain meat to the cold chain meat and hence the butcheries do not use fridges and freezers for preservation. The extreme hot and dry conditions of Turkana environment facilitate quick drying up of slaughtered carcasses and hence preserve it. However the same heat encourage meat spoilage if care is not taken to preserve it quickly. The stakeholder participants all agreed that the use of fridges and freezers would actually enhance meat spoilage.

According to the final workshop participants, the disparity between slaughterhouses and butcheries hygienic conditions is that slaughterhouses and meat processing is supervised and inspected by the veterinary department while butcheries are monitored by ministry of public health. The solution to this disparity is the need for coordination between these two government departments by improving training in meat handling techniques beyond the slaughterpoints. Without such coordination, the gains from the veterinary department in the slaughtering process are lost in the butcheries unhygienic and unsupervised meat handling.

It is important to note that butcheries are a crucial link from production to the final consumer; they link the supply and the demand sides of the Livestock Value Chain. The butcheries determine the demand levels of meat in Turkana and they also determine how much meat passes through the chain to the final consumer and hence they trigger the demand-pull within the chain. As such it is important to invest in the butcheries, to improve them, and to ensure their monitoring and supervision by the relevant ministry or department. Improved butcheries constitute value addition in the livestock meat chain.

The butcheries meat selling prices varies from 240KSh/kg in Lokirama to 350KSh/kg in Lokitaung. Prices in Lodwar differ from butchery to butchery from 300KSh to 500KSh/kg. Detailed price analysis is found in Annexure 9. The butcheries are profitable from the gross margin analysis figures in Annexure 9.

### 3.11.3. End Consumer

Turkana currently supplies animals to the local meat consumer and to the external consumer. The needs of these two types of consumers are different. The Turkana livestock value chain actors needs to be well informed about the different needs of these two consumer segments and how to maximise returns from both segments.

### 3.11.4. The local consumer

The local consumer is not sophisticated. A rapid consumer survey in Lodwar showed that the local consumer consumes less than 0.5kg of meat per day and buys goat and sheep meat at 350-500KSh/kg. The local consumption can be increased with meat campaigns. Feedback from the stakeholder workshop in Lodwar: the demand for meat in Turkana County is higher than supply, and hence the market for meat and livestock is guaranteed in Turkana County. However, it is essential to compare meat prices in consumption area against the non-meat consuming areas. Prices of 300-420KSh/kg in Susawa, Mabera, Migori, and Garissa compared to 300-500KSh/kg in Turkana. It is important to carry out comparative price and market analysis between Turkana and all the terminal markets.

Through the Lomidat abattoir, there is potential to supply frozen meat cuts to the cold-chain market in Nairobi, Dubai and Saudi Arabia. This would necessitate using airfreight from Lokichogio to the export and external markets. This requires further analysis before embarking on this as the airfreight costs could be prohibitively high. Prices, volumes and quality requirements and preferences of the export consumers would have to be analysed in detail. Competition from other countries like Australia and New Zealand would have to be assessed and factored in before embarking.

### **3.11. Gender-responsive strategy in the Turkana LVC**

The study identified women playing a key role in three areas of the LVC: in the production section; in the trading section; and the butchery section. Gender-responsive programming in these areas is highly recommended.

Livestock ownership in the pastoralist areas is a joint venture between the Turkana men and their wives. As such the production improvement strategies recommended above will benefit the women pastoralist producers and their families. The study showed that livestock income is used primarily to take care of the household needs in the production areas.

The livestock trading business is the most active and lucrative business in the Turkana LVC and few women are involved in this section. Livestock trade business involves long distance travelling to markets on foot. The security situation is dangerous for women. In addition most women mentioned lack of start-up capital. A gender-responsive strategy that addresses these issues will increase the number of women participating in livestock trade businesses. Security improvement in Turkana will boost women participation in livestock trade.

Women dominate the butcheries in the Turkana LVC, and this section of the LVC is underdeveloped in terms of infrastructure and the required meat handling and meat selling facilities. It is therefore recommended that investment be channeled to improve and develop the butcheries by supporting the women involved in this section. Microfinance products are required to assist the women butcheries to grow their businesses.

Women are very efficient in utilisation of the carcass of sheep and goats. Other than their role of purchasing livestock for slaughter, they prepare white offal's for consumption, skin for drying, feet, cleaning hides and skin for meat. It is recommended that investors be encouraged to set up commercial meat processing factories to process meat into various value-added products for both local and export markets so as to enhance utilization of meat by-products (offal, viscera, blood and bones). It is imperative for gender sensitivity to replicate the meat selling point concepts with common cold-storage points.

Women are very efficient in utilisation of the carcass of sheep and goats; they prepare white offal's for consumption, skin for drying, feet for consumption, they clean and sell hides to skin and hide traders; they clean and prepare skin for meat. A gender-responsive strategy should look at assisting women to develop the utilisation of skins and hides; meat offal; into viable and profitable micro-enterprises. It is recommended that investors be encouraged to set up commercial meat processing factories to process meat into various value-added products for both local and export markets so as to enhance utilization of meat by-products (offals, viscera, blood and bones). It is imperative for gender sensitivity to replicate the meat selling point concepts with common cold storage points.

The Turkana LVC Map summarising the livestock movements and major constraints is in figure 3.9 below:

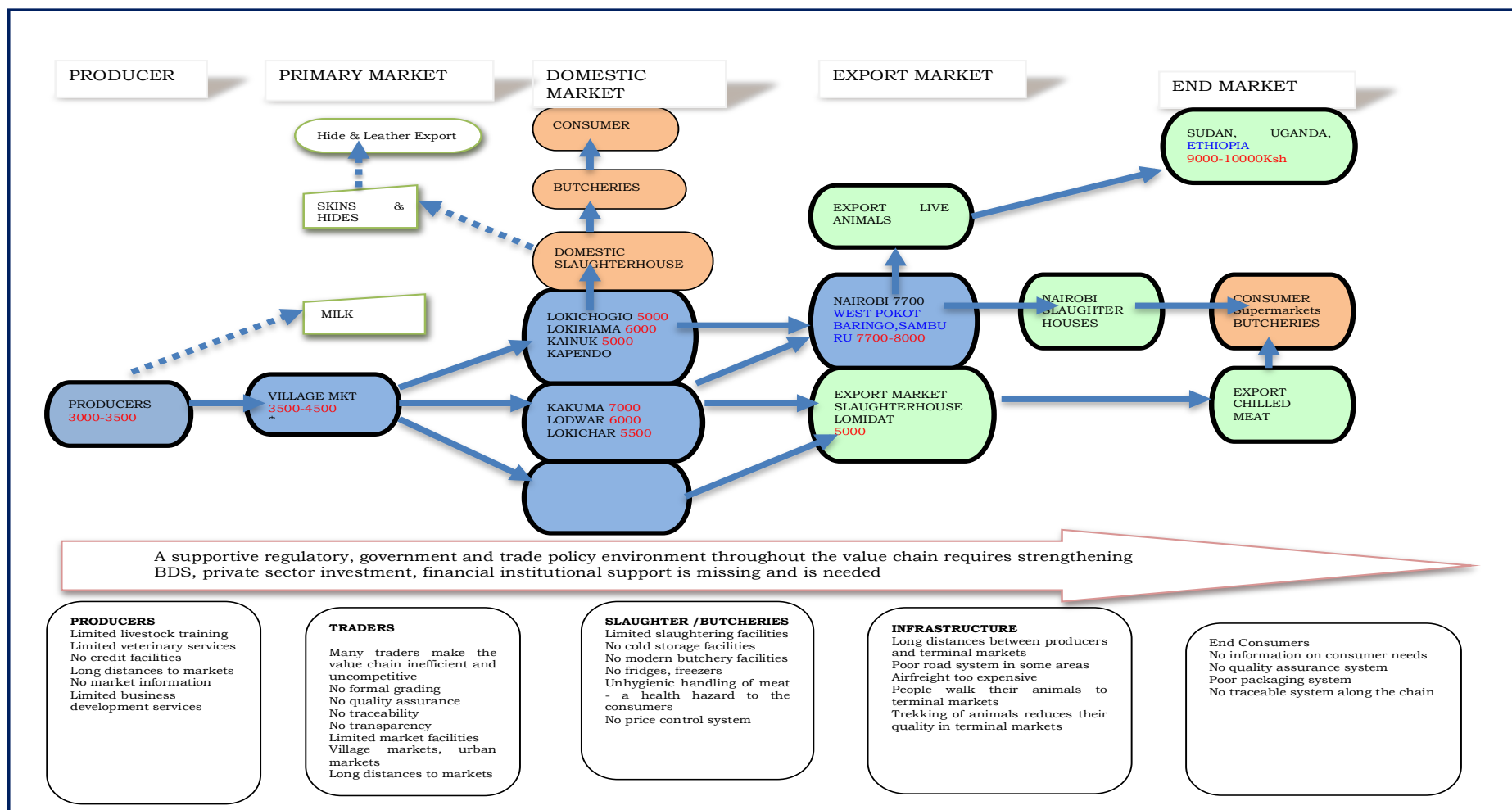


Figure 3.9: The Turkana Livestock Value Chain map: actors and product movement and constraints

## 4. RECOMMENDATIONS AND PROPOSALS FOR INVESTMENT IN TURKANA COUNTY LIVESTOCK INDUSTRY

### 4.1. First scenario: Business-as-usual (status quo)

#### 4.1.1 Description of the status quo

This represents a counterfactual state with the county ignoring the opportunities to increase production, productivity and profit making. In this state no new investments are made to target the new market opportunities. In other words, the livestock sector is left to its own trajectory.

#### 4.1.2. Trends in livestock sector without any new investment

Turkana county produces and sells (i) live animals (mainly shoats and cattle) in the intra-county market (Kakuma, Lodwar, Lokichar) and to the extra country market (Nairobi, Chwele, and Bumala) and export market (Moroto, Uganda and Juba, South Sudan); (ii) hides and skins for the domestic markets; (iii) meat (beef, shoat and camel meat) for the local market; and extra-country through Lomidat.

It is, however, difficult to specify the actual offtake number of Livestock County but calculations based on household numbers indicate that between 934,530 and 1,401,795 per annum are consumed. Of these, 25,520 goats are transported live to Nairobi. The total revenue of shoats consumed from Turkana count is KSh 4,269,186,080 of which that accrued from Nairobi is Ksh 178,640,000. The implication is that Nairobi consumes merely 4% of the counties offtake.

The figure KSh 4.3 billion indicates the importance of livestock in the economy of Turkana county under current trends.

#### 4.1.3. Consequences of the status quo

**Impact on livestock keepers' income.** The analysis of the Turkana scenario is drought guaranteed. It implies that the total livestock sales intra-county would increase very marginally not exceeding 5% without new investment. The primary concern is if the production under the *status quo* will meet actual demands in both the domestic and international markets.

**Impact on employment creation.** With the actual growth in livestock population shown and using the value addition per animal sold in the local market. The increase in total value addition from livestock sale in the NEP will be about Kshs 29.1 million. The minimum wage in the agriculture sector is about Kshs 30,000 per year.

Assuming that all the value addition goes to job creation, total value addition will create only about 1,000 jobs per year. For instance, with a population of about 1.2 million, and an employment rate of about 36% in the Turkana for 2014, the growth in the livestock sector could increase employment only by about 0.12% per year in the County which is only a tiny contribution towards reducing unemployment.

**Impact on food security.** Turkana County has traditionally been the face of droughts in Kenya and of famine relief. Turkana has the highest, i.e. 94.3%, in Kenya (CRA, 2011). High poverty levels keep levels of household food insecurity high, with poor and very poor households resorting to curb practices (charcoal burning and banditry) with inadequate household support. In the 2010-2011 drought for example, it only 49% of households in Turkana owned livestock, which contributed only 1% of income for household expenditure requirements for those households with livestock. This was as a result of drop out from pastoralism. Thus, while enhancing and strengthening the pastoral sector (livestock production sector) in Turkana, the higher priority in terms of food security is development of alternative livelihood opportunities e.g. fishing and basket weaving in the short-term. This is because most Turkana households (51 percent) derived their household income from cash

transfers and from labor provision. More emphasis on alternative livelihoods in Turkana (with 94.3% poverty rate), for those without livestock, would probably be priority.

**Other effects.** Implicit in the analysis of the *status quo* scenario is that it is likely to make Turkana loose to the cheaper inflows of better conditioned higher quality imports from south Sudan, Somalia and Ethiopia particularly for cattle. It further implies that Turkana County will continue to be largely isolated from extra county markets and limit contribution of the county to the overall economy. Another major setback from the *status quo* is the lost opportunity to capture the spill over effects on research and development in livestock breeding such as the genetic characterisation by International Livestock Research Institute (ILRI) and creating employment from slaughter and value addition across the whole county.

## **4.2. Second scenario: Focusing on intra county domestic demand-led growth**

### **4.2.1 Drivers: Domestic market opportunities**

This investment scenario focuses on the option of stimulating intra county demand for livestock and livestock products as a way of encouraging livestock sector-led growth in the Turkana county. In this case the emphasis will be to produce enough livestock merely to meet internal demand.

In this scenario, we evaluate the potential for domestic demand for livestock products e.g. meat, which implies and includes demand for live animals in response to the growing urban population. Turkana pastoralists and traders prefer to service the intra-county demand since the market is less stringent compared to the external. This minimises transport and other transactions costs, thus giving a competitive edge to the local producer. Such investments targeting intra county demand are thus of critical importance.

### **4.2.2. Drivers of intra-county demand**

i. **Population growth and urbanization:** Increased population in the urban centres like Lodwar, Lokichar, Kakuma and country as a result of rural urban migration in pursuit of better opportunities. The livestock revolution (Delgado et al. 1999) projects that the demand for meat is set to double by 2020 largely due to high population growth. Furthermore, with livestock demand much higher in urban areas, increasing urbanization is also likely to contribute to stronger demand. Indeed, it is estimated that 43% of all beef and about 33% of shoaat meat in the country is consumed in urban areas (AU/IBAR and NEPDP 2006).

ii. **Increasing incomes:** A growing middle class with greater amounts of disposable incomes tends to consume more animal protein. As the economy strengthens and per capita income increases, a growing upper and middle class, whose average food basket includes a greater proportion of livestock products, will result in increasing demand for meat and other livestock products.

iii. **Increased tourism activity and economic exploration and exploitation of oil:** Tourism is one of the main economic activities in Kenya. Tourism has a positive impact on the livestock sector because it increases domestic demand for livestock products. Hotels and resorts are a major customer for livestock products, especially in Lodwar and its environs. A robust and growing tourism sector is likely to be enhanced since the simultaneous discovery of underground aquifers and oil in Turkana. Both the water and oil will be exploited economically leading to urban growth and increase disposable incomes.

## **4.3. Proposed investment strategies for the domestic demand-led investment**

The livestock sector in the Turkana County can benefit from the domestic market opportunities. This, however, requires a structural change through large investments in livestock production, marketing, processing and value addition and distribution. Some of the important investment strategies are described below.



**Increased production and productivity.** To meet the increasing domestic demand for meat in Kenya, the Turkana County could aim at increasing the weight of carcass per animal (productivity). For instance, at a projected meat consumption of 30 kg per person in 2020 according to Delgado et al. (1999), total meat consumption in Kenya would be about 1.8 million tonnes per year. The population of Turkana can be projected to increase to 1325868 in 177588 households in 2020. Using the estimates of consumption 2.7 million shoats equivalent.

**Implementing the Farmer managed Natural Regeneration:** rangeland degradation and charcoal burning poses a serious threat to natural resource. NRM awareness and rangeland rehabilitation should be done through FMNR concept. Farmer Managed Natural Regeneration (FMNR), are a set of simple practices whereby the existing vegetation on degraded lands is identified, managed and protected so as to regenerate naturally and increasing vegetation greenness/vegetation cover from the latent stock of underground seeds and root systems. The involved practices in which selected trees and woody vegetation are trimmed and pruned to maximize growth, whilst optimizing growing conditions for annual crops (such as access to water and sunlight through planting indigenous tree species, making of semi-circular soil bands and stone check dams). This is noted as a most effective way of restoring natural biodiversity. FMNR has become a potent tool in increasing food security, resilience and climate change adaptation in poor, subsistence farming communities where much of sub-Saharan Africa's poverty exists (Figure 4.1).

Table 4.1: Benefits of FMNR

Economic benefits	Social benefits	Environmental benefits
Increased fodder from edible leaves and seed pods, and in some cases increased regeneration of grasses useful for cut and carry model	Increased food security and nutrition (including native fruits, nuts and seeds available to their children)	Reduced soil-erosion due to wind breaks shading and mulching
Reduced impact from floods and drought due to check dams and semi-circular contour bands making impacts of surface run off less severe and recovery faster	Community capacity building to engaged with local, regional and national governments and implementing agencies	Increased soil structure and fertility through deposition of greater quantities of organic matter
Economic flow-on effects such as employment and greater purchasing capacity through Cash for work	Improved governance through implementation of community environmental by laws and regulations	Enhanced resilience to climate change by Increased biodiversity, environmental restoration and tree cover
Increased economic activity creates opportunities, e.g. development of new business models such as cooperatives	Education and training in FMNR and products marketing	Increased water infiltration and groundwater recharge

**Establishment of long lasting aquifers, water pans or dams from the underground water reservoirs:** Lack of water is a serious threat during drought yet Turkana has underground water three times the size of Lake Victoria. "Two aquifers – the Lotikipi Basin Aquifer and the Lodwar Basin Aquifer – were identified using advanced satellite exploration technology estimated to contain more than 250 billion cubic meters of water and can

replenish themselves to sustain withdrawals of 3.4 billion cubic meters annually. Kenya uses 3bn cubic metres per year. Combining this with the model of Sri Lanka of constructing huge water pans should be considered.

Sri Lanka has vast dry low-lying plains irrigated using traditional micro-(or meso-) watershed management system referred to as the Tank Cascade System (TCS). Such systems have capacity to retarded negative consequences from chronic and recurrent droughts, seasonal flooding, land degradation and enhanced the food security while helping to attain self-sufficiency in food production. Each of these cascades delineates a distinct small watershed or meso-catchment ranging in extent from 13 to 26 km<sup>2</sup> with an average of 20 km<sup>2</sup>.

**Improving the quality of livestock through genetic characterisation:** This aims to characterise indigenous genetic resources of both forage and livestock, identify useful adaptive and productive traits for livestock production and promote utilisation of indigenous resources as part of a sustainable small holder production. This should be used instead of selection and breeding and subsequently use either buck schemes, artificial insemination or embryo transfer to spread the progeny faster for larger, fast maturing and meat animals yet able to resist the shocks of climate change. Already the unique selling points for the goats have been identified as sweet with unique taste of goats and cattle as well as tenderness of the meat. However the disadvantage was that the animals have small, sizes gaining a maximum weight of 16 kg dressed carcass weight. This becomes a disadvantage compared to livestock from North Eastern province and Marsabit that are much larger. ILRI could be engaged to support rapid improvement of breeding for large animals of the same quality, provision of sustained veterinary service delivery, supplemental feeding by raising fodder development schemes or better utilisation of crop residues, and the creation of feedlots to fatten underweight animals

**Pastoral field schools in Turkana for fodder production and sustained animal health and extension:** Terra Nuova and Vétérinaires Sans Frontières-Belgium worked with the Lomidat slaughterhouse to promote fodder production. These organizations ran field schools where pastoralists learned how to grow various native grasses: *Cenchrus ciliaris*, *Chrysopogon plumulosus*, *Cymbopogon* sp., *Enteropogon macrostachyus*, *Sehima nervosum* and *Eragrostis superba*. The initiative built fodder banks and started a programme of seed multiplication. The seeds were harvested and the field school participants learned how to make hay bales. Seeds were harvested from the plots and sown in a new location (the original plots regenerate). Repeating this process expands the area sown with these grasses. Areas planted so far include Naweregai, Kapelbok, Lorus, Riokomor, Pokot Central, Amolem and Termach. PFS is also effective in disseminating disease control knowledge amongst pastoral communities.

**Introduce livestock insurance<sup>7</sup>:** Turkana County can support the implementation of livestock insurance schemes. The International Livestock Research Institute (ILRI) has developed computer based an insurance scheme that collates avoids satellite images of the vegetation (NDVI) to the expected levels of livestock mortality. The insurance pays out if the model predicts that 15% of the animals will die for lack of fodder. Already this has been piloted in Marsabit district in northern Kenya. Pastoralists pay about between 3.25 and 5.5% of the animals. This is \$1 to insure a sheep or goat, \$10 for a cow, and \$14 for a camel. Twice a year, at the end of the long dry season in September and after the short dry season in February, the computer model calculates whether the 15% threshold has been reached. If so, it automatically triggers a payment to the relevant policyholders without submission of a claim.

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<sup>7</sup> More information: <http://tinyurl.com/ltardo4>, <http://tinyurl.com/kmxuncl> (Marsabit); <http://tinyurl.com/kkd9snf>, <http://tinyurl.com/qc8hfnj> (Kilimo Salama)

Kilimo Salama insurance for dairy farmers undertakes a similar scheme paid out through MPESA. This scheme was developed through the Syngenta Foundation, was expanded to cover dairy cattle under an arrangement with Heifer Kenya and the Tanykina Dairy Cooperative in Eldoret.

**Replicating the Lomidat Model:** The Lomidat model was proposed as replicable only in Lodwar and Lokichar. This should be done with caution as the high abattoir investment cost is unsustainable. The most suitable model that should be adopted is the utilisation of housed slaughter slabs with improvements. This should have capacity to slaughter even donkeys for domestic consumption.

**Branding meat from Turkana livestock:** It is proposed that these can be used for branding Turkana livestock (Turkana County meat -Tru – meat) by creating a brand name, promoting the perceived quality position for differentiation; medicinal brand associations' strategy; use of fair trade strategy; County of Origin Labelling; and, concern for the environment.

**Lower the cost of livestock transportation:** There is a direct relationship between the high transport cost and the poor state of roads within Turkana county (Watson and Binsbergen, 2008). Investment in the road infrastructure, particularly the main road that connects the main Turkana markets of Lokichoggio, Kakuma, Lodwar and Lokichar with Kitale and Nairobi, and Lodwar with Kakuma and Lokichoggio is essential to reduce the cost of livestock marketing (and access the extra county markets). In addition, there is need to drastically reduce the transaction costs. The chairman of the County Livestock Marketing Council proposed procurement of a lorry under Public Private participation as essential for rapid transfers of livestock between intra country markets. Reduction of curb practices such as bribery by the police manning roadblocks' and banditry and theft will further reduce the cost of transportation.

**Improve security:** The study shows that insecurity in the county is an important constraint to profitable livestock marketing in Turkana County; to the livestock industry development and poses a serious threat to human lives. Improving security in hotspot areas along the border areas between Turkana County with Ethiopia, South Sudan and Uganda as well in the volatile border between Turkana and West Pokot, will both stabilise livestock production as well as enable profitable access to internal and external markets. The state of insecurity evidently hinders sustainable productivity by closing up access to better grazing areas during the dry season as depicted.

It is recommended that both the County Government, the Kenya Government together with the neighbouring countries – Uganda, South Sudan and Ethiopia – develop a joint regional security programme that addresses the invasions into Turkana. This is being pursued under the East Africa Police Chiefs Cooperation Organization (EAPCCO) protocol. This is because the problem is larger than a one nation problem. The Council of Ministers of IGAD decided in their meeting on the 13th of April 2007 that cattle branding should be included in the efforts of Conflict Early Warning and Response Mechanism (CEWARN) as a strategy directed towards responding to pastoral conflicts in the region. Further to this, the East Africa Police Chiefs Cooperation Organization (EAPCCO) mandated the Institute of Security Studies (ISS) through the Mifugo project to explore innovative interventions that can contribute towards the prevention, combating and eradication of cattle rustling and contribute towards the securing of lives and livelihoods of pastoralist and adjacent communities. Livestock identification using Rumen bolus plays a crucial role in tackling cattle rustling. The objectives of this Protocol are to: a). Prevent, combat and eradicate cattle rustling and related criminal activities in the Eastern Africa region; b). Systematically and comprehensively address cattle rustling in the region in order to ensure that its negative social and economic consequences are eradicated and that peoples' livelihoods are secured; c) Enhance regional co-operation, joint operations, capacity-building and exchange of information; d) Promote peace, human security and development in the region

EAPCCO Protocol on the Prevention of Cattle Rustling in Eastern Africa under Article 6 identifies livestock identification as one of the possible deterrent measures to cattle rustling through facilitating the tracing or tracking of stolen cattle. The ratification and domestication of the Protocol in the region of which Kenya is inclusive will contribute significantly to social security and stability.

**Reduce information assymetry:** The improvement of information flows would be another key improvement in livestock marketing systems in Turkana County. Lomidat sought to spearhead this by developing a sustainable Livestock Marketing Information System (LMIS) that would integrate Lomidat's quality standards into pastoralists marketing practices. The purpose was to foster ownership of the slaughterhouse and mutual trust from the local community by establishing (i) a Web Site to be developed for Lomidat Slaughterhouse which should among other things contain information on Lomidat's procurement requirements that including price, volumes and quality requirements; (ii) depending on the availability of suitable supportive infrastructure, appropriate number of stations for transforming electronic data into print to be established along the main transport corridor connecting Lomidat to livestock producers; and, (iii) Suitable distribution points for the printed information sheets should be established and publicised to the community in all villages where peripheral sites are set up. Information downloaded from the web-site would be transformed into print-form at these stations and transported to producers. The printed information sheets would essentially be brochures/pamphlets translated into the local Turkana dialect, complete with illustrations (i.e. pictures) denoting livestock of different types of grades as specified by Lomidat. In addition, the Lomidat price-quality procurement information would have restricted access by way of password. The Lomidat website would in addition be used for promotion and publicising Lomidats products and activities.

**Strengthen livestock marketing associations:** Through the LMA traders access accurate up-to-date prices and traded volumes of the livestock that they intend to both buy and sell from a system modelled on the Links system. This information should be LINKS system. However, it is challenged by the fact that traders do not fully utilise it due to their preference for sale within local markets. Improved information on rangeland carrying capacity and the NDVI is also likely to greatly assist in both strategic livestock migration decisions and livestock destocking and restocking interventions (McPeak and Barrett 2001). The strong Livestock market Associations (LMAs) could be strengthened to provide extension services being part of the Turkana elite. They could also be involved in price controls by establishing trader run butcherries in urban areas of Turkana County.

If better organised, the LMA could promote the procurement of high quality livestock from the interior to either Lomidat or a slaughterhouse in Lodwar or Lokichar. The premium stock could be introduce into fattening schemes to improve their meat quality whilst testing for CCPP and other livestock disease and subsequently forward marketing as a parallel measure to break the grip of the marketing cartels.

**Improving access to credit:** This is another essential step required to improve returns to livestock marketing for both pastoralists and traders. The CLMC obtained credit of KSh 21 million from African Development Bank of which 3 million was towards loans facilities. The CLMC provides credit to LMA Ksh 10000 to 200000. A total of 300 persons have benefited. Member of both LMA and CLMC; a trader of livestock or in livestock products; hold a membership card; Vetted by the local LMA and cleared; above 18 and of good mental health. The approvals on first application limited KSh 10000 to 50000. However, before disbursement the loanees are grouped again into 5 known to each other to provide group collateral and self-guarantee. Loans are disbursed at 18% on a revolving credit basis, based on the strength of the trader association

**Gender responsive strategy:** Women are very efficient in utilisation of the carcass of sheep and goats; they prepare white offal's for consumption, skin for drying, feet for consumption, they clean and sell hides to skin and hide traders; they clean and prepare skin for meat. A

gender-responsive strategy should look at assisting women to develop the utilisation of skins and hides; meat offal; into viable and profitable micor-enterprises. It is recommended that investors be encouraged to set up commercial meat processing factories to process meat into various value-added products for both local and export markets so as to enhance utilization of meat by-products (offals, viscera, blood and bones). It is imperative for gender sensitivity to replicate the meat selling point concepts with common cold storage points..

## **5. RECOMMENDATIONS FOR POLICY REFORM**

- The County and National Government should be lobbied to make significant improvements to the road infrastructure, provide enabling environment for livestock investment through community peace building, develop infrastructure, sensitize on environmental conservation, develop and implement disaster preparedness and mitigation, facilitate development of water harvesting structure (dams, pans, rock catchment, roof catchment ) and extraction (bore hole, reticulation) and tank cascade system.
- The county government should develop policy guidelines that strengthen community participation and public- private partnership in disease control programmes including digital pen technology in real time disease surveillance and reporting and improve livestock productivity through increase livestock productivity animal breeds need to be improved through use of superior genetics, characterization and documentation and availability of animal genetic resource and conservation, intervention by community-based organizations, NGOs, breeders, undertake relevant task related to self sustaining breeding schemes in the county be established.
- The County goveremnt should support the enforcement of environmental sustainability regulations, enhance conservation and management of resources, awareness creation and resource mobilization.
- National Government should be lobbied for a review and justification of current Contagious Bovine PleuroPneumonia (CBPP) and Contagious Caprine PleuroPneumonia (CCPP) quarantine restrictions in Turkana District
- AU-IBAR should be lobbied to support cross boder improvement of security along the West Pokot, Ugandan, Sudanese and Ethiopian borders. To bring the illegal cross border trade into legal status would require improving prices and ease of marketing domestically through major investments in infrastructure, including additional customs and banking facilities on the borders, and subsidies.
- A consultative review with stakeholders should be initiated to analyse and justify the proposed structure of county council livestock marketing fees.

## 6. REFERENCES

- AGSEC. 2000. Sourcing livestock from Turkana for the domestic and export market—A feasibility study by AGSEC Consultants for AMREF, Nairobi, June, 2000.
- Ajele C. 2005. Status of Livestock Marketing in Turkana District. Workshop in Turkana, Department of Livestock Production, Turkana, Kenya.
- Bett B, Jost C and Mariner J. 2008. *Participatory investigation of important animal health problems amongst the Turkana pastoralists: Relative incidence, impact on livelihoods and suggested interventions*. Discussion Paper No. 15. Targeting and Innovation. ILRI (International Livestock Research Institute), Nairobi, Kenya. 50 pp.
- ITDG (Intermediate Technology Development Group). 2005. Livestock market access initiative: Preassessment and feasibility analysis, North East Turkana. Intermediate Technology Development Group—East Africa, Nairobi, Kenya.
- King, A., Lawrence, M., Browne, S., Bush, J., Lecumberri, N. (2012): Livelihood Profiles: Six Livelihood Zones in Turkana County, Kenya. Report prepared by the Food Economy Group for Oxfam GB and Save the Children. 100 pp.
- Schilling, J., Opiyo F.E.O., and Scheffran, J. (2012). Raiding pastoral livelihoods: motives and effects of violent conflict in north-western Kenya. *Pastoralism: Research, Policy and Practice* 2012, 2:25 <http://www.pastoralismjournal.com/content/2/1/25>
- Snow.R. Turkana (1982). The Impact of a Highway and Famine Relief Program on a Tribe of Pastoral Nomads. Paper, April 1982.
- University of Nairobi. 2004. Livestock and meat marketing in Turkana district. Consultancy report by University of Nairobi, Department of Public Health, Pharmacology and Toxicology for Terra Nuova
- Watson DJ and van Binsbergen J. 2008. Livestock market access and opportunities in Turkana, Kenya. ILRI Research Report 3. ILRI (International Livestock Research Institute), Nairobi, Kenya. 106 pp.

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